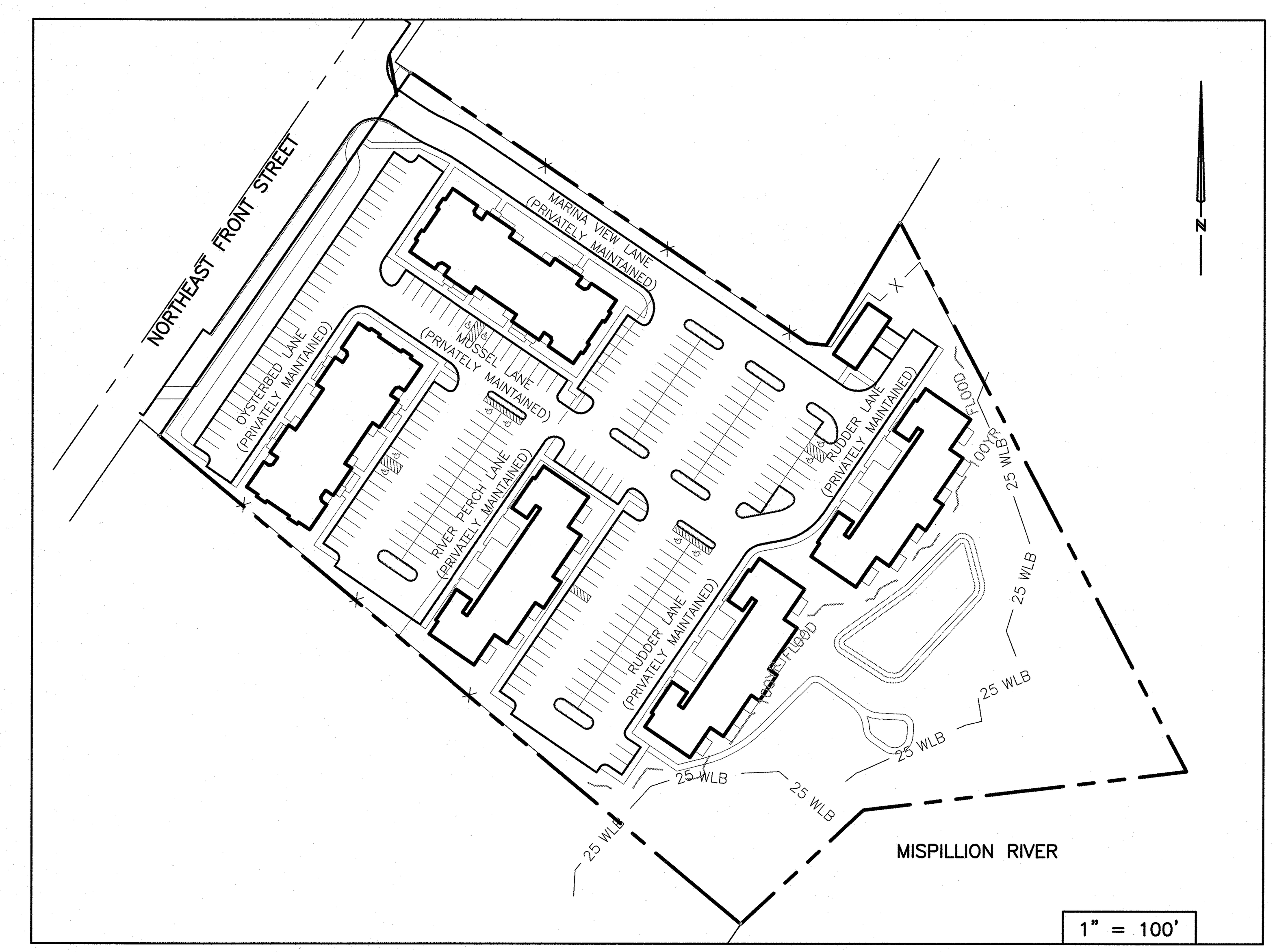
GENERAL NOTES

1. THE BOUNDARY INFORMATION SHOWN ON THESE DRAWINGS IS BASED ON A SURVEY PERFORMED BY DAVIS, BOWEN & FRIEDEL, INC. IN MARCH AND OCTOBER 2011 AND INFORMATION FOUND IN THE KENT COUNTY RECORDER OF DEEDS OFFICE. A LOT CONCOLIDATION PLAT AND RIGHT-OF-WAY DEDICATIONS CAN BE FOUND IN PLOT BOOK 116 PAGES 56-59.
2. THE SIDEWALK AND SHARED-USE PATH SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, THE PROPERTY OWNERS OR BOTH WITHIN THIS SITE. THE CITY NOR STATE ASSUMES RESPONSIBILITY FOR THE FUTURE MAINTENANCE OF THE SIDEWALK AND/OR SHARED-USE PATH.
3. A TOPOGRAPHIC SURVEY WAS PERFORMED BY DAVIS, BOWEN & FRIEDEL, INC OF MILFORD, DELAWARE ON OCTOBER 2011. ELEVATIONS ARE BASED ON CONTROL BENCHMARK #2, 6"X6" CONCRETE MONUMENT, WITH AN ELEVATION OF 8.88', NGVD88.
4. HORIZONTAL DATUM IS BASED ON DELAWARE STATE GRID, NAD83, CONTROL MONUMENTS BENCHMARK'S #1 AND 2, CONCRETE MONUMENTS.
5. 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 DELMARVA (800-282-8555) A MINIMUM OF THREE (3) CONSECUTIVE WORKING DAYS PRIOR TO ANY EXCAVATION.
6. ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MATERIALS AND WORKMANSHIP SHALL MEET THE REQUIREMENTS OF THE CITY OF MILFORD STANDARD SPECIFICATIONS FOR INSTALLATION OF UTILITY CONSTRUCTION AND SUBDIVISION PAVEMENT DESIGN, AND ALL APPLICABLE AGENCIES HAVING JURISDICTION OVER THE PROPOSED IMPROVEMENTS.
7. USE ONLY SUITABLE AND APPROVED GRANULAR MATERIAL FOR BACK FILLING TRENCHES.
8. THE CONTRACTOR SHALL DETERMINE THE LOCATION OF ALL RIGHT-OF-WAY LINES AND PROPERTY LINES TO HIS OWN SATISFACTION. ANY DISTURBED AREAS BEYOND THE RIGHT-OF-WAY OR EASEMENT LINES SHALL BE RESTORED IMMEDIATELY TO THEIR ORIGINAL CONDITION.
9. ALL VALVE CLOSURES AND CUT-INS SHALL BE COORDINATED WITH THE CITY. CITY OFFICIALS WILL CARRY OUT ALL NECESSARY VALVE CLOSURES. CONTRACTOR SHALL COORDINATE ISOLATION OF EXISTING WATER MAINS WITH THE CITY AND NOTIFY AFFECTED RESIDENTS AT LEAST 48 HOURS PRIOR TO CUT-IN.
10. PIPELINE DETECTION TAPE SHALL BE COLOR CODED, APPROPRIATELY LABELED, AND INSTALLED 18 INCHES BELOW THE GROUND SURFACE AND DIRECTLY ABOVE ALL PROPOSED NON-METALLIC WATER MAIN, SEWER MAIN, SEWER LATERALS, AND WATER SERVICES.
11. CONDUCIVE TRACER WIRE SHALL BE INSTALLED WITH ALL NON-METALLIC WATER PIPE AND SERVICES; AND ALONG ALL SEWER LATERALS AND FORCEMAIN. WIRE SHALL BE SECURED TO THE PIPE AND SHALL BE SECURELY BONDED TOGETHER AT ALL WIRE JOINTS WITH APPROVED WATERTIGHT CONNECTORS. TRACER WIRE SHALL BE ACCESSIBLE AT ALL VALVE BOXES, METER PITS, CLEANOUTS, AND AIR RELEASE VALVES.
12. PRIOR TO ISOLATION AND CUT-IN PROCEDURES, CONTRACTOR SHALL EXCAVATE, LOCATE, AND OBSERVE FUNCTION OF ALL EXISTING VALVES TO ASSIST IN THE SYSTEM ISOLATION.
13. SHOP DRAWINGS FOR ANY ITEM(S) WHICH WILL EVENTUALLY BE TAKEN OVER BY THE CITY SHALL BE SUBMITTED TO THE CITY ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE ORDERING OF AND/OR INSTALLATION OF THE ITEM(S).
14. ALL SANITARY SEWER MAINS AND FORCEMAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES AND ALL WATER MAINS SHALL HAVE A MINIMUM COVER OF 42 INCHES AS MEASURED FROM THE TOP OF PIPE TO PROPOSED GRADE. SEWER LATERALS SHALL HAVE A MINIMUM DIAMETER OF SIX (6) INCHES AND HAVE A MINIMUM COVER OF 36 INCHES.
15. THERE SHALL BE A MINIMUM HORIZONTAL SEPARATION BETWEEN WATER MAINS AND SANITARY SEWER MAINS AND FORCEMAINS OF 10 FEET, AS MEASURED FROM EDGE OF PIPE TO EDGE OF PIPE. THERE SHALL BE A MINIMUM VERTICAL SEPARATION OF 18 INCHES BETWEEN WATER MAINS AND SANITARY SEWER MAINS OR FORCEMAINS AT CROSSINGS. ONE FULL LENGTH OF WATER PIPE SHALL BE LOCATED SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE AT CROSSINGS.
16. THE CITY OF MILFORD WILL MAINTAIN ALL SANITARY SEWER MAINS AND WATER MAINS, EXCLUDING THE STANDPIPE FOR THE MARINA, THE SEWER LATERALS AND WATER SERVICES, AFTER FINAL COMPLETION HAS BEEN REACHED AND INFRASTRUCTURE DEDICATED TO THE CITY.
17. DEVELOPER SHALL INSTALL ONSITE LIGHTING TO ILLUMINATE STREETS, PARKING AREAS, AD WALKWAYS, IN ACCORDANCE WITH CITY REGULATIONS.
18. THERE SHALL BE A MINIMUM VERTICAL SEPARATION OF 12 INCHES BETWEEN ANY STORM DRAINPIPE AND ANY WATER MAIN OR SEWER MAIN. IF 12 INCHES CANNOT BE MAINTAINED, A MINIMUM OF SIX (6) INCHES IS REQUIRED AND PROVISIONS SHALL BE MADE ACCEPTABLE TO THE CITY OF MILFORD FOR PROPERLY ENCASING THE PIPE IN CONCRETE.
19. ALL ROADWAYS ARE TO BE SWEPT FREE OF SEDIMENT ON A DAILY BASIS.
20. THE CONTRACTOR SHALL REMOVE AND IMMEDIATELY REPLACE, RELOCATE, RESET OR RECONSTRUCT ALL OBSTRUCTIONS IN THE WORK AREA, INCLUDING, BUT NOT LIMITED TO, MAILBOXES, SIGNS, LANDSCAPING, LIGHTING, PLANTERS, CULVERTS, DRIVEWAYS, PARKING AREAS, CURBS, GUTTERS, FENCES, OR OTHER NATURAL OR MAN-MADE OBSTRUCTIONS. TRAFFIC CONTROL REGULATORY, WARNING AND INFORMATIONAL SIGNS SHALL REMAIN FUNCTIONAL AND VISIBLE TO THE APPROPRIATE LANES OF TRAFFIC AT ALL TIMES, WITH THEIR RELOCATION KEPT TO A MINIMUM DISTANCE. THE COST SHALL BE INCLUDED IN THE COST OF ITEMS BID.
21. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT PAVING IS INSTALLED TO THE ELEVATIONS SHOWN AND THAT NO PONDING OF WATER WILL OCCUR AFTER PAVING IS COMPLETE. PONDING IS DEFINED AS WATER STANDING IN AN AREA MORE THAN 1 HOUR AFTER A RAINFALL EVENT THAT PRODUCES RUNOFF. ELIMINATION OF PONDING WILL BE COMPLETED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
22. ALL FIRE LANES, FIRE HYDRANTS, EXITS, AND STANDPIPES WILL BE MARKED IN ACCORDANCE WITH STATE FIRE PREVENTION REGULATIONS.
23. DELAWARE REGULATIONS PROHIBIT THE BURIAL OF CONSTRUCTION DEMOLITION DEBRIS, INCLUDING TREES AND STUMPS ON CONSTRUCTION SITES. ANY SOLID WASTE FOUND DURING THE EXCAVATION FOR STRUCTURES AND UTILITY LINES ON AND OFF SITE MUST BE REMOVED AND PROPERLY DISCARDED. ANY REMEDIAL ACTION REQUIRED IS THE RESPONSIBILITY OF THE OWNER.
24. CONTRACTOR SHALL GRADE, TOPSOIL, SEED AND MULCH ALL DISTURBED AREAS OF CONSTRUCTION, INCLUDING PIPE INSTALLATION OR DITCH CONSTRUCTION. EROSION CONTROL MATTING SHALL BE PROVIDED ON ALL SLOPES GREATER THAN 3:1.
25. A PROFESSIONAL SURVEYOR LICENSED IN THE STATE OF DELAWARE SHALL BE RESPONSIBLE FOR PERMANENTLY RE-ESTABLISHING ANY PROPERTY MARKERS OR MONUMENTS DISTURBED DURING CONSTRUCTION. A SURVEY AND METES AND BOUNDS THAT INCLUDES THE RE-ESTABLISHED MARKER(S) OR MONUMENT(S) SHALL BE PRESENTED TO THE PROPERTY OWNER FOR COMPARISON WITH THE ORIGINAL PLAT, FOR VERIFICATION.
26. THE DEVELOPER/OWNER WILL BE RESPONSIBLE FOR THE SHORT TERM (DURING CONSTRUCTION) MAINTENANCE OF THE STORMWATER MANAGEMENT AND STORM SEWER SYSTEMS.
27. THE OWNER WILL BE RESPONSIBLE FOR THE LONG TERM MAINTENANCE OF THE STORMWATER MANAGEMENT AND STORM SEWER SYSTEMS.
28. THE OWNER WILL BE RESPONSIBLE FOR ALL MAINTENANCE TO THE SIDEWALKS THROUGHOUT THE DEVELOPMENT.
29. DELAWARE REGULATIONS PROHIBIT THE BURIAL OF CONSTRUCTION AND DEMOLITION DEBRIS, INCLUDING TREES AND STUMPS. ON CONSTRUCTION SITES. ANY SOLID WASTE FOUND DURING EXCAVATION FOR STRUCTURES AND UTILITY LINES, ON AND OFF SITE, MUST BE REMOVED AND PROPERLY DISCARDED. ANY REMEDIAL ACTION REQUIRED IS THE RESPONSIBILITY OF THE DEVELOPER/OWNER.
30. DRAWINGS DO NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, AS AMENDED, AND ALL RULES AND REGULATIONS THERETO APPURTENANT.
31. CURRENT UTILITY SERVICE AND ACCESS TO ADJOINING PARCELS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
32. THE CITY OF MILFORD WILL ASSUME OWNERSHIP AND MAINTENANCE RESPONSIBILITY OF WATER AND SEWER PIPES AND APPURTENANCES, INSTALLED WITHIN CITY RIGHT-OF-WAY AND EASEMENTS DEDICATED TO THE CITY, STORM SEWER PIPES AND CATCH BASINS, INSTALLED FULLY WITHIN CITY RIGHT-OF-WAY; ONCE THE FOLLOWING CONDITIONS HAVE BEEN MET:
   - 32.1. ALL ITEMS HAVE PASS CITY INSPECTION;
   - 32.2. THE CITY HAS RECEIVED AND APPROVED DIGITAL HARD COPIES OF THE RECORD DRAWINGS; AND
   - 32.3. THE RIGHTS-OF-WAY AND/OR EASEMENTS HAVE BEEN DEEDED TO THE CITY AND RECORDED WITH THE RECORDER OF DEEDS.
33. SEWER AND WATER CAPACITY ARE NOT GUARANTEED UNTIL BUILDING PERMITS ARE ISSUED, ALL FEES ARE PAID AND SUITABLE UTILITIES ARE IN PLACE FOR PROPER CONVEYANCE, TREATMENT AND DISPOSAL.
34. PRELIMINARY APPROVAL FROM PLANNING COMMISSION SHALL BE VOID AFTER ONE (1) YEAR, UNLESS AN EXTENSION IS REQUESTED BY THE OWNER AND APPROVED, FOR GOOD CAUSE, BY THE PLANNING COMMISSION PRIOR TO THE DATE OF EXPIRATION.
35. THE APPROVAL OF A CONDITIONAL USE IS VALID FOR ONE YEAR. UNLESS PERMITS ARE OBTAINED OR CONSTRUCTION OR USE IS SUBSTANTIALLY UNDERWAY, ALL PROVISIONS ARE AUTOMATICALLY RESCINDED.
36. FINAL APPROVAL FROM THE CITY SHALL BECOME VOID IF THE FINAL RECORD PLAT IS NOT RECORDED WITHIN 90 DAYS OF THE DATE OF PLANNING COMMISSION'S GRANTING OF FINAL APPROVAL. IF CONSTRUCTION OF THE APPROVED IMPROVEMENTS IS NOT SUBSTANTIALLY UNDERTAKEN WITHIN ONE (1) YEAR OF FINAL SITE PLAN APPROVAL, THE SITE PLAN APPROVAL SHALL BE VOID. THE APPLICANT MAY REQUEST A ONE (1) YEAR EXTENSION FROM THE PLANNING COMMISSION FOR GOOD CAUSE.
37. THE APPLICANT IS RESPONSIBLE TO ENSURE THAT ALL CITY AND/OR AGENCY CONSTRUCTION PERMIT APPLICATIONS HAVE BEEN COMPLETED, SUBMITTED, AND ALL APPLICABLE FEES HAVE BEEN PAID PRIOR TO COMMENCING CONSTRUCTION. THE CITY SHALL NOT BE HELD RESPONSIBLE FOR AN ANTICIPATED CONSTRUCTION START DATE THAT IS NOT MET DUE TO THE APPLICANT OR HIS/HER CONTRACTOR NOT HAVING MET THE CONSTRUCTION PERMITTING REQUIREMENTS.
38. AS A CONDITION OF THE APPROVAL OF THE CONSTRUCTION DRAWINGS, AND PRIOR TO THE START OF CONSTRUCTION, THE APPLICANT MAY BE REQUIRED TO ENTER INTO A FORMAL PUBLIC WORKS AGREEMENT WITH THE CITY AND/OR TO POST A COMPLETION GUARANTY FOR ANY IMPROVEMENTS WHICH WILL EVENTUALLY BE TAKEN OVER BY THE CITY. THE GUARANTY SHALL BE IN AN AMOUNT EQUAL TO 150% OF THE COST OF THE IMPROVEMENTS AS ESTIMATED OR APPROVED BY THE CITY ENGINEER. THE GUARANTY SHALL BE IN THE FORM OF A BOND OR FUNDS DEPOSITED INTO AN ESCROW ACCOUNT. THE PUBLIC WORKS AGREEMENT AND THE GUARANTY SHALL BE REVIEWED AND APPROVED BY THE CITY SOLICITOR. THE COMPLETION GUARANTY SHALL NOT BE RELEASED UNTIL A MAINTENANCE BOND IN THE AMOUNT OF 10% OF THE IMPROVEMENTS HAS BEEN SUBMITTED.
39. A MAINTENANCE BOND IN THE AMOUNT OF 10% OF THE CONSTRUCTION VALUE FOR ANY CONSTRUCTED IMPROVEMENTS AND A PERFORMANCE BOND IN THE AMOUNT OF 125% OF THE CONSTRUCTION VALUE FOR ANY UNCOMPLETED WORK SHALL BE PROVIDED IN ORDER TO ACHIEVE FINAL COMPLETION OF THE IMPROVEMENTS AND RELEASE OF ANY COMPLETION GUARANTY. THE MAINTENANCE PERIOD SHALL BE A MINIMUM OF ONE YEAR AND ALL CONSTRUCTION VALUES MUST BE SUBMITTED TO, REVIEWED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE ISSUANCE OF ANY BONDS.
40. UPON COMPLETION OF THE CONSTRUCTION IMPROVEMENTS AND PRIOR TO THE RELEASE OF ANY DEVELOPER'S COMPLETION GUARANTEE, THE DEVELOPER SHALL PROVIDE THE CITY ENGINEER A DRAFT PAPER SET OF DETAILED RECORD PLANS (PLAN VIEW AND PROFILE SHEETS). RECORD INFORMATION SHALL BE PLACED ON THE APPROPRIATE DRAWINGS. ORIGINAL DESIGN ELEVATION AND/OR DISTANCE INFORMATION SHALL BE STRUCK THROUGH WITH A FINE LINE AND THE RECORD INFORMATION SHALL BE INSERTED NEXT TO IT. WHEN THE DRAFT SET OF DRAWINGS HAS BEEN APPROVED BY THE CITY, THREE (3) FINAL PAPER COPIES SHALL BE SUBMITTED, SIGNED AND SEALED BY THE OWNER'S ENGINEER OR SURVEYOR. ADDITIONALLY, A CD SHALL BE PROVIDED WITH DIGITAL RECORD INFORMATION IN AUTOCAD FORMAT (VERSION 2018 OR LATER). THE DIGITAL INFORMATION SHALL BE ON DELAWARE STATE PLANE, NAD 83 HORIZONTAL CONTROL AND NAVD88 VERTICAL CONTROL. RECORD PLAN INFORMATION SHALL INCLUDE SURVEYED AS-BUILT ELEVATIONS AND HORIZONTAL LOCATIONS OF THE FOLLOWING:
   - 40.1. ALL PROPERTY MONUMENTS/MARKERS;
   - 40.2. SEWER MANHOLE RIM & INVERT ELEVATIONS, WITH ASSOCIATED PIPE SIZES & MATERIALS NOTED, PUMP STATION RIM, BOTTOM & INVERT ELEVATIONS WITH ASSOCIATED PIPE SIZES & MATERIALS NOTED, FOREMAIN INVERT ELEVATIONS EVERY 50 FEET, FORCEMAIN AIR RELEASE VALVE RIM & INVERT ELEVATIONS, SEWER CLEANOUT RIM & INVERT ELEVATIONS, AND GREASE TRAP RIM, BOTTOM & INVERT ELEVATIONS;
   - 40.3. WATER VALVES, FIRE HYDRANTS, METER VAULTS, METER PITS, AND CURB STOPS;
   - 40.4. STORM SEWER CATCH BASIN AND/OR MANHOLE GRATE; RIM & INVERT ELEVATIONS WITH ASSOCIATED PIPE SIZES & MATERIALS NOTED; AND
   - 40.5. ANY OTHER ITEM WHICH WILL BE TAKEN OVER BY THE CITY.
41. THERE ARE NO SOURCEWATER PROTECTION AREAS ON THIS SITE.
42. THIS PROPERTY IS IMPACTED BY WETLANDS. NO WETLANDS ARE DISTURBED.
43. UPON RECORDATION OF THIS PLAT, THE CITY WILL HAVE THE RIGHT OF INGRESS AND EGRESS TO ALL MULTIFAMILY AREAS FOR THE PURPOSE OF MAINTAINING UTILITIES AND FOR TRASH REMOVAL SERVICES.
44. NO ENTRANCE AND/OR ROADWAY CONSTRUCTION ALONG KCR409 SHALL OCCUR BEGINNING ON MAY 15TH AT 12:00 P.M. AND ENDING ON SEPTEMBER 15TH AT 12:00 P.M.
45. HYDRIC SOILS ARE INDICATED AS BEING PRESENT ACCORDING TO THE WETLANDS SCIENTIST. SOILS HAVE BEEN INSPECTED BY ED LAUNAY, A LICENSED WETLANDS SCIENTIST. SEE WETLANDS STATEMENT ON THIS SHEET FOR ADDITIONAL INFORMATION.
46. THE CONTRACTOR SHALL NOTIFY THE CITY A MINIMUM OF TWO WEEKS PRIOR TO THE START OF CONSTRUCTION AND SCHEDULE A PRE-CONSTRUCTION MEETING. THE SITE CONTRACTOR AND THE OWNER, OR HIS/HER REPRESENTATIVE SHALL BE IN ATTENDANCE.
47. THE MARINA AND SUPPORTING INFRASTRUCTURE INCLUDING THE WALKING PATH, FORESTRY LANE, PEDESTRIAN BRIDGE, AND DRY HYDRANT SHOWN ON THESE PLANS ARE CONCEPTUAL AND SUBJECT TO CHANGE. IF THEY ARE DESIRED TO BE CONSTRUCTED THEY WILL NEED TO PERMITTED AND APPROVED THROUGH THE CITY OF MILFORD APPROVAL PROCESS UNDER A SEPARATE CONTRACT. ANY NECESSARY DNREC OR ARMY CORPS PERMITS WILL NEED TO BE OBTAINED AT THAT TIME.

MISPILLION LANDING

CONSTRUCTION PLANS
CITY OF MILFORD
KENT COUNTY, DELAWARE

JUNE 9, 2011
REVISED APRIL 16, 2021



LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	EASEMENT LINE	
	BUILDING RESTRICTION LINE	
99	CONTOUR	99
WET WET WET	WETLANDS LINE	
	FLOOD ZONE BOUNDARY	
	TREELINE	
	POWER POLE	
8W	WATER MAIN, METER, VALVE, HYDRANT BACKFLOW PREVENTER	8W B
8SS	SANITARY SEWER MAIN, MANHOLE	8SS
	STORM PIPE, CATCH BASIN	
	STORM DITCH/SWALE	
	CURB	
	SIDEWALK	
	BUILDING	
	TRASH ENCLOSURE	
	LIGHT FIXTURE, POLE	
	STONE PAVING	

CITY OF MILFORD	302-422-1110
KENT CONSERVATION DISTRICT	302-608-5370
DAVIS, BOWEN, & FRIEDEL, INC.	302-424-1441
DELAWARE DEPARTMENT OF TRANSPORTATION	302-760-2460

DBF # 2137A001

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

DATA COLUMN

TAX MAP ID & AREA:
MD-16-183.07-01-27.00 — 6.673 AC.±

SURVEY DATA:
A FIELD RUN BOUNDARY AND TOPOGRAPHICAL LAND SURVEY WAS PERFORMED IN MARCH AND OCTOBER 2011 BY DAVIS, BOWEN, & FRIEDEL, INC.

DATUM:
VERTICAL: NAVD 88
HORIZONTAL: NAD 83 (DE STATE PLANE)

ZONING/LAND USE: R-3 (GARDEN APARTMENT & TOWNHOUSE DISTRICT)

EXISTING USE: VACANT BOAT YARD
PROPOSED USE: MULTI-FAMILY RESIDENTIAL

SETBACKS:
FRONT YARD: 30 FT.
REAR YARD: 15 FT.

BUILDING HEIGHT: 35 FT. OR LESS. NOT TO EXCEED THREE STORIES.

PARKING: SEE VARIANCE REQUEST BELOW
REQUIRED: 2.5 X 102 DU = 255 PARKING SPOTS (2.5 PER DWELLING UNIT)
7 HANDICAP ACCESSIBLE SPOTS

PROPOSED: 222 PARKING SPOTS
10 HANDICAP ACCESSIBLE SPOTS
TOTAL: 232 SPOTS

VARIANCE REQUEST: 2.25 X 102 DU = 230 PARKING SPOTS
(2.25 PER DWELLING UNIT)(APPROVED 4/12/2018)

AREAS:
MINIMUM REQUIRED LOT AREA: 1 ACRE

GROSS SITE AREA: 6.673± AC.

DENSITY:
MAX DENSITY: 16 UNITS PER ACRE
PROPOSED DENSITY: 15.3 UNITS PER ACRE

MINIMUM LOT AREA PER UNIT: 2500 SQ. FT.
PROPOSED LOT AREA PER UNIT: 2850 SQ. FT. (6.673 AC. / 102 UNITS)

MINIMUM LOT WIDTH: 50 FEET

AREAS:
IMPERVIOUS AREA:
BUILDING COVERAGE: 1.133± AC. (17%)
MAXIMUM BUILDING COVERAGE: 1.335± AC. (20%)
PAVEMENT: 2.392± AC.
SIDEWALK: 0.365± AC.
TOTAL IMPERVIOUS AREA: 3.890± AC. (58%)

PERVIOUS (INCLUDES WETLANDS): 2.783± AC.
TOTAL SITE AREA: 6.673± AC.

OPEN SPACE:
OPEN SPACE REQUIRED: 0.937 AC. (400 SQ. FT. PER DWELLING UNIT)
OPEN SPACE PROVIDED: 1.264 AC.
REC. OPEN SPACE REQUIRED: 0.468 AC. (50% OF REQUIRED OPEN SPACE)
REC. OPEN SPACE PROVIDED: 0.607 AC.

WETLANDS: 0.562± AC.

REMAINING PERVIOUS AREA: 0.957± AC.

BUILDING FOOTPRINTS:
18-UNIT: 7,470 SQ. FT.
24-UNIT: 9,264 SQ. FT.

MAXIMUM UNITS PER BUILDING: 12
PROPOSED UNITS PER BUILDING: 18 & 24
(VARIANCE REQUESTED TO EXCEED 12 UNITS PER BUILDING, (3) 18-UNIT AND (2) 24-UNIT BUILDINGS PROPOSED)(APPROVED 4/12/2018)

DWELLING UNITS PROPOSED: 102

UTILITIES:
SEWER PROVIDER: CITY OF MILFORD
ESTIMATED EDUs: 102 UNITS + 1 OFFICE AND MAINTENANCE BUILDING
103 TOTAL EDUs
WATER PROVIDER: CITY OF MILFORD
ELECTRIC PROVIDER: CITY OF MILFORD
GAS PROVIDER: CHESAPEAKE UTILITIES

LAT/LON:
BENCHMARK - CONCRETE MONUMENT FOUND: EAST PROPERTY LINE
LAT:38.9191, LON:-75.4165

SITE ADDRESS: 604 NE FRONT ST. MILFORD, DE 19963

THIS PROPERTY IS LOCATED 480'± TO THE EAST OF THE INTERSECTION OF N REHOBOTH BLVD (K21) AND NE FRONT STREET (K409).

WETLANDS - THE PROPERTY IS IMPACTED BY WETLANDS. NO WETLANDS ARE DISTURBED.

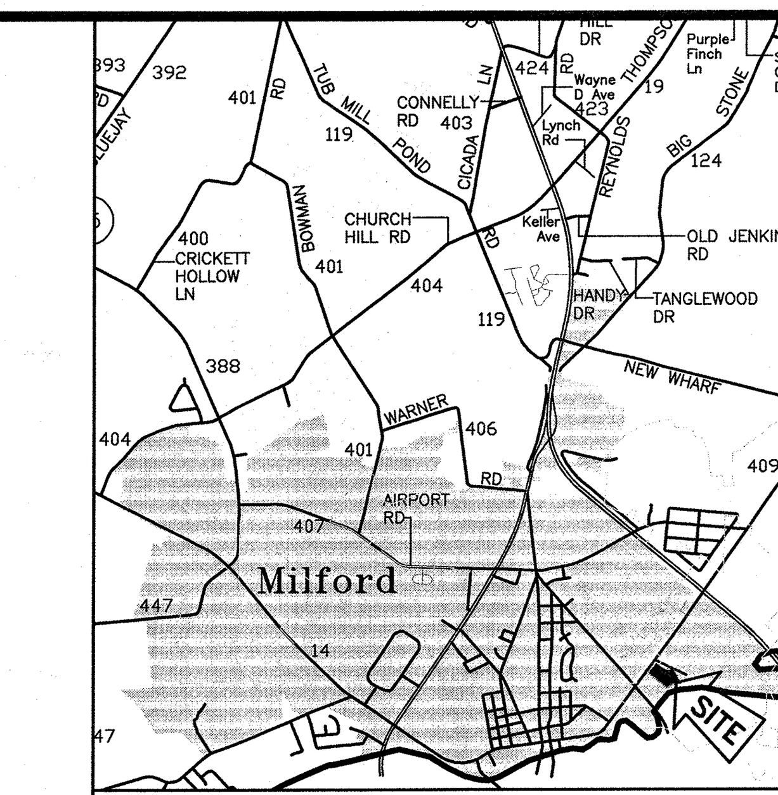
FLOODPLAIN - THE PROPERTY IS IMPACTED BY THE 100 YEAR FLOODPLAIN AS DIRECTED BY FEMA PANEL 100005C0041K DATED MARCH 16, 2015, LOCATED IN ZONE AE.

SOURCE WATER PROTECTION AREA - AS PER DNREC MAPPING, NO SOURCE WATER PROTECTION AREAS WERE SHOWN ON-SITE.

TOTAL LIMIT OF DISTURBANCE: 5.98 AC.

PROPERTY OWNER:
UNITY DEVELOPMENT, LLC
3403 LANCASTER PIKE
WILMINGTON, DE 19805
302-998-0531

ENGINEER:
DAVIS, BOWEN, & FRIEDEL, INC.
CLIFTON D. MUMFORD, P.E.
1 PARK AVE.
MILFORD, DE 19963
PHONE: 302-424-1441
FAX: 302-424-0430



LOCATION MAP
1" = 1 MILE

SHEET INDEX

BUILDING PERMIT RESTRICTIONS

BUILDING PERMITS WILL BE RESTRICTED DUE TO IMPROVEMENTS ALONG FRONT STREET (K409) AS FOLLOWS:

1. THE CITY OF MILFORD CAN INITIALLY ISSUE BUILDING PERMITS FOR UP TO 42 UNITS (ONE 18 UNIT BUILDING AND ONE 24 UNIT BUILDING, TWO TOTAL BUILDINGS) PLUS THE SALES OFFICE/MAINTENANCE SHOP.
2. THE CERTIFICATE OF OCCUPANCY FOR THE PERMITS IN ITEM 1 CANNOT BE ISSUED BY THE CITY OF MILFORD UNTIL THE ENTRANCE AND DECELERATION LANE ARE INSTALLED AND ACCEPTED BY THE STATE.
3. ANY REMAINING CONSTRUCTION CAN BE COMPLETED ONCE ITEMS 1-2 HAVE BEEN COMPLETED.

WETLAND STATEMENT

I, EDWARD M. LAUNAY, PWS, STATE THAT THE BOUNDARIES OF WATERS OF THE UNITED STATES INCLUDING WETLANDS SUBJECT TO THE CORPS OF ENGINEERS REGULATORY PROGRAM DELINEATED UPON THIS PLAN HAVE BEEN DETERMINED USING MY PROFESSIONAL JUDGEMENT IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL AND IT'S SUPPLEMENTAL GUIDANCE INCLUDING THE ATLANTIC AND GULF COAST REGIONAL SUPPLEMENT (VERSION 2.0) AND THE 2020 NAVIGABLE WATERS PROTECTION RULE. THIS DELINEATION HAS NOT BEEN CONDUCTED FOR USDA PROGRAM OR AGRICULTURAL PURPOSES.

THE BOUNDARIES OF STATE REGULATED WETLANDS ON THIS PROPERTY WERE DETERMINED IN ACCORDANCE WITH DNREC WETLAND MAP NO. DNR-209

HYDRIC SOILS EXISTING ON THIS PROPERTY ARE LIMITED TO AREAS DELINEATED AS WETLANDS.

EDWARD M. LAUNAY, PWS NO. 875 — DATE: 9/23/2021
SOCIETY OF WETLANDS SCIENTISTS
CORPS OF ENGINEERS, CERTIFIED WETLAND DELINEATOR WDCP93MD0510036B

OWNER'S CERTIFICATION

I/WE, THE UNDERSIGNED, OF UNITY DEVELOPMENT, LLC, HEREBY CERTIFY THAT I/WE ARE THE OWNERS OF THE PROPERTY DESCRIBED ON THIS PLAN, THAT THE PLAN WAS MADE AT MY/OUR DIRECTION, THAT ALL STREETS SHOWN HEREON AND NOT HERETOFORE DEDICATED THE PUBLIC USE AND THAT ALL PROPOSED MONUMENTS AND MARKERS SHOWN HEREON WILL BE SET AT THE LOCATIONS INDICATED, AND THAT I/WE ACKNOWLEDGE THE SAME TO BE MY/OUR ACT AND DESIRE THE PLAN TO BE DEVELOPED AS SHOWN IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

SIGNATURE — DATE: 9/20/21

michael A. Simeone Managing Member
PRINTED NAME/TITLE

UNITY DEVELOPMENT, LLC
3403 LANCASTER PIKE
WILMINGTON, DE 19805
302-998-0531

ENGINEER'S STATEMENT

I, CLIFTON D. MUMFORD, PE, HEREBY STATE THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BEST KNOWLEDGE AND BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

Prepared by:
DAVIS, BOWEN, & FRIEDEL, INC.
1 PARK AVE.
MILFORD, DELAWARE 19963

CLIFTON DANIEL MUMFORD LICENSED No. 19535 DELAWARE PROFESSIONAL ENGINEER

SEAL/SIGNATURE — DATE: SEP 24 2021

CITY OF MILFORD APPROVAL

MARK WHITFIELD, CITY MANAGER — DATE: 9/27/2021

CITY PLANNING DEPARTMENT APPROVAL

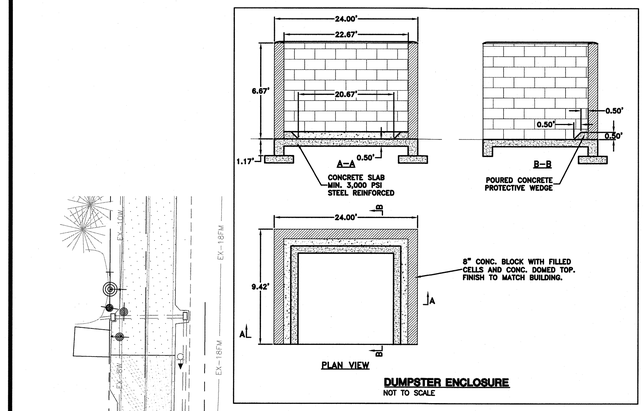
PLANS HAVE BEEN REVIEWED AND ARE FOUND TO BE IN GENERAL CONFORMANCE WITH THE MOST RECENTLY ADOPTED AND/OR CERTIFIED VERSIONS OF THE CITY OF MILFORD'S CODE OF ORDINANCES AND COMPREHENSIVE LAND USE PLAN. THE OWNER AND THEIR ENGINEER AND/OR SURVEYOR ASSUME ALL RESPONSIBILITY FOR THE DESIGN AS CONTEMPLATED HEREIN AND ACCURACY OF ALL INFORMATION SHOWN HEREON.

CITY OF MILFORD APPROVED WRP PLANNING DEPT.

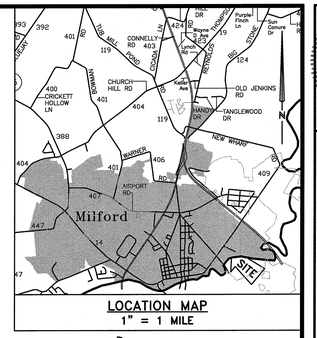
CITY ENGINEER APPROVAL

CONSTRUCTION IMPROVEMENTS PLANS HAVE BEEN REVIEWED AND ARE FOUND TO BE IN GENERAL CONFORMANCE WITH THE CITY OF MILFORD'S STANDARD SPECIFICATIONS FOR INSTALLATION OF UTILITY CONSTRUCTION PROJECTS AND SUBDIVISION PAVEMENT DESIGN. THE OWNER AND THEIR ENGINEER AND/OR SURVEYOR ASSUME ALL RESPONSIBILITY FOR THE DESIGN AS CONTEMPLATED HEREIN AND ACCURACY OF ALL INFORMATION SHOWN HEREON.

JASON McCLAFFERTY, P.E., CITY ENGINEER — DATE: 9/27/21



DUMPSTER ENCLOSURE
NOT TO SCALE



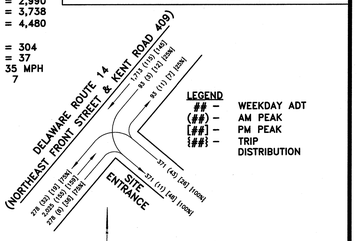
LOCATION MAP
1" = 1 MILE

N/F HITCHENS, LEMUEL C. III TRUSTEE
T/A HITCHENS PROPERTIES
TP# MD-16-183.07-01-25.00
D-307-053
ZONED I1

N/F WILKERSON, DAVID A.
TP# MD-16-183.07-01-23.01
D-193-009
ZONED I1

BENCHMARK
CONCRETE MONUMENT
ELEVATION=8.88 FT.

ROAD DATA
SOURCE: 2013 DBF TRAFFIC COUNTS
DELAWARE ROUTE 14
(NORTHEAST FRONT STREET AND KENT ROAD 409)
FUNCTIONAL CLASSIFICATION – MAJOR COLLECTOR
2013 AADT = 2,990
15 YR PROJECTED AADT = 1.25 X 2,990 = 3,738
15 YR PROJECTED AADT + SITE ADT (742) = 4,480
DIRECTIONAL SPLIT = 52.26% / 47.74%
PM PEAK HOUR = 8.13% (K-FACTOR) X 3,738 = 304
12.64% TRUCK % X 294 = 37
SPEED – POSTED – 35 MPH
TRAFFIC PATTERN GROUP – 7



SEE ENTRANCE PLANS FOR OFF-SITE CONSTRUCTION

N:334,986.838'
E:655,736.157'

P.C.C. TYPE C (TYP. FOR ALL ON-SITE CURB)

MARINA VIEW LANE (PRIVATELY MAINTAINED)

SEE DELDOT ENTRANCE PLANS IN RIGHT-OF-WAY

POTENTIAL DEVELOPMENT SIGN LOCATION

55' EXISTING ROW

NORTHEAST FRONT STREET (K408) (STATE MAINTAINED)

10' WIDE MULTI-MODAL PATH COULD BE REPLACED WITH A 6' WIDE CONCRETE SIDEWALK IF OWNER PREFERS.

A 15 FOOT PERMANENT EASEMENT FOR THE STATE OF DELAWARE AS PER P.B. 118 PG. 58

N:334,692.163'
E:655,532.792'

SEE ENTRANCE PLANS FOR OFF-SITE CONSTRUCTION

GRASS AREA

BUILDING A (24 UNITS) APPROX. 28,000 S.F. 3-STORIES

BUILDING B (24 UNITS) APPROX. 28,000 S.F. 3-STORIES

BUILDING C (18 UNITS) APPROX. 22,500 S.F. 3-STORIES

BUILDING D (18 UNITS) APPROX. 22,500 S.F. 3-STORIES

BUILDING E (18 UNITS) APPROX. 22,500 S.F. 3-STORIES

MUSSEL LANE (PRIVATELY MAINTAINED)

OYSTERBED LANE (PRIVATELY MAINTAINED)

RIVER PERCH LANE (PRIVATELY MAINTAINED)

RUDDER LANE (PRIVATELY MAINTAINED)

OFFICE & MAINTENANCE APPROX. 1100 S.F. 1-STORY

DUMPSTER ENCLOSURE

FEDERALLY REGULATED WETLANDS

25' WETLANDS BUFFER

BOUNDARY OF STATE REGULATED WETLANDS

RECREATIONAL OPEN SPACE

PROPOSED WALKING PATH 6" GABC COVERED BY 2" STONE DUST

BIOFILTRATION SWALE

BIORETENTION FACILITY

25' RIPARIAN BUFFER

15' SETBACK

STATE AND FEDERALLY REGULATED WETLANDS

CONCEPTUAL MARINA SEE GENERAL NOTE# 47 ON THE TITLE SHEET.

MISPILLION RIVER

MEAN HIGH WATER/SHORELINE

100YR FLOOD

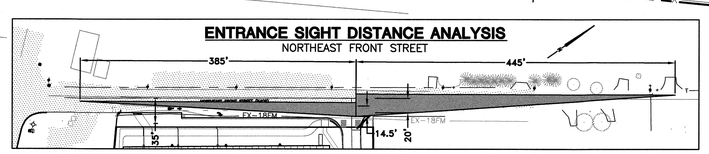
SITE TRIPS GENERATED

TYPE OF DEV.	ITE CODE	UNITS	AM	PM	WKDY ADT
APARTMENTS	220	102	54	74	742

NOTES:
TRIP GENERATION IS BASED ON ITE TRIP GENERATION MANUAL 9TH EDITION.
DESIGN VEHICLE: SU-30.

TRAFFIC DIAGRAM
NO SCALE

ENTRANCE SIGHT DISTANCE ANALYSIS
NORTHEAST FRONT STREET



N/F J & R WALNUT STREET PROPERTIES
TP# MD-16-183.07-01-29.00
D-430-174
ZONED C3

0 30 60

LEGEND
BOUNDARY OF STATE REGULATED WETLANDS
MEAN HIGH TIDE WATER/SHORELINE

LEGEND
- PROPOSED LIGHT FIXTURE/POLE
- [A] PROPOSED ADA CURB RAMP
- [B] PARKING BLOCK / BOLLARD
- PROPOSED STOP SIGN
- PROPERTY LINE
- EASEMENT LINE
- BUILDING SETBACK LINE
- PROPOSED BUILDING
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- WET — WET LIMITS OF JURISDICTIONAL WETLANDS
- PROPOSED PAVING
- PROPOSED SIDEWALK
- PROPOSED WALKING PATH
- PROPOSED WALKING PATH (NOT PART OF THIS CONTRACT)
- PROPOSED FORESTRY FIRE LANE (NOT PART OF THIS CONTRACT)
- 8W PROPOSED WATERMAIN, FIRE HYDRANT ASSEMBLY, VALVE
- 4W DRY HYDRANT AND PIPE (NOT PART OF THIS CONTRACT)
- 8SS PROPOSED SEWER MAIN, MANHOLE, CLEANOUT
- PROPOSED STORM PIPE, INLET, MANHOLE, FLARED END
- PROPOSED FENCE

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

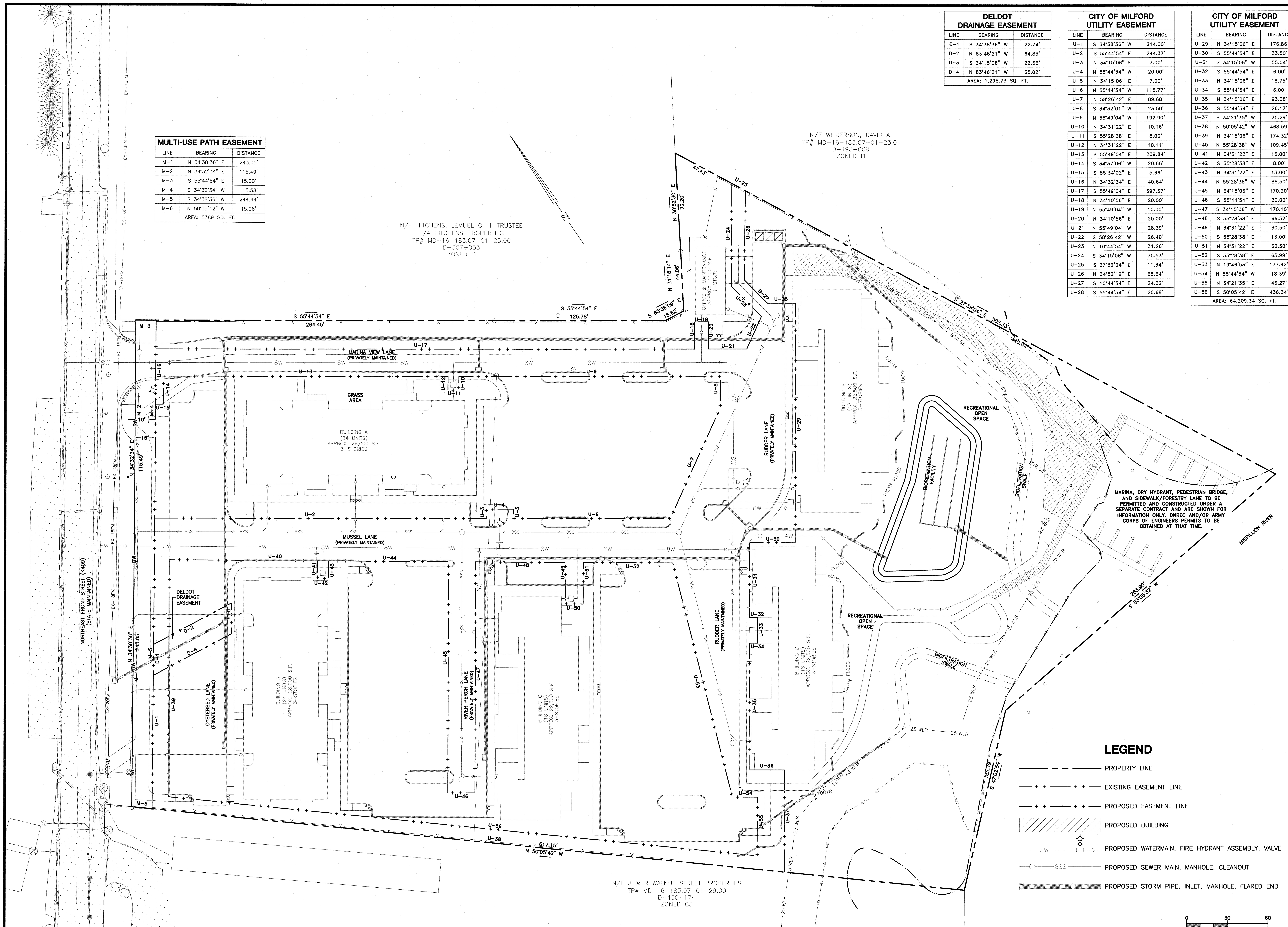
SEP 7 2021

SITE PLAN

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

REVISIONS:
04/19/2018: COM COMMENTS
02/28/2019: COM COMMENTS
11/06/2020: KCD
12/29/2020: DNREC
04/16/2021: COM COMMENTS KCD
05/20/2021: COM COMMENTS
06/23/2021: KCD

Date: APRIL, 2018
Scale: 1" = 30'
Dwn.By: SHF
Proj.No.: 2137A001
Dwg.No.: C-101



MULTI-USE PATH EASEMENT

LINE	BEARING	DISTANCE
M-1	N 34°38'36" E	243.05'
M-2	N 34°32'34" E	115.49'
M-3	S 55°44'54" E	15.00'
M-4	S 34°32'34" W	115.58'
M-5	S 34°38'36" W	244.44'
M-6	N 50°05'42" W	15.06'
AREA: 5389 SQ. FT.		

DELDOT DRAINAGE EASEMENT

LINE	BEARING	DISTANCE
D-1	S 34°38'36" W	22.74'
D-2	N 83°46'21" W	64.85'
D-3	S 34°15'06" W	22.66'
D-4	N 83°46'21" W	65.02'
AREA: 1,298.73 SQ. FT.		

CITY OF MILFORD UTILITY EASEMENT

LINE	BEARING	DISTANCE
U-1	S 34°38'36" W	214.00'
U-2	S 55°44'54" E	244.37'
U-3	N 34°15'06" E	7.00'
U-4	N 55°44'54" W	20.00'
U-5	N 34°15'06" E	7.00'
U-6	N 55°44'54" W	115.77'
U-7	N 58°26'42" E	89.68'
U-8	S 34°32'01" W	23.50'
U-9	N 55°49'04" W	192.90'
U-10	N 34°31'22" E	10.16'
U-11	S 55°28'38" E	8.00'
U-12	N 34°31'22" E	10.11'
U-13	S 55°49'04" E	209.84'
U-14	S 34°37'06" W	20.66'
U-15	S 55°34'02" E	5.66'
U-16	N 34°32'34" E	40.64'
U-17	S 55°49'04" E	397.37'
U-18	N 34°10'56" E	20.00'
U-19	N 55°49'04" W	10.00'
U-20	N 34°10'56" E	20.00'
U-21	N 55°49'04" W	28.39'
U-22	S 58°26'42" W	26.40'
U-23	N 10°44'54" W	31.26'
U-24	S 34°15'06" W	75.53'
U-25	S 27°39'04" E	11.34'
U-26	N 34°52'19" E	65.34'
U-27	S 10°44'54" E	24.32'
U-28	S 55°44'54" E	20.68'

CITY OF MILFORD UTILITY EASEMENT

LINE	BEARING	DISTANCE
U-29	N 34°15'06" E	176.86'
U-30	S 55°44'54" E	33.50'
U-31	S 34°15'06" W	55.04'
U-32	S 55°44'54" E	6.00'
U-33	N 34°15'06" E	18.75'
U-34	S 55°44'54" E	6.00'
U-35	N 34°15'06" E	93.38'
U-36	S 55°44'54" E	26.17'
U-37	S 34°21'35" W	75.29'
U-38	N 50°05'42" W	468.59'
U-39	N 34°15'06" E	174.32'
U-40	N 55°28'38" W	109.45'
U-41	N 34°31'22" E	13.00'
U-42	S 55°28'38" E	8.00'
U-43	N 34°31'22" E	13.00'
U-44	N 55°28'38" W	88.50'
U-45	N 34°15'06" E	170.20'
U-46	S 55°44'54" E	20.00'
U-47	S 34°15'06" W	170.10'
U-48	S 55°28'38" E	66.52'
U-49	N 34°31'22" E	30.50'
U-50	S 55°28'38" E	13.00'
U-51	N 34°31'22" E	30.50'
U-52	S 55°28'38" E	65.99'
U-53	N 19°46'53" E	177.92'
U-54	N 55°44'54" W	18.39'
U-55	N 34°21'35" E	43.27'
U-56	S 50°05'42" E	436.34'
AREA: 64,209.34 SQ. FT.		

CLIFTON DANIEL MUMFORD LICENSED NO. 19635 DELAWARE PROFESSIONAL ENGINEER
SEP 24 2021

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

EASEMENT PLAN

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

REVISIONS:
04/19/2018: COM COMMENTS
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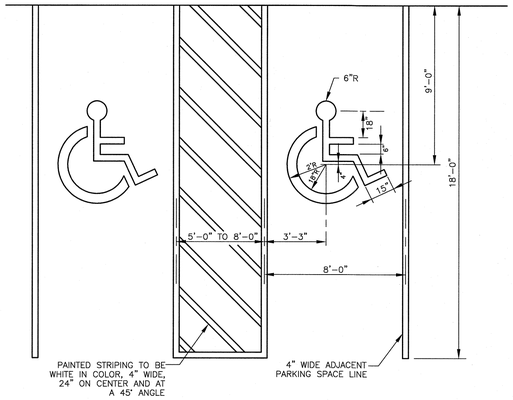
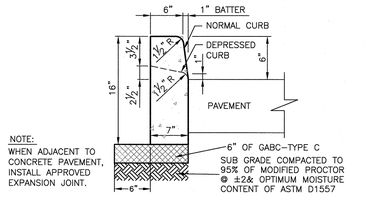
12/29/2020: DNREC
04/16/2021: COM COMMENTS
KCD
05/20/2021: COM COMMENTS

Date:	APRIL, 2018
Scale:	1" = 30'
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-102



HANDICAP PARKING DETAIL
NO SCALE

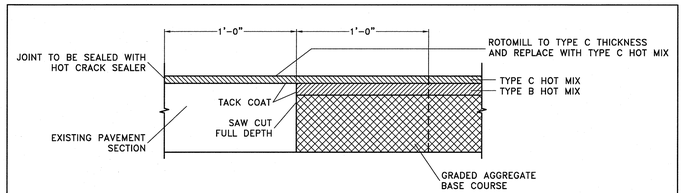


NOTE:
WHEN ADJACENT TO CONCRETE PAVEMENT, INSTALL APPROVED EXPANSION JOINT.

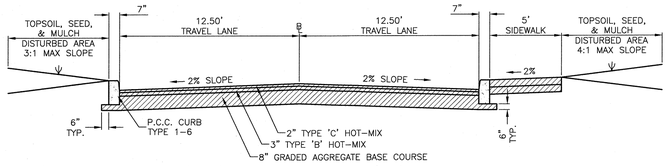
P.C.C. CURB - TYPE 1-6 MODIFIED
NO SCALE

DETAIL INFORMATION TABLE

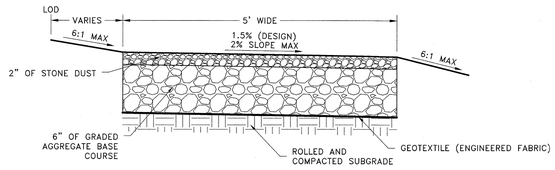
ITEM	LOCATION OF DETAIL	YEAR	SECTION	NAME	DESCRIPTION	SHEET NUMBER(S)
CURB RAMP	DelDOT – STANDARD CONSTRUCTION DETAILS	2020	SECTION II – CURB & GUTTER	PEDESTRIAN CONNECTION	TYPES 2, 3, & 4	C-2 (2020) – 2
DRAINAGE INLETS	DelDOT – STANDARD CONSTRUCTION DETAILS	2020	SECTION III – DRAINAGE	INLET BOX DETAILS	INLET BOX DETAILS	D-4 (2020)
DRAINAGE INLETS	DelDOT – STANDARD CONSTRUCTION DETAILS	2020	SECTION III – DRAINAGE	DRAINAGE INLET DETAILS	DRAINAGE INLET ASSEMBLY	D-5 (2020) – 1
					DRAINAGE INLET FRAME AND GRATES	D-5 (2020) – 2
					DRAINAGE INLET TOP UNITS	D-5 (2020) – 3
					DRAINAGE INLET COVER SLAB DETAILS	D-5 (2020) – 4
					DOUBLE INLET COVER SLAB DETAILS	D-5 (2020) – 5
					34" X 24" DRAINAGE INLET AND COVER SLAB DETAILS	D-5 (2020) – 6
BOX MANHOLE	DelDOT – STANDARD CONSTRUCTION DETAILS	2020	SECTION III – DRAINAGE	MANHOLE DETAILS	BOX MANHOLE ASSEMBLY	D-6 (2020) – 1
					MANHOLE, TOP UNIT, FRAME AND COVER	D-6 (2020) – 3
					BOX MANHOLE COVER SLAB	D-6 (2020) – 4
BREAKAWAY POST	DelDOT – STANDARD CONSTRUCTION DETAILS	2020	SECTION VIII – TRAFFIC	BREAKAWAY SIGN POST AND PIN ASSEMBLY DETAILS	BREAKAWAY SIGN POST AND PIN ASSEMBLY DETAILS	T-15 (2013)
SIGN(S)	DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES – DE MUTCD	2020	PART 2, CHAPTER 2B	STOP SIGN	STOP SIGN (R1-1), 30"X30"	2B-2, 2B-9 & 2B-10
			PART 2, CHAPTER 2D	STREET BLADES	PRIVATE STREET NAME SIGN (D3-1-DE1), 8"	2D-28 & 2D-29



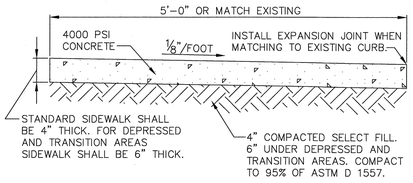
PAVEMENT TIE-IN DETAIL
NOT TO SCALE



TYPICAL STREET SECTION
NO SCALE
(MARINA VIEW LANE – COLLECTOR STREET)



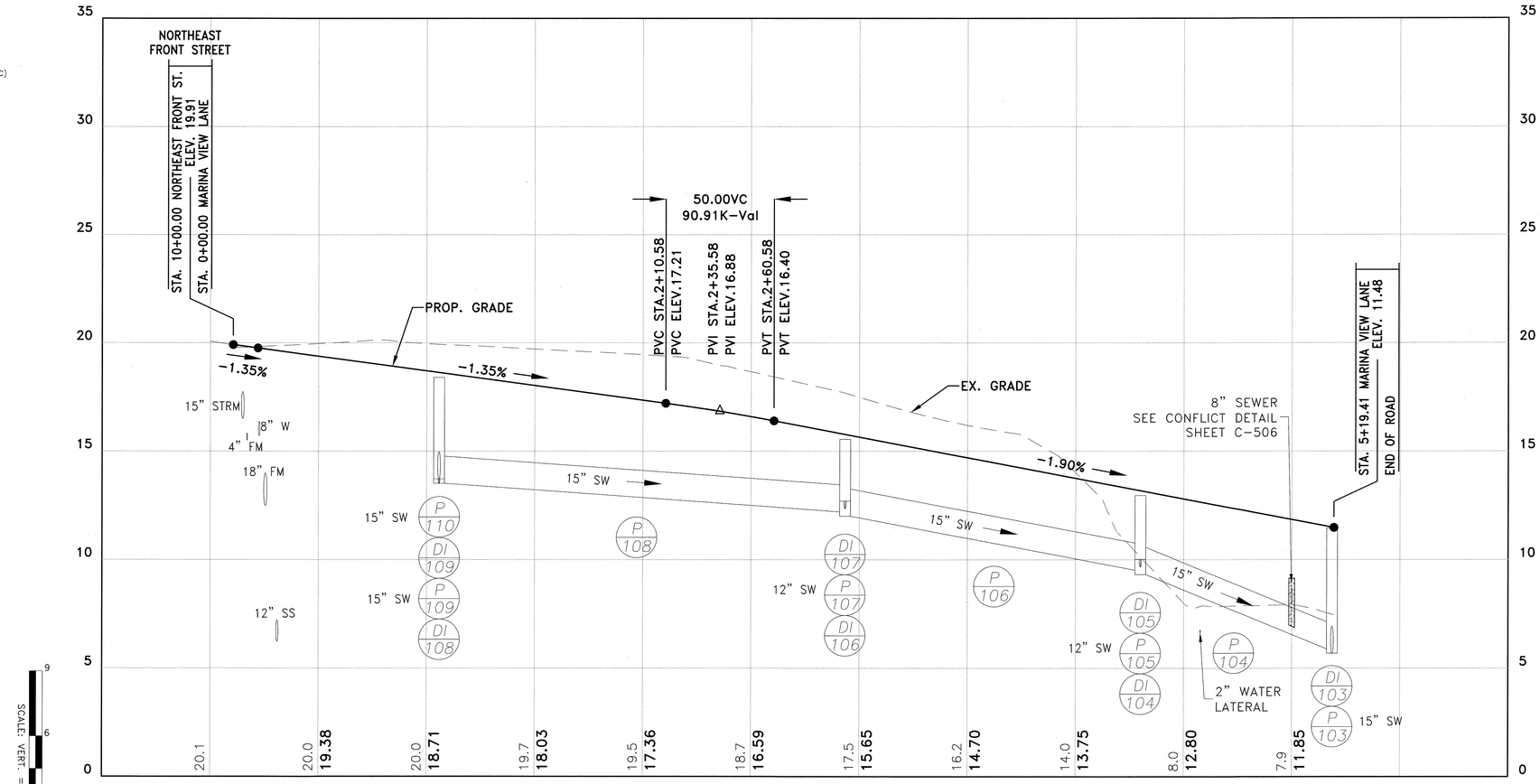
WALKING PATH DETAIL
NOT TO SCALE



NOTE: PLACE EXPANSION JOINTS 20' ON CENTER AND CONTROL JOINTS 5' ON CENTER OR MATCH EXISTING PATTERN.

CONCRETE SIDEWALK DETAIL
NO SCALE

DATE:	REVISION NO.:	APPROVED:
CITY OF MILFORD DEPARTMENT OF PUBLIC WORKS STREET DIVISION CONSTRUCTION STANDARDS		SIDEWALK DETAIL NO SCALE
		SECTION – 5 | DRAWING: D5-1



MARINA VIEW LANE ROAD PROFILE
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

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MILFORD, DELAWARE (302) 424-1441

SEP 21 2021

ROAD PROFILE & DETAILS

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

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KCD
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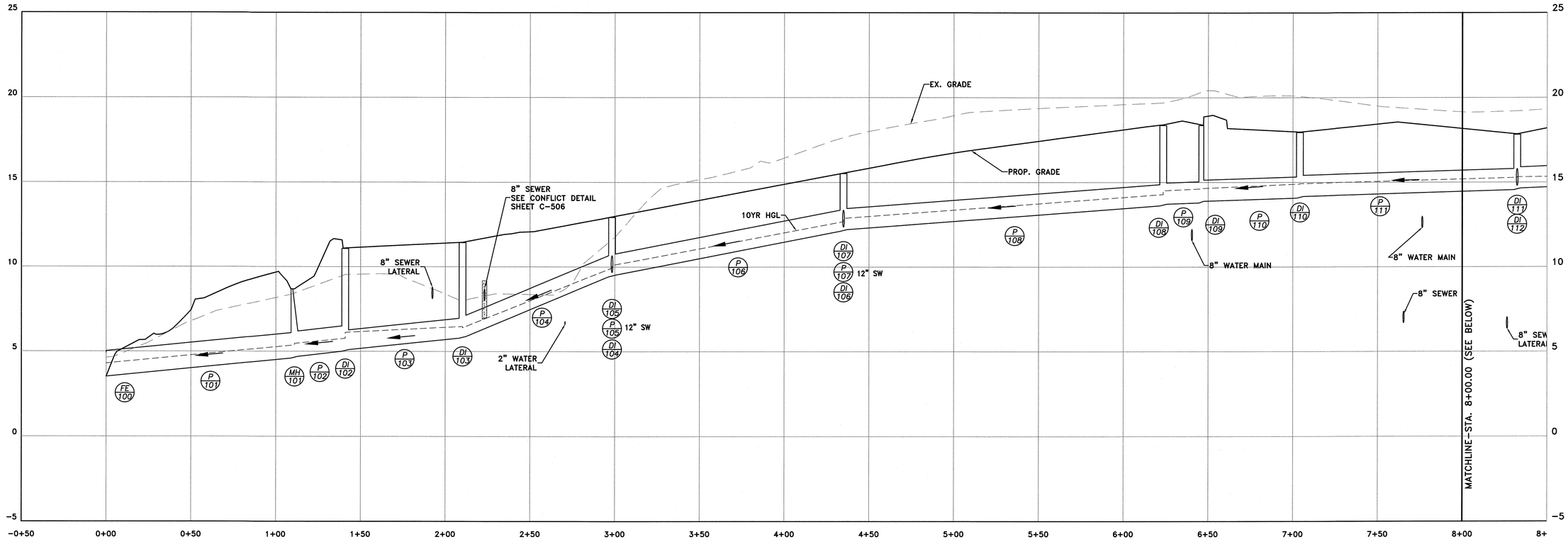
Date:	APRIL, 2018
Scale:	AS NOTED
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-201



STORMWATER PROFILE
FE 100 TO DI 113

SCALE: HORIZ. = 1" = 30'
VERT. = 1" = 3'

DRAINAGE INLET SCHEDULE

LABEL	DESCRIPTION			T.G. ELEV.	INVERT IN	INVERT IN	INVERT OUT
	BOX	TOP UNIT	GRATE				
DI 102	48"X48"	TYPE C	TYPE 1	11.07		5.10	5.00
DI 103	48"X48"	TYPE C	TYPE 1	11.43		5.89	5.79
DI 104	34"X24"	TYPE C	TYPE 1	12.93	9.52	9.67	9.42
DI 105	34"X24"	TYPE C	TYPE 1	12.93			10.02
DI 106	34"X24"	TYPE C	TYPE 1	15.53	12.36	12.21	12.11
DI 107	34"X24"	TYPE C	TYPE 1	15.53			12.71
DI 108	34"X24"	TYPE C	TYPE 1	18.36		13.72	13.62
DI 109	34"X24"	TYPE C	TYPE 1	18.36		13.89	13.79
DI 110	34"X24"	TYPE C	TYPE 1	17.94		14.17	14.07
DI 111	34"X24"	TYPE C	TYPE 1	17.82	14.80	14.65	14.55
DI 112	34"X24"	TYPE C	TYPE 1	17.69			15.00
DI 113	34"X24"	TYPE B	TYPE 1	18.41			15.02

SEE APPROVED DELDOT ENTRANCE PLANS FOR INFORMATION ON PIPES AND BASINS LOCATED INSIDE THE R.O.W.

PIPE SCHEDULE

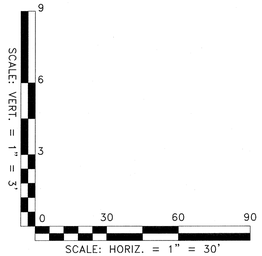
LABEL	DESCRIPTION							INVERT ELEVATION	
	FROM	TO	SIZE (IN)	TYPE	LENGTH	CLASS	SLOPE	IN	OUT
P 101	MH 101	FE 100	18	RCP	111	III	0.97%	4.60	3.52
P 102	DI 102	MH 101	18	RCP	30	III	1.00%	5.00	4.70
P 103	DI 103	DI 102	15	RCP	69	III	1.00%	5.79	5.10
P 104	DI 104	DI 103	15	RCP	88	III	4.00%	9.42	5.89
P 105	DI 105	DI 104	12	RCP	22	III	1.56%	10.02	9.67
P 106	DI 106	DI 104	15	RCP	137	III	1.90%	12.11	9.52
P 107	DI 107	DI 106	12	RCP	22	III	1.56%	12.71	12.36
P 108	DI 108	DI 106	15	RCP	189	III	0.75%	13.62	12.21
P 109	DI 109	DI 108	15	RCP	23	III	0.30%	13.79	13.72
P 110	DI 110	DI 109	15	RCP	58	III	0.31%	14.07	13.89
P 111	DI 111	DI 110	15	RCP	128	III	0.30%	14.55	14.17
P 112	DI 112	DI 111	12	RCP	90	III	0.22%	15.00	14.80
P 113	DI 113	DI 111	15	RCP	92	III	0.40%	15.02	14.65

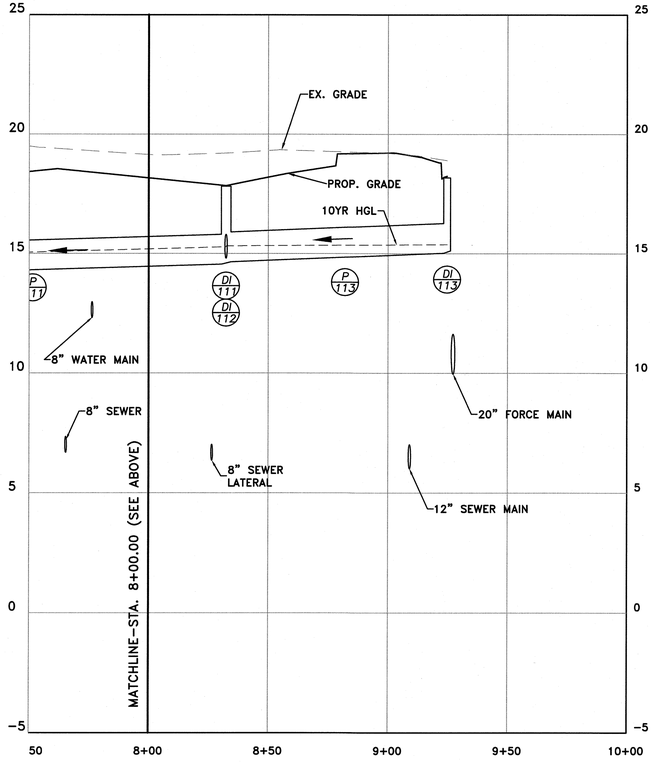
MANHOLE SCHEDULE

LABEL	TYPE	RIM ELEV.	INVERT	
			IN	OUT
MH 101	48"x48"	8.68	4.70	4.60

FLARED END SCHEDULE

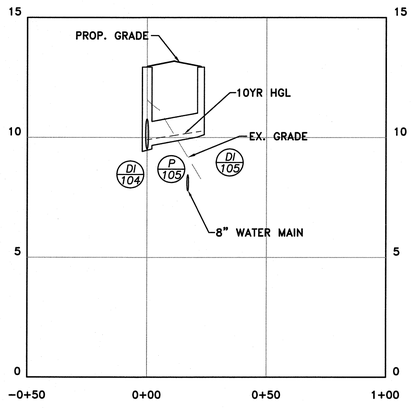
LABEL	SIZE/TYPE		INVERT
FE 100	18"	RCP	3.52





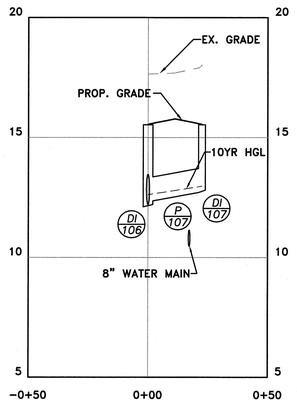
STORMWATER PROFILE
FE 100 TO DI 113

SCALE: HORIZ. = 1" = 30'
VERT. = 1" = 3'



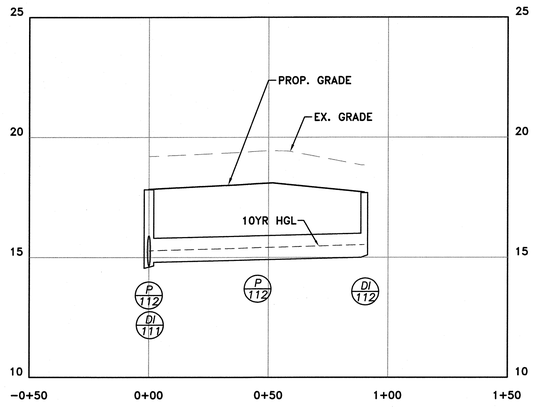
STORMWATER PROFILE
DI 104 TO DI 105

SCALE: HORIZ. = 1" = 30'
VERT. = 1" = 3'



STORMWATER PROFILE
DI 106 TO DI 107

SCALE: HORIZ. = 1" = 30'
VERT. = 1" = 3'



STORMWATER PROFILE
DI 111 TO DI 112

SCALE: HORIZ. = 1" = 30'
VERT. = 1" = 3'

DANIEL HUMFORD
DELAWARE PROFESSIONAL ENGINEER
SEP 24 2021

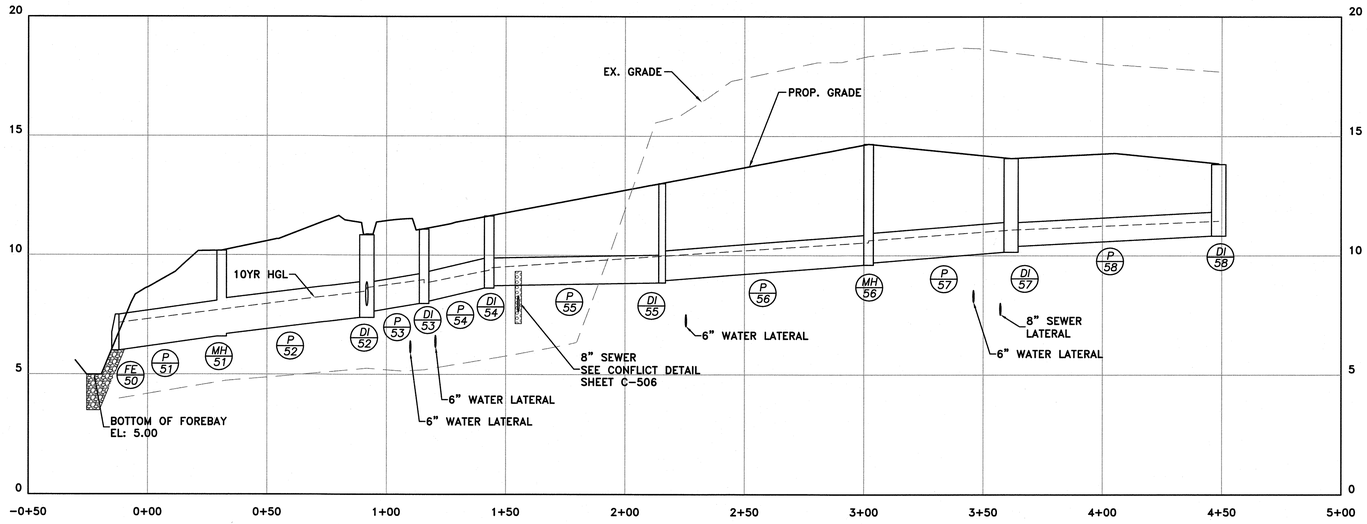
DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

STORM DRAIN PROFILES

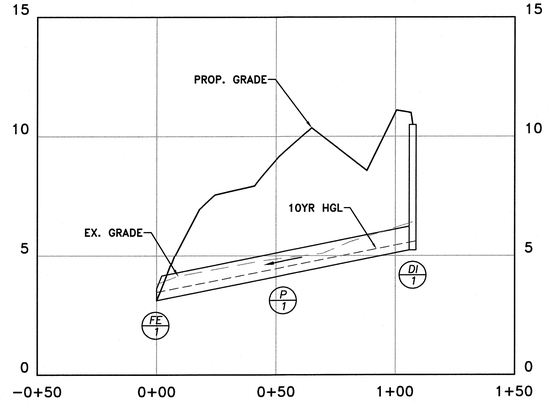
REVISIONS:
04/19/2018: COM COMMENTS
02/28/2019: COM COMMENTS
11/06/2020: KCD
12/29/2020: DNREC
04/16/2021: COM COMMENTS KCD
05/20/2021: COM COMMENTS

Date:	ARPIL, 2018
Scale:	H:1"=30' V:1"=3'
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-202



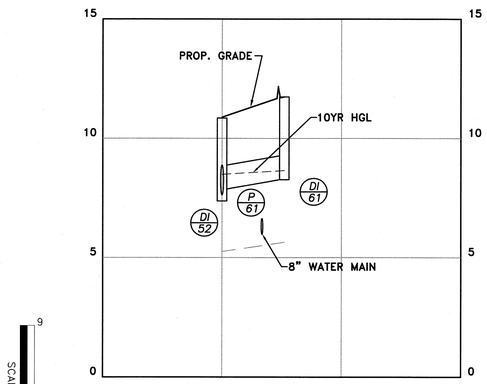
STORMWATER PROFILE
FE 51 TO DI 58

SCALE: HORIZ. = 1" = 30'
VERT. = 1" = 3'



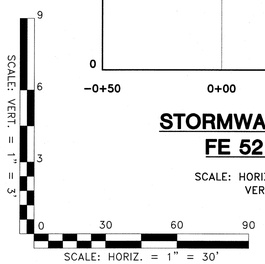
STORMWATER PROFILE
FE 1 TO DI 1

SCALE: HORIZ. = 1" = 30'
VERT. = 1" = 3'



STORMWATER PROFILE
FE 52 TO DI 61

SCALE: HORIZ. = 1" = 30'
VERT. = 1" = 3'



PIPE SCHEDULE

LABEL	DESCRIPTION							INVERT ELEVATION	
	FROM	TO	SIZE (IN)	TYPE	LENGTH	CLASS	SLOPE	IN	OUT
P 1	DI 1	FE 1	12	RCP	107	III	1.98%	5.24	3.12
P 51	MH 51	FE 50	18	RCP	43	III	1.37%	6.59	6.00
P 52	DI 52	MH 51	18	RCP	61	III	1.14%	7.38	6.69
P 53	DI 53	DI 52	15	RCP	24	III	1.40%	7.97	7.63
P 54	DI 54	DI 53	15	RCP	27	III	2.00%	8.62	8.07
P 55	DI 55	DI 54	15	RCP	73	III	0.32%	8.85	8.62
P 56	MH 56	DI 55	15	RCP	86	III	0.75%	9.60	8.95
P 57	DI 57	MH 56	15	RCP	60	III	0.75%	10.15	9.70
P 58	DI 58	DI 57	12	RCP	87	III	0.49%	10.83	10.40
P 61	DI 61	DI 52	12	RCP	26	III	1.50%	8.27	7.88

MANHOLE SCHEDULE

LABEL	TYPE	RIM ELEV.	INVERT	
			IN	OUT
MH 51	48"x48"	10.19	6.69	6.59
MH 56	48"x48"	14.67	9.70	9.60

DRAINAGE INLET SCHEDULE

LABEL	DESCRIPTION			T.G. ELEV.	INVERT IN	INVERT IN	INVERT OUT
	BOX	TOP UNIT	GRATE				
DI 1	34"X24"	TYPE C	TYPE 1	10.49			5.24
DI 52	72"X48"	TYPE C	TYPE 1	10.85	7.88	7.63	7.38
DI 53	48"X30"	TYPE C	TYPE 1	11.09		8.08	7.97
DI 54	48"X48"	TYPE C	TYPE 1	11.65		8.72	8.62
DI 55	48"X48"	TYPE C	TYPE 1	13.02		8.95	8.85
DI 57	34"X24"	TYPE C	TYPE 1	14.05		10.40	10.15
DI 58	34"X24"	TYPE C	TYPE 1	13.83			10.83
DI 61	34"X24"	TYPE C	TYPE 1	11.69			8.27

SEE APPROVED DELDOT ENTRANCE PLANS FOR INFORMATION ON PIPES AND BASINS LOCATED INSIDE THE R.O.W.

FLARED END SCHEDULE

LABEL	SIZE/TYPE		INVERT
FE 1	12"	RCP	3.12
FE 50	18"	RCP	6.00

DANIEL MUMFORD
LICENSED PROFESSIONAL ENGINEER
DELAWARE
SEP 24, 2021

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

STORM DRAIN PROFILES

REVISIONS:
04/19/2018: COM COMMENTS
02/28/2019: COM COMMENTS
11/06/2020: KCD
12/29/2020: DNREC
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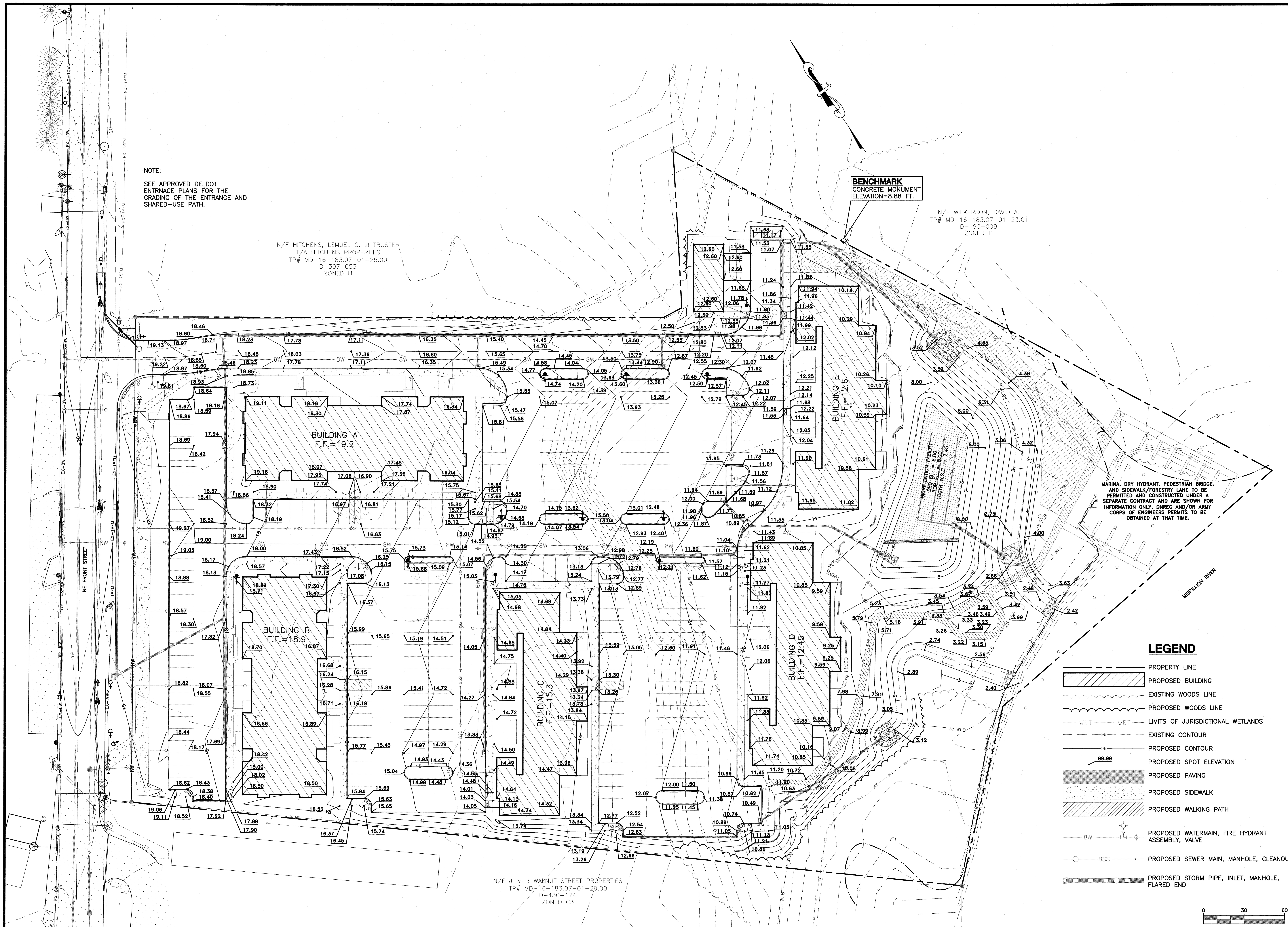
05/20/2021: COM COMMENTS

Date: JUNE 9, 2011
Scale: H:1"=30' V:1"=3'
Dwn.By: TPS
Proj.No.: 2137A001
Dwg.No.:

C-203



CLIFTON DANIEL MUMFORD LICENSED PROFESSIONAL ENGINEER DELAWARE NO. 19635
SEP 24 2021

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

GRADING PLAN

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

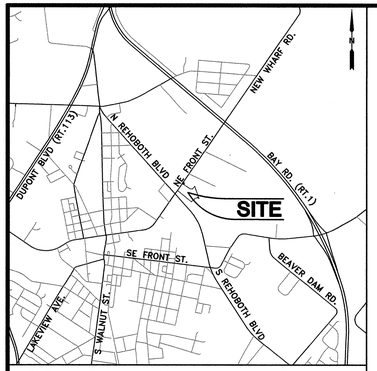
REVISIONS:
04/19/2018: COM COMMENTS
02/28/2019: COM COMMENTS
11/06/2020: KCD
12/29/2020: DNREC
04/16/2021: COM COMMENTS KCD
05/20/2021: COM COMMENTS

Date:	APRIL, 2018
Scale:	1" = 30'
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-301

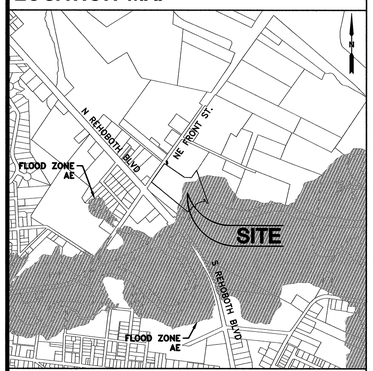
MISPILLION LANDING

CITY OF MILFORD
KENT COUNTY, DELAWARE
MILFORD HUNDRED
MISPILLION RIVER WATERSHED
SEDIMENT AND STORMWATER MANAGEMENT PLAN
JUNE, 2011
REVISED APRIL 16, 2021

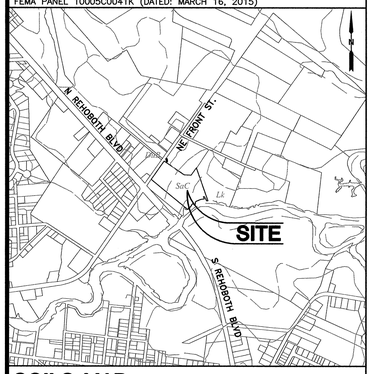
DBF # 2137A001



LOCATION MAP SCALE: 1" = 1/2 MILE



FLOODPLAIN MAP SCALE: 1" = 1000'
FEMA PANEL 10005C0041K (DATED: MARCH 16, 2015)



SOILS MAP SCALE: 1" = 1000'

DUB: DOWNER-URBAN LAND COMPLEX, 0 TO 5 PERCENT SLOPES (B/D)
Lk: LENAPE MUCKY PEAT, VERY FREQUENTLY FLOODED, TIDAL (D)
SoC: SASSAFRAS SANDY LOAM, 5 TO 10 PERCENT SLOPES (B)

DATA COLUMN

TAX MAP ID & AREA:
MD-16-183.07-01-27.00 6.673 AC.±

SURVEY DATA:
A FIELD RUN BOUNDARY AND TOPOGRAPHICAL LAND SURVEY WAS PERFORMED IN MARCH AND OCTOBER 2011 BY DAVIS, BOWEN, & FRIEDEL, INC.

DATUM:
VERTICAL: NAVD 88
HORIZONTAL: NAD 83 (DE STATE PLANE)

ZONING/LAND USE: R-3 (GARDEN APARTMENT & TOWNHOUSE DISTRICT)

EXISTING USE: VACANT BOAT YARD
PROPOSED USE: MULTI-FAMILY RESIDENTIAL

SETBACKS:
FRONT YARD: 30 FT.
REAR YARD: 15 FT.

BUILDING HEIGHT: 35 FT. OR LESS. NOT TO EXCEED THREE STORIES.

PARKING:
REQUIRED: SEE VARIANCE REQUEST BELOW
2.5 X 102 DU = 255 PARKING SPOTS
(2.5 PER DWELLING UNIT)
7 HANDICAP ACCESSIBLE SPOTS

PROPOSED: 222 PARKING SPOTS
10 HANDICAP ACCESSIBLE SPOTS
TOTAL: 232 SPOTS

VARIANCE REQUEST: 2.25 X 102 DU = 230 PARKING SPOTS
(2.25 PER DWELLING UNIT)(APPROVED 4/12/2018)

AREAS:
MINIMUM REQUIRED LOT AREA: 1 ACRE

GROSS SITE AREA: 6.673± AC.

DENSITY:
MAX DENSITY: 16 UNITS PER ACRE
PROPOSED DENSITY: 15.3 UNITS PER ACRE

MINIMUM LOT AREA PER UNIT: 2500 SQ. FT.
PROPOSED LOT AREA PER UNIT: 2850 SQ. FT. (6.673 AC. / 102 UNITS)

MINIMUM LOT WIDTH: 50 FEET

AREAS:
IMPERVIOUS AREA:
BUILDING COVERAGE: 1.133± AC. (17%)
MAXIMUM BUILDING COVERAGE: 1.335± AC. (20%)
PAVEMENT 2.392± AC.
SIDEWALK: 0.365± AC.
TOTAL IMPERVIOUS AREA: 3.890± AC. (58%)

PERVIOUS (INCLUDES WETLANDS): 2.783± AC.
TOTAL SITE AREA: 6.673± AC.

OPEN SPACE:
OPEN SPACE REQUIRED: 0.937 AC. (400 SQ. FT. PER DWELLING UNIT)
OPEN SPACE PROVIDED: 1.264 AC.
REC. OPEN SPACE REQUIRED: 0.468 AC. (50% OF REQUIRED OPEN SPACE)
REC. OPEN SPACE PROVIDED: 0.607 AC.

WETLANDS: 0.562± AC.

REMAINING PERVIOUS AREA: 0.957± AC.

BUILDING FOOTPRINTS:
18-UNIT: 7,470 SQ. FT.
24-UNIT: 9,264 SQ. FT.

MAXIMUM UNITS PER BUILDING: 12
PROPOSED UNITS PER BUILDING: 18 & 24
(VARIANCE REQUESTED TO EXCEED 12 UNITS PER BUILDING, (3) 18-UNIT AND (2) 24-UNIT BUILDINGS PROPOSED)(APPROVED 4/12/2018)

DWELLING UNITS PROPOSED: 102

UTILITIES:
SEWER PROVIDER: CITY OF MILFORD
ESTIMATED EDUs: 102 UNITS + 1 OFFICE AND MAINTENANCE BUILDING
103 TOTAL EDUs
WATER PROVIDER: CITY OF MILFORD
ELECTRIC PROVIDER: CITY OF MILFORD
GAS PROVIDER: CHESAPEAKE UTILITIES

LAT/LON:
BENCHMARK - CONCRETE MONUMENT FOUND: EAST PROPERTY LINE
LAT:38.9191, LON:-75.4165

SITE ADDRESS: 604 NE FRONT ST. MILFORD, DE 19963

THIS PROPERTY IS LOCATED 480'± TO THE EAST OF THE INTERSECTION OF N REHOBOTH BLVD (K21) AND NE FRONT STREET (K409).

WETLANDS - THE PROPERTY IS IMPACTED BY WETLANDS. NO WETLANDS ARE DISTURBED.

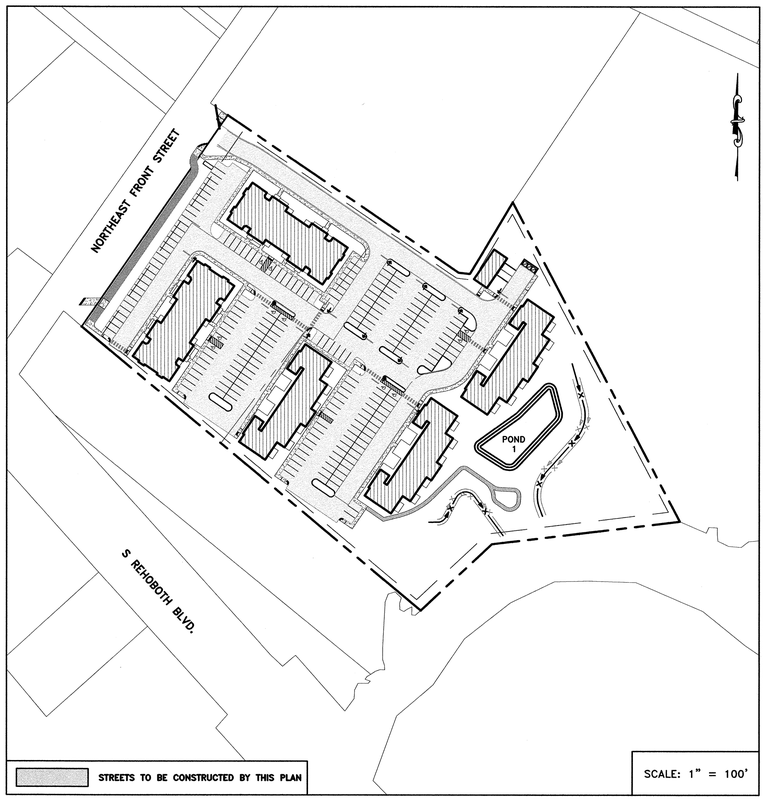
FLOODPLAIN - THE PROPERTY IS IMPACTED BY THE 100 YEAR FLOODPLAIN AS DIRECTED BY FEMA PANEL 10005C0041K DATED MARCH 16, 2015, LOCATED IN ZONE AE.

SOURCE WATER PROTECTION AREA - AS PER DNREC MAPPING, NO SOURCE WATER PROTECTION AREAS WERE SHOWN ON-SITE.

TOTAL LIMIT OF DISTURBANCE: 5.98 AC.

PROPERTY OWNER:
UNITY DEVELOPMENT, LLC
3403 LANCASTER PIKE
WILMINGTON, DE 19805
302-998-0531

ENGINEER:
DAVIS, BOWEN, & FRIEDEL, INC.
CLIFTON D. MUMFORD, P.E.
1 PARK AVE.
MILFORD, DE 19963
PHONE: 302-424-1441
FAX: 302-424-0430



SHEET INDEX	
C-400	COVERSHEET AND GENERAL NOTES
C-401	PRE CONSTRUCTION SITE STORMWATER MANAGEMENT PLAN
C-402	CONSTRUCTION SITE STORMWATER MANAGEMENT PLAN
C-403	CONSTRUCTION SITE DETAILS & NOTES
C-404	CONSTRUCTION SITE DETAILS
C-405	CONSTRUCTION SITE DETAILS
C-406	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
C-407	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
C-408	POND LANDSCAPE PLAN

SEDIMENT AND STORMWATER CONSTRUCTION NOTES:

1. THE KENT CONSERVATION DISTRICT MUST BE NOTIFIED IN WRITING FIVE (5) DAYS PRIOR TO COMMENCING OF CONSTRUCTION. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
2. REVIEW AND OR APPROVAL OF THE SEDIMENT AND STORMWATER MANAGEMENT PLAN SHALL NOT RELIEVE THE CONTRACTOR FROM HIS OR HER RESPONSIBILITIES FOR COMPLIANCE WITH THE REQUIREMENTS OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS, NOR SHALL IT RELIEVE THE CONTRACTOR FROM ERRORS OR OMISSIONS IN THE APPROVED PLAN.
3. IF THE APPROVED PLAN NEEDS TO BE MODIFIED, ADDITIONAL SEDIMENT AND STORMWATER CONTROL MEASURES MAY BE REQUIRED AS DEEMED NECESSARY BY THE KENT CONSERVATION DISTRICT.
4. FOLLOWING SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED FOR ALL PERIMETER SEDIMENT CONTROLS, SOIL STOCKPILES, AND ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE WITHIN 14 CALENDAR DAYS UNLESS MORE RESTRICTIVE FEDERAL REQUIREMENTS APPLY.
5. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL COMPLY WITH THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
6. 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.
7. APPROVED PLANS REMAIN VALID FOR 5 YEARS FROM THE DATE OF APPROVAL.
8. POST CONSTRUCTION VERIFICATION DOCUMENTS ARE TO BE SUBMITTED TO THE KENT CONSERVATION DISTRICT WITHIN 60-DAYS OF STORMWATER MANAGEMENT FACILITY COMPLETION.
9. APPROVAL OF A SEDIMENT AND STORMWATER MANAGEMENT PLAN DOES NOT GRANT OR 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.
10. THE NOTICE OF INTENT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER A NPDES GENERAL PERMIT FOR THIS PROJECT IS #2120. AT ANY TIME THE OWNERSHIP FOR 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.
11. 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.
12. 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 ONSITE.
13. 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 INSPECTOR.
14. BEST AVAILABLE TECHNOLOGY (BAT) SHALL BE EMPLOYED TO MANAGE TURBID DISCHARGES IN ACCORDANCE WITH REQUIREMENTS OF 7. DEL C. CH 60, REGULATIONS GOVERNING THE CONTROL OF WATER POLLUTION, SECTION 9.1.02, KNOWN AS SPECIAL CONDITIONS FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES, AND DEPARTMENT POLICIES, PROCEDURES, AND GUIDANCE.
15. 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 CONSERVATION DISTRICT TO VERIFY THAT THE PERMANENT OR TEMPORARY STABILIZATION HAS BEEN COMPLETED IN ACCORDANCE WITH THE APPROVED PLAN. THE KENT CONSERVATION DISTRICT MAY REQUIRE ADDITIONAL SOIL TESTING AND REAPPLICATION OF PERMANENT OR TEMPORARY STABILIZATION.
16. A PRE-CONSTRUCTION MEETING MUST TAKE PLACE BEFORE ANY EARTH DISTURBING ACTIVITY BEGINS. THE MEETING MUST BE ATTENDED BY THE OWNER'S REPRESENTATIVE, CONTRACTOR, CCR (IF REQUIRED FOR THE SITE), AND KENT CONSERVATION DISTRICT INSPECTOR.
17. THE KENT CONSERVATION DISTRICT RESERVES THE RIGHT TO ENTER PRIVATE PROPERTY FOR THE PURPOSES OF PERIODIC SITE INSPECTION.
18. THE SEQUENCE OF CONSTRUCTION ON THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN MUST BE STRICTLY ADHERED. ANY DIVERGENCE FROM THE APPROVED CONSTRUCTION SEQUENCE REQUIRES A WRITTEN REQUEST TO MODIFY AND THE WRITTEN APPROVAL OF THE KENT CONSERVATION DISTRICT.
19. A COPY OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN MUST BE MAINTAINED ON-SITE AT ALL TIMES DURING CONSTRUCTION.
20. IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO PROVIDE LONG TERM MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES.
21. KCD RESERVES THE RIGHT TO WITHHOLD PERMITS AND LETTERS OF NO OBJECTION RELATED TO OBTAINING CERTIFICATES OF OCCUPANCY FROM THE LOCAL JURISDICTION FOR NON COMPLIANCE WITH THE PLANS AND SPECIFICATION FOR STORMWATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL.
22. PRIOR TO START OF HOME CONSTRUCTION ON EACH RESIDENTIAL LOT WITHIN A SUBDIVISION OR BUILDING ON COMMERCIAL PROPERTY, GRADING FOR WORK ON THAT LOT MUST BE APPROVED BY KCD.
23. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION IS ESTABLISHED.
24. ALL AREAS NOT COVERED BY PAVEMENT WILL BE SEEDED USING TEMPORARY VEGATIVE STABILIZATION SEED MIX NO. 5 AND PERMANENT VEGATIVE STABILIZATION SEED MIX NO. 7. ALL AREAS BELOW ELEVATION 9 WILL BE SEEDED USING PERMANENT SEED MIX #9. (SEE SHEET C-403 FOR TOPSOILING, TEMPORARY & PERMANENT SEEDING & MULCHING SPECIFICATIONS).
25. PERMANENT SEED MIXTURE SHOWN ON THIS PLAN.
26. A CERTIFIED CONSTRUCTION REVIEWER (CCR) MAY BE HIRED TO MONITOR CONSTRUCTION OF THIS PROJECT.

BUILDING PERMIT RESTRICTIONS

BUILDING PERMITS WILL BE RESTRICTED DUE TO IMPROVEMENTS ALONG FRONT STREET (K409) AS FOLLOWS:
1. THE CITY OF MILFORD CAN INITIALLY ISSUE BUILDING PERMITS FOR UP TO 42 UNITS (ONE 18 UNIT BUILDING AND ONE 24 UNIT BUILDING, TWO TOTAL BUILDINGS) PLUS THE SALES OFFICE/MAINTENANCE SHOP.
2. THE CERTIFICATE OF OCCUPANCY FOR THE PERMITS IN ITEM 1 CANNOT BE ISSUED BY THE CITY OF MILFORD UNTIL THE ENTRANCE AND DECELERATION LANE ARE INSTALLED AND ACCEPTED BY THE STATE.
3. ANY REMAINING CONSTRUCTION CAN BE COMPLETED ONCE ITEMS 1-2 HAVE BEEN COMPLETED.

LEGEND

- SF — SILT FENCE — DETAIL: SHEET C-403
- LOD — LIMIT OF DISTURBANCE
- LOD/SF — LIMIT OF DISTURBANCE / SILT FENCE — DETAIL: SHEET C-405
- LOD/SSF — LIMIT OF DISTURBANCE / SUPER SILT FENCE — DETAIL: SHEET C-405
- PHASE LINE
- DI 103, MH 103, P 103 — CATCH BASIN, STORM DRAIN, FLOW ARROW, MANHOLE & LABELS
- SWALE
- SF, TEMPORARY STOCKPILE AREA, SS, JS — TEMPORARY STOCKPILE AREA — DETAIL: SHEET C-406
- MSA — MAINTENANCE SET ASIDE AREA
- IP1 — INLET PROTECTION TYPE-1 — DETAIL: SHEET C-405
- IP2 — INLET PROTECTION TYPE-2 — DETAIL: SHEET C-405
- RST — RIPRAP SEDIMENT TRAP — DETAIL: SHEET C-405
- CW — CONCRETE WASHOUT — DETAIL: SHEET C-405
- SCE — STABILIZED CONSTRUCTION ENTRANCE — DETAIL: SHEET C-403
- ROP-1 — RIPRAP OUTLET PROTECTION TYPE-1 — DETAIL: SHEET C-404
- ROP-2 — RIPRAP OUTLET PROTECTION TYPE-2 — DETAIL: SHEET C-404
- SM-S — STABILIZATION MATTING - SLOPE TYPE: SSM-1, NORTH AMERICAN GREEN S75BN (OR APPROVED EQUAL) — DETAIL: SHEET C-404
- SM-C — STABILIZATION MATTING - CHANNEL TYPE: SSM-1, NORTH AMERICAN GREEN S75BN (OR APPROVED EQUAL) — DETAIL: SHEET C-404

WETLANDS STATEMENT

I, EDWARD M. LAUNAY, PWS, STATE THAT THE BOUNDARIES OF WATERS OF THE UNITED STATES INCLUDING WETLANDS SUBJECT TO THE CORPS OF ENGINEERS REGULATORY PROGRAM DELINEATED UPON THIS PLAN HAVE BEEN DETERMINED USING MY PROFESSIONAL JUDGEMENT IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, REGULATIONS AND IT'S OF ENGINEERS GUIDANCE INCLUDING THE ATLANTIC AND GULF COAST REGIONAL SUPPLEMENT (VERSION2.0) AND THE 2020 NAVIGABLE WATERS PROTECTION RULE. THIS DELINEATION HAS NOT BEEN CONDUCTED FOR USDA PROGRAM OR AGRICULTURAL PURPOSES.

THE BOUNDARIES OF STATE REGULATED WETLANDS ON THIS PROPERTY WERE DETERMINED IN ACCORDANCE WITH DNREC WETLAND MAP NO. DNR-209

HYDRIC SOILS EXISTING ON THIS PROPERTY AREA LIMITED TO AREAS DELINEATED AS WETLANDS.

EDWARD M. LAUNAY, PWS, INC. #345 — 7/21/2021 DATE
SOCIETY OF WETLANDS SCIENTISTS
CORPS OF ENGINEERS, CERTIFIED WETLAND DELINEATOR WDCP93MD05100368

OWNER'S CERTIFICATION

"I, THE UNDERSIGNED, CERTIFY THAT ALL LAND CLEARING, CONSTRUCTION AND DEVELOPMENT SHOULD BE DONE PURSUANT TO THE APPROVED PLAN AND THAT RESPONSIBLE PERSONNEL (I.E., BLUE CARD HOLDER) 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 ONSITE REVIEWS, AND I UNDERSTAND MY RESPONSIBILITIES UNDER THE NPDES CONSTRUCTION GENERAL PERMIT, AS REFERENCED ON THIS COVERSHEET."

MICHAEL SIMEONE, MANAGING MEMBER — 7/22/2021 DATE
UNITY DEVELOPMENT, LLC
3403 LANCASTER PIKE
WILMINGTON, DE 19805
302-998-0531

ENGINEER'S STATEMENT

I, CLIFTON D, MUMFORD, P.E., HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE COMPLIES WITH THE APPLICABLE STATE AND LOCAL REGULATIONS AND ORDINANCES.

CLIFTON D. MUMFORD LICENSED PROFESSIONAL ENGINEER DELAWARE

7/28/2021 DATE
DAVIS, BOWEN & FRIEDEL, INC.
by CLIFTON D, MUMFORD, P.E.

DAVIS, BOWEN & FRIEDEL, INC.
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KENT CONSERVATION DISTRICT APPROVAL BOX

APPROVED
With Conditions
KENT CONSERVATION DISTRICT

Review By Katherine Owens Date 08/17/2021
Approved By Jared C. Adkins, P.E. Date 08/17/2021

C-400

DEMOLITION NOTES

1. CURRENT UTILITY SERVICE AND ACCESS TO ADJOINING PARCELS SHALL BE MAINTAINED THROUGHOUT DEMOLITION AND CONSTRUCTION.
2. BEFORE ANY EXCAVATION OR DEMOLITION IS PERFORMED, THE CONTRACTOR SHALL CONTACT "MISS UTILITY" OF DELMARVA AT 1-800-282-8555, AT LEAST THREE (3) WORKING DAYS PRIOR TO EXCAVATION TO HAVE EXISTING UNDERGROUND UTILITIES LOCATED.
3. CONTRACTOR TO COORDINATE DEMOLITION ACTIVITIES WITH THE CITY OF MILFORD PRIOR TO BEGINNING DEMOLITION.
4. DEMOLITION CONTRACTOR TO COORDINATE WORK WITH THE POWER COMPANY, TELEPHONE COMPANY, CABLE COMPANY AND THE STATE FIRE MARSHAL'S OFFICE PRIOR TO BEGINNING BUILDING AND SITE DEMOLITIONS.
5. EROSION AND SEDIMENT CONTROL PERIMETER INSPECTION IS REQUIRED WITH THE KENT CONSERVATION DISTRICT PRIOR TO DEMOLITION.
6. EXISTING UTILITY LOCATIONS ARE BEST AVAILABLE INFORMATION AND ARE SHOWN FOR THE CONTRACTOR'S CONVENIENCE ONLY. THE CONTRACTOR SHALL VERIFY LOCATION, SIZE, MATERIAL, AND INVERT OF ALL EXISTING UTILITIES BEFORE STARTING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED TO EXISTING UTILITIES OF EVERY DESCRIPTION, WHETHER DIRECT OR INDIRECT, AND SHALL REPAIR ANY DAMAGE CAUSED THERETO AT HIS OWN EXPENSE. ANY DISCREPANCIES IN LOCATIONS OR ELEVATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN ORDER THAT THE DESIGN MAY BE ADJUSTED ACCORDINGLY. DAMAGE SUFFERED OR ADDITIONAL COSTS INCURRED BY THE CONTRACTOR AS A RESULT OF HIS FAILURE TO CONFORM TO THE REQUIREMENTS OF THIS PARAGRAPH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
7. ANY EXISTING ON-SITE WASTEWATER SYSTEMS SHALL BE REMOVED OR CRUSHED, AND FILLED ACCORDING TO DELAWARE DNREC REQUIREMENTS.
8. DEMOLITION PLAN IS NOT INCLUSIVE OF ALL PAVEMENT AND UTILITIES TO BE DEMOLISHED. CONTRACTOR SHALL PERFORM ALL DEMOLITION AS NECESSARY TO CONSTRUCT PROJECT.
9. CONTRACTOR TO PROTECT FROM DAMAGE, DUST, DEBRIS, ETC. ADJACENT BUILDINGS.
10. WHEN DEMOLISHING PAVEMENT ADJACENT TO EXISTING PAVING TO REMAIN, CONTRACTOR SHALL SAW CUT THE PAVING FULL DEPTH PRIOR TO BEGINNING DEMOLITION.
11. CONTRACTOR SHALL REMOVE ALL TREES, SHRUBS, ETC. NECESSARY FOR INSTALLATION OF NEW FACILITY.
12. ALL DEMOLITION AND DISPOSAL SHALL BE PERFORMED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS AND REQUIREMENTS.
13. ITEMS TO BE REMOVED INCLUDE, BUT ARE NOT LIMITED TO: PAVING, STEPS, CONCRETE PADS, LANDSCAPING, TREES, SHRUBS, POSTS, MAILBOXES, SIGNS, DRAINAGE INLETS, STORM PIPES, SEWER PIPES, WATER PIPES, LIGHT POLES, BUILDINGS, SIGNS, FENCES, AND SITE FIXTURES.
14. SEE CONSTRUCTION PLANS FOR PLACEMENT OF RELOCATED ITEMS.
15. DNREC HAS NO KNOWLEDGE OF ANY SEPTIC SYSTEMS, HOLDINGS TANKS, AND/OR WELLS LOCATED ON THIS SITE. IF ANY WELLS OR ON-SITE WASTEWATER SYSTEMS, INCLUDING SEPTIC TANKS, HOLDING TANKS, OR DRAIN FIELDS ARE FOUND. THEY SHALL BE REMOVED ACCORDING TO DNREC REQUIREMENTS. FOR ADDITIONAL INFORMATION CONTACT DNREC AT 302-739-9947 (SCOTT EICHHOLZ) REGARDING SEPTIC REMOVAL OR 302-739-9944 (ALAN PONGRATZ) REGARDING WELL ABANDONMENT/REMOVAL.

NOTE:
LIMIT OF DISTURBANCE: 6.45 AC.

Vegetated Trapezoidal Channel Data	
Design Discharge (Qd)	20 CFS
Design topwidth (TW)	20 FT.
Design depth (D)	1.25 FT.
Design bottom width (B)	10 FT.
Design sideslope (Z)	4:1
Design channel slope (s)	0.50%
Width of stabilization mat (w)	20 ft.
Type of stabilization matting	NA Green SC150BN

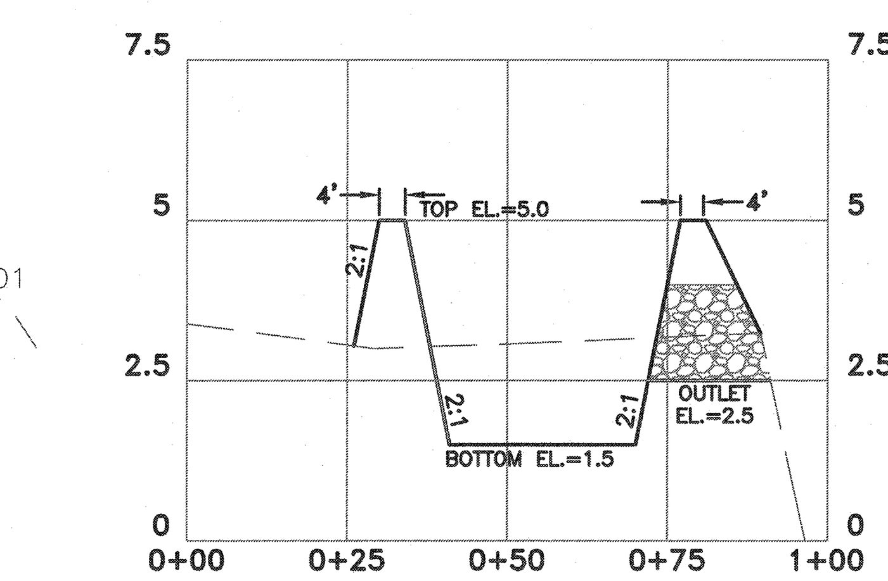
Riprap Outlet Sediment Trap Data	
Drainage Area (D.A.)	6.16 AC.±
Required Storage (Vs)	22,176 CF
Provided Storage	24,373 CF (above 2.5)
Design Dimensions	AS SHOWN
Bottom Elevation	1.5 FT.
Embankment Height (H)	2.5 FT.
Channel Depth (a)	1.5 FT.
Weir Length (b)	14 FT

Vegetated Trapezoidal Channel Data	
Design Discharge (Qd)	10 CFS
Design topwidth (TW)	12 FT.
Design depth (D)	1.0 FT.
Design bottom width (B)	4 FT.
Design sideslope (Z)	4:1
Design channel slope (s)	0.50%
Width of stabilization mat (w)	12 ft.
Type of stabilization matting	NA Green SC150BN

DEMOLITION/EROSION AND SEDIMENT CONTROL

SEQUENCE OF CONSTRUCTION

1. NOTIFY THE KENT CONSERVATION DISTRICT MUST IN WRITING FIVE (5) DAYS PRIOR TO STARTING CONSTRUCTION. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
2. PRIOR TO ANY CLEARING, INSTALLATION OF SEDIMENT CONTROL MEASURES OR GRADING, A PRE-CONSTRUCTION MEETING MUST BE SCHEDULED AND CONDUCTED WITH THE KENT CONSERVATION DISTRICT CONSTRUCTION SITE INSPECTOR. THE LANDOWNER/DEVELOPER, CONTRACTOR, AND CERTIFIED CONSTRUCTION REVIEWER ARE REQUIRED TO BE IN ATTENDANCE AT THE PRE-CONSTRUCTION MEETING.
3. ALL PERIMETER CONTROLS ARE TO BE REVIEWED BY THE KENT CONSERVATION DISTRICT SITE INSPECTOR AND APPROVED PRIOR TO PROCEEDING WITH FURTHER SITE DISTURBANCE OR CONSTRUCTION. INSTALL PERIMETER SILT FENCE AND STABILIZED CONSTRUCTION ENTRANCES. CONTACT THE KCD SITE INSPECTOR FOR A PERIMETER INSPECTION PRIOR TO ANY FURTHER WORK.
4. 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.
5. NOTIFY THE KENT CONSERVATION DISTRICT SITE INSPECTOR FOR STORMWATER SYSTEM CONSTRUCTION REVIEW AT LEAST 3 DAYS PRIOR TO THE START OF THE STORMWATER SYSTEM CONSTRUCTION; STORMWATER FACILITIES MUST BE REVIEWED THROUGHOUT THEIR CONSTRUCTION.
6. EROSION AND SEDIMENT CONTROL DEVICES SHOULD BE REMOVED ONLY AFTER WORK IN AN AREA HAS BEEN COMPLETED AND STABILIZED, WITH KENT CONSERVATION DISTRICT SITE INSPECTOR'S APPROVAL.
7. PRIOR TO COMMENCING A NEW PHASE OF CONSTRUCTION, THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE KENT CONSERVATION DISTRICT THAT THE PREVIOUS PHASE HAS BEEN SUFFICIENTLY STABILIZED.
8. CONSTRUCT RIPRAP OUTLET SEDIMENT TRAP. DO NOT PERFORM EXCAVATIONS IN THE AREA OF THE CLAY CORE TRENCH FOR THE FUTURE BIO-RETENTION POND EMBANKMENT.
9. CONSTRUCT DIVERSION CHANNELS TO SEDIMENT TRAP.
10. TOPSOIL, SEED AND MULCH ALL DISTURBED AREAS PER VEGETATIVE STABILIZATION SPECIFICATIONS.
11. CALL KENT CONSERVATION DISTRICT FOR INSPECTION.
12. BEGIN DEMOLITION AS INDICATED.
13. TOPSOIL, SEED AND MULCH ALL DISTURBED AREAS PER VEGETATIVE STABILIZATION SPECIFICATIONS AS WORK PROGRESSES.
14. WHEN ALL DEMOLITION IS COMPLETE, INSPECT AND REPAIR EROSION AND SEDIMENT CONTROL MEASURES. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO REMAIN FOR CONSTRUCTION PHASE.
15. 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.



SECTION S-S
H: 1" = 30'
V: 1" = 3'

LEGEND

- AREA OF DEMOLITION/REMOVAL
- AREA OF SURFACE DEMOLITION ONLY (NO UNDERGROUND DEMOLITION)
- RM/C — REMOVE BY CONTRACTOR
- UTILITY POLE / MAILBOX / SEWER CLEAN OUT
- SCE — STABILIZED CONSTRUCTION ENTRANCE (SEE DETAIL SHEET C-403)
- RST — RIPRAP OUTLET SEDIMENT TRAP (SEE DETAIL SHEET C-405)
- PP-1 — PUMPING PIT (BACKUP DEWATERING) (SEE DETAIL SHEET C-404)
- VC-T / D — DIVERSION (SEE DETAIL SHEET C-405)
- CW — CONCRETE WASHOUT (SEE DETAIL SHEET C-405)
- SF — SILT FENCE (SEE DETAIL SHEET C-403)
- SSF — SUPER SILT FENCE (SEE DETAIL SHEET C-405)
- LOD — LIMIT OF DISTURBANCE
- 100 YEAR FLOOD PLAIN

CLIFTON DANIEL MUMFORD LICENSED PROFESSIONAL ENGINEER STATE OF DELAWARE 7/28/2021

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PRE CONSTRUCTION SITE STORMWATER MANAGEMENT PLAN

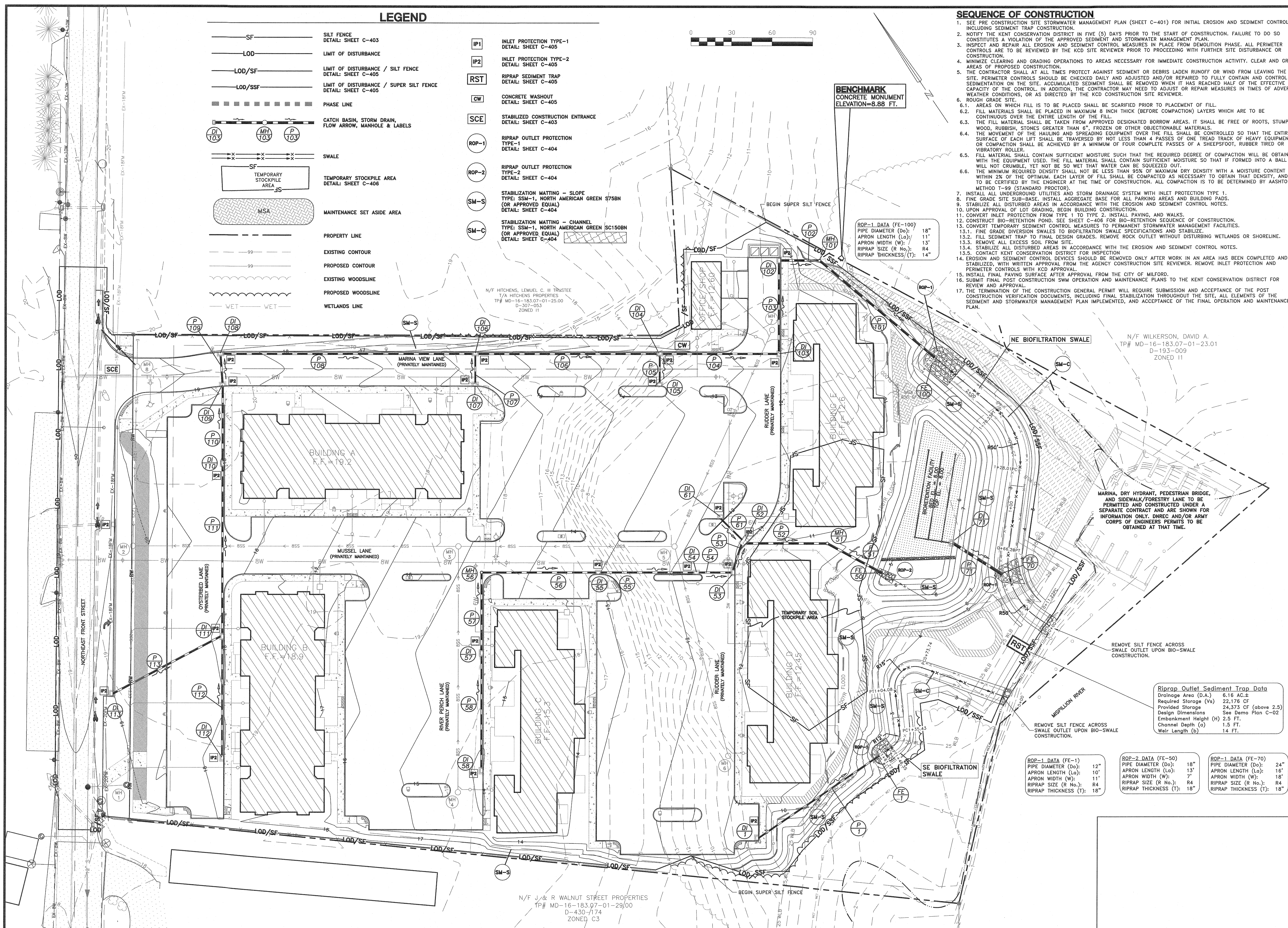
SEDIMENT AND STORMWATER MANAGEMENT PLANS

KENT CONSERVATION DISTRICT 08/17/2021 ECO

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

REVISIONS:
04/19/2018: COM COMMENTS
02/28/2019: COM COMMENTS
11/06/2020: KCD
12/29/2020: DNREC
04/16/2021: COM COMMENTS KCD
05/20/2021: COM COMMENTS
06/23/2021: KCD

Date:	APRIL, 2018
Scale:	1" = 30'
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-401


LEGEND
SILT FENCE DETAIL: SHEET C-403
LIMIT OF DISTURBANCE
LIMIT OF DISTURBANCE / SILT FENCE DETAIL: SHEET C-405
LIMIT OF DISTURBANCE / SUPER SILT FENCE DETAIL: SHEET C-405
PHASE LINE
CATCH BASIN, STORM DRAIN, FLOW ARROW, MANHOLE & LABELS
SWALE
TEMPORARY STOCKPILE AREA DETAIL: SHEET C-406
MAINTENANCE SET ASIDE AREA
PROPERTY LINE
EXISTING CONTOUR
PROPOSED CONTOUR
EXISTING WOODSLINE
PROPOSED WOODSLINE
WETLANDS LINE
IP1 INLET PROTECTION TYPE-1 DETAIL: SHEET C-405
IP2 INLET PROTECTION TYPE-2 DETAIL: SHEET C-405
RST RIPRAP SEDIMENT TRAP DETAIL: SHEET C-405
CW CONCRETE WASHOUT DETAIL: SHEET C-405
SCE STABILIZED CONSTRUCTION ENTRANCE DETAIL: SHEET C-403
ROP-1 RIPRAP OUTLET PROTECTION TYPE-1 DETAIL: SHEET C-404
ROP-2 RIPRAP OUTLET PROTECTION TYPE-2 DETAIL: SHEET C-404
SM-S STABILIZATION MATTING – SLOPE TYPE: SSM-1, NORTH AMERICAN GREEN S75BN (OR APPROVED EQUAL) DETAIL: SHEET C-404
SM-C STABILIZATION MATTING – CHANNEL TYPE: SSM-1, NORTH AMERICAN GREEN SC150BN (OR APPROVED EQUAL) DETAIL: SHEET C-404
BENCHMARK
CONCRETE MONUMENT ELEVATION=8.88 FT.
BEGIN SUPER SILT FENCE
N/F HITCHENS, LEMUEL C. III TRUSTEE T/A HITCHENS PROPERTIES TP# MD-16-183.07-01-25.00 D-307-053 ZONED I1
N/F WILKERSON, DAVID A. TP# MD-16-183.07-01-23.01 D-193-009 ZONED I1
NE BIOFILTRATION SWALE
SE BIOFILTRATION SWALE
MARINA VIEW LANE (PRIVATELY MAINTAINED)
MUSSEL LANE (PRIVATELY MAINTAINED)
OYSTERBED LANE (PRIVATELY MAINTAINED)
RIVER PERCH LANE (PRIVATELY MAINTAINED)
RUDDER LANE (PRIVATELY MAINTAINED)
NORTHEAST FRONT STREET
BUILDING A F.F.=19.2
BUILDING B F.F.=18.9
BUILDING C F.F.=15.3
BUILDING D F.F.=12.45
BUILDING E F.F.=12.6
OFFICE/SHOP F.F.=12.60
TEMPORARY SOIL STOCKPILE AREA
BIORETENTION FACILITY
MARINA, DRY HYDRANT, PEDESTRIAN BRIDGE, AND SIDEWALK/FORESTRY LANE TO BE PERMITTED AND CONSTRUCTED UNDER A SEPARATE CONTRACT AND ARE SHOWN FOR INFORMATION ONLY. DNREC AND/OR ARMY CORPS OF ENGINEERS PERMITS TO BE OBTAINED AT THAT TIME.
REMOVE SILT FENCE ACROSS SWALE OUTLET UPON BIO-SWALE CONSTRUCTION.
MISPILLION RIVER
N/F J & R WALNUT STREET PROPERTIES TP# MD-16-183.07-01-29.00 D-430-174 ZONED C3
BEGIN SUPER SILT FENCE

SEQUENCE OF CONSTRUCTION

1. SEE PRE CONSTRUCTION SITE STORMWATER MANAGEMENT PLAN (SHEET C-401) FOR INITIAL EROSION AND SEDIMENT CONTROL, INCLUDING SEDIMENT TRAP CONSTRUCTION.
2. NOTIFY THE KENT CONSERVATION DISTRICT IN FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
3. INSPECT AND REPAIR ALL EROSION AND SEDIMENT CONTROL MEASURES IN PLACE FROM DEMOLITION PHASE. ALL PERIMETER CONTROLS ARE TO BE REVIEWED BY THE KCD SITE REVIEWER PRIOR TO PROCEEDING WITH FURTHER SITE DISTURBANCE OR CONSTRUCTION.
4. MINIMIZE CLEARING AND GRADING OPERATIONS TO AREAS NECESSARY FOR IMMEDIATE CONSTRUCTION ACTIVITY. CLEAR AND GRUB AREAS OF PROPOSED CONSTRUCTION.
5. 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 KCD CONSTRUCTION SITE REVIEWER.
6. ROUGH GRADE SITE.
   - 6.1. AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL.
   - 6.2. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL.
   - 6.3. THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS.
   - 6.4. THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN 4 PASSES OF ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRED OR VIBRATORY ROLLER.
   - 6.5. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.
   - 6.6. THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).
7. INSTALL ALL UNDERGROUND UTILITIES AND STORM DRAINAGE SYSTEM WITH INLET PROTECTION TYPE 1.
8. FINE GRADE SITE SUB-BASE. INSTALL AGGREGATE BASE FOR ALL PARKING AREAS AND BUILDING PADS.
9. STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL NOTES.
10. UPON APPROVAL OF LOT GRADING, BEGIN BUILDING CONSTRUCTION.
11. CONVERT INLET PROTECTION FROM TYPE 1 TO TYPE 2. INSTALL PAVING, AND WALKS.
12. CONSTRUCT BIO-RETENTION POND. SEE SHEET C-406 FOR BIO-RETENTION SEQUENCE OF CONSTRUCTION.
13. CONVERT TEMPORARY SEDIMENT CONTROL MEASURES TO PERMANENT STORMWATER MANAGEMENT FACILITIES.
   - 13.1. FINE GRADE DIVERSION SWALES TO BIOFILTRATION SWALE SPECIFICATIONS AND STABILIZE.
   - 13.2. FILL SEDIMENT TRAP TO FINAL DESIGN GRADES. REMOVE ROCK OUTLET WITHOUT DISTURBING WETLANDS OR SHORELINE.
   - 13.3. REMOVE ALL EXCESS SOIL FROM SITE.
   - 13.4. STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL NOTES.
   - 13.5. CONTACT KENT CONSERVATION DISTRICT FOR INSPECTION
14. 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. REMOVE INLET PROTECTION AND PERIMETER CONTROLS WITH KCD APPROVAL.
15. INSTALL FINAL PAVING SURFACE AFTER APPROVAL FROM THE CITY OF MILFORD.
16. SUBMIT FINAL POST CONSTRUCTION SWM OPERATION AND MAINTENANCE PLANS TO THE KENT CONSERVATION DISTRICT FOR REVIEW AND APPROVAL.
17. 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.

ROP-1 DATA (FE-100)	
PIPE DIAMETER (Do):	18"
APRON LENGTH (La):	11'
APRON WIDTH (W):	13'
RIPRAP SIZE (R No.):	R4
RIPRAP THICKNESS (T):	14"

Riprap Outlet Sediment Trap Data	
Drainage Area (D.A.)	6.16 AC.±
Required Storage (Vs)	22,176 CF
Provided Storage	24,373 CF (above 2.5)
Design Dimensions	See Demo Plan C-02
Embankment Height (H)	2.5 FT.
Channel Depth (a)	1.5 FT.
Weir Length (b)	14 FT.

ROP-1 DATA (FE-1)	
PIPE DIAMETER (Do):	12"
APRON LENGTH (La):	10'
APRON WIDTH (W):	11'
RIPRAP SIZE (R No.):	R4
RIPRAP THICKNESS (T):	18"

ROP-2 DATA (FE-50)	
PIPE DIAMETER (Do):	18"
APRON LENGTH (La):	13'
APRON WIDTH (W):	7'
RIPRAP SIZE (R No.):	R4
RIPRAP THICKNESS (T):	18"

ROP-1 DATA (FE-70)	
PIPE DIAMETER (Do):	24"
APRON LENGTH (La):	16'
APRON WIDTH (W):	18'
RIPRAP SIZE (R No.):	R4
RIPRAP THICKNESS (T):	18"

CLIFTON DANIEL MUMFORD LICENSED NO. 10635 DELAWARE PROFESSIONAL ENGINEER 7/28/2021

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CONSTRUCTION SITE STORMWATER MANAGEMENT PLAN

SEDIMENT AND STORMWATER MANAGEMENT PLANS

KENT CONSERVATION DISTRICT 08/17/2021 KCO

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

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Date:	APRIL, 2018
Scale:	1" = 30'
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-402

Standard Detail & Specifications
Vegetative Stabilization

TEMPORARY SEEDING BY RATES, DEPTHS AND DATES											
Mix #	Species[6]	Seeding Rate		Optimum Seeding Dates [1] O = Optimum Planting Period; A = Acceptable Planting Period							Planting Depth[3]
				Coastal Plain			Piedmont			All	
	Certified Seed	lb/Ac[5]	lb/1000 sq.ft.	2/1-4/30	[2] 5/1-8/14	8/15-10/31	3/1-4/30	[2] 5/1-7/31	8/1-10/31	10/31-2/1	
1	Barley	125	4	O	A	O	O	A	O		1-2 inches 2-3" sandy soils
2	Oats	125	4	O	A	A	O	A	A		1-2 inches 2-3" sandy soils
3	Rye	125	4	O	A	O	O	A	O	A	1-2 inches 2-3" sandy soils
4	Perennial Ryegrass	125	4	O	A	O	O	A	O		0.5 inches 1-2" sandy soils
5	Annual Ryegrass	125	4	O	A	O	O	A	O	A	0.5 inches 1-2" sandy soils
6	Winter Wheat	125	4	O	A	O	O	A	O	A	1-2 inches 2-3" sandy soils
7	Foxtail Millet	30 PLS	0.7		O			O			0.5 inches 1-2" sandy soils
8	Pearl Millet	20 PLS	0.5		O			O			0.5 inches 1-2" sandy soils

1. Winter seeding requires 3 tons per acre of straw mulch for proper stabilization.
2. May be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
3. Applicable on slopes 3:1 or less.
4. Fifty pounds per acre of Annual Lespedeza 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".

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source: Delaware ESC Handbook | Symbol: | Detail No. **DE-ESC-3.4.3** Sheet 1 of 4 Effective FEB 2019

Standard Detail & Specifications
Vegetative Stabilization

PERMANENT SEEDING AND SEEDING DATES											
	Seeding Mixtures	Seeding Rate[1]		Optimum Seeding Dates [2] O = Optimum Planting Period A = Acceptable Planting Period							Remarks
Mix No.	Certified Seed[3]			Coastal Plain			Piedmont			All[4]	
	Well Drained Soils	lb/Ac	lb/1000 sq.ft.	2/1-4/30	5/1-8/14	8/15-10/31	3/1-4/30	5/1-7/31	8/1-10/31	10/31-2/1	
1	Tall Fescue Weeping Lovegrass	140 10	3.2 0.23	A	O	A	A	O	A	Add 100 lbs./ac Winter Rye	Good erosion control mix Tolerant of low fertility soils Lovegrass very difficult to mow; Germinates only in hot weather
2	Deertongue Sheep Fescue Common Lespedeza[5] Inoculated	30 30 15	0.69 0.69 0.35	A	O	A	A	O	A	Add 100 lbs./ac Winter Rye	Good erosion control mix Tolerant of low fertility soils Good wildlife cover and food
3	Tall Fescue (Turf-type) **or** Strong Creeping Red Fescue **or** Perennial Ryegrass **plus** Flatpea[5]	50 50 50 15	1.15 1.15 1.15 0.34	O	A	O	O	A	O	Add 100 lbs./ac. Winter Rye	Good erosion control mix Tall Fescue for droughty conditions. Creeping Red Fescue for heavy shade. Flatpea to suppress woody vegetation.
4	Strong Creeping Red Fescue Kentucky Bluegrass Perennial Ryegrass **or** Redtop **plus** White Clover[5]	100 70 15 5 3	2.3 1.61 0.35 0.11 0.07	O	A	O	O	A	O	Add 100 lbs./ac. Winter Rye	Suitable waterway mix. Canada Bluegrass more drought tolerant. Use Redtop for increased drought tolerance.
5	Switchgrass[6,7] **or** Coastal Panicgrass Big Bluestem Little Bluestem Indian Grass	10 10 5 5 5	0.23 0.23 0.11 0.11 0.1		O			O			Native warm-season mixture. Tolerant of low fertility soils. Drought tolerant. Poor shade tolerance. N fertilizer discouraged - weeds
6	Tall Fescue (turf-type) (Blend of 3 cultivars)	150	3.5	O	A	O	O	A	O		Managed filter strip for nutrient uptake.
7	Tall Fescue Ky. Bluegrass (Blend) Perennial Ryegrass	150 20 20	3.5 0.46 0.46	O	A	O	O	A	O		Three cultivars of Kentucky Bluegrass. Traffic tolerant.
8	Big Bluestem[7] Indian Grass[7] Little Bluestem[7] Creeping Red Fescue **plus one of:** Partridge Pea Bush Clover Wild Indigo Showy Tick-Trefoil	10 10 8 30 5 3 3 2	0.23 0.23 0.18 0.69 0.11 0.07 0.07 0.05	O	A		O	A			All species are native. Indian Grass and Bluestem have fluffy seeds. Plant with a specialized native seed drill. Creeping Red Fescue will provide erosion protection while the warm season grasses get established.

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source: Delaware ESC Handbook | Symbol: | Detail No. **DE-ESC-3.4.3** Sheet 2 of 4 Effective FEB 2019

Standard Detail & Specifications
Vegetative Stabilization

PERMANENT SEEDING AND SEEDING DATES (cont.)											
	Seeding Mixtures	Seeding Rate[1]		Optimum Seeding Dates [2] O = Optimum Planting Period A = Acceptable Planting Period							Remarks
Mix No.	Certified Seed[3]			Coastal Plain			Piedmont			All[4]	
	Poorly Drained Soils	lb/Ac	lb/1000 sq.ft.	2/1-4/30	5/1-8/14	8/15-10/31	3/1-4/30	5/1-7/31	8/1-10/31	10/31-2/1	
9	Redtop Creeping Bentgrass Sheep Fescue Rough Bluegrass	75 35 30 45	1.72 0.8 0.69 1	O	A	O	O	A	O	Add 100 lbs./ac. Winter Rye	Quick stabilization of disturbed sites and waterways
10	Reed Canarygrass[6]	10	0.23	A		O	A		O		Good erosion control, wildlife cover and wetland revegetation.
	Residential Lawns										
11	Tall Fescue Perennial Ryegrass Kentucky Bluegrass Blend	100 25 30	2.3 0.57 0.69	O	A	O	O	A	O		High value, high maintenance, light traffic, irrigation necessary. Well drained soils, full sun.
12	Tall Fescue Perennial Ryegrass Sheep Fescue	100 25 25	2.3 0.57 0.57	O	A	O	O	A	O		Moderate value, low maintenance, traffic tolerant
13	Creeping Red Fescue Chewings Fescue Rough Bluegrass Kentucky Bluegrass	50 50 20 20	1.15 1.15 0.4 0.4	O	A	O	O	A	O		Shade tolerant, moderate traffic tolerance, moderate maintenance.
14	Creeping Red Fescue Rough Bluegrass **or** Chewings Fescue	50 90	1.15 2.1	O	A	O	O	A	O		Shade tolerant, moisture tolerant.
15	K-31 Tall Fescue	150	3.5	O	A	O	O	A	O		Monoculture, but performs well alone in lawns. Discouraged.

1. When hydroseeding is the chosen method of application, the total rate of seed should be increased by 25%.
2. Winter seeding requires 3 tons per acre of straw mulch. Planting dates listed above are average for Delaware. These dates may require adjustment to reflect local conditions.
3. All seed shall meet the minimum purity and minimum germination percentages recommended by the Delaware Department of Agriculture. The maximum % of weed seeds shall be in accordance with Section 1, Chapter 24, Title 3 of the Delaware Code.
4. Cool season species may be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
5. All leguminous seed must be inoculated.
6. Warm season grass mix and Reed Canary Grass cannot be mowed more than 4 times per year.
7. Warm season grasses require a soil temperature of at least 50 degrees in order to germinate, and will remain dormant until then.

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source: Delaware ESC Handbook | Symbol: | Detail No. **DE-ESC-3.4.3** Sheet 3 of 4 Effective FEB 2019

Standard Detail & Specifications
Vegetative Stabilization

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. If a nutrient management plan is not required, apply dolomitic limestone at the rate of 1 to 2 tons per acre. Apply limestone uniformly and incorporate into the top 4 to 6 inches of soil.
   b. Fertilizer - Apply fertilizer based on the recommendations of a **soil test** in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply a formulation of 10-10-10 at the rate of 600 pounds per acre. Apply fertilizer uniformly and incorporate into the top 4 to 6 inches of soils.
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. Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.
   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 raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used and the seed and fertilizer is mixed, they will be mixed on site and the seeding shall be done immediately and without interruption.
5. Mulching

   All mulching shall be done in accordance with detail **DE-ESC-3.4.5**.

Source: Delaware ESC Handbook | Symbol: | Detail No. **DE-ESC-3.4.3** Sheet 4 of 4 Effective FEB 2019

Standard Detail & Specifications
Mulching

1. 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 rights-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, and consists of a minimum of 70% virgin or recycled wood fiber combined with 30% paper fiber and additives.
   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.

iv. 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.

Source: Delaware ESC Handbook & Filtrexx™ International | Symbol: | Detail No. **DE-ESC-3.4.5** Sheet 1 of 3 Effective FEB 2019

Standard Detail & Specifications
Mulching

v. 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-tank 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 on 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.

d. *Compost blanket (CB)* - Loosely applied with a pneumatic blower so that a 1" compost blanket uniformly covers the **soil with 100% coverage**. This application can be used with seed to promote germination by applying the approved seed mix directly into the loosely blown compost. The compost blanket performs best on slopes less than 2:1 and requires no mulch anchoring.

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/ac. 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.

Source: Delaware ESC Handbook & Filtrexx™ International | Symbol: | Detail No. **DE-ESC-3.4.5** Sheet 2 of 3 Effective FEB 2019

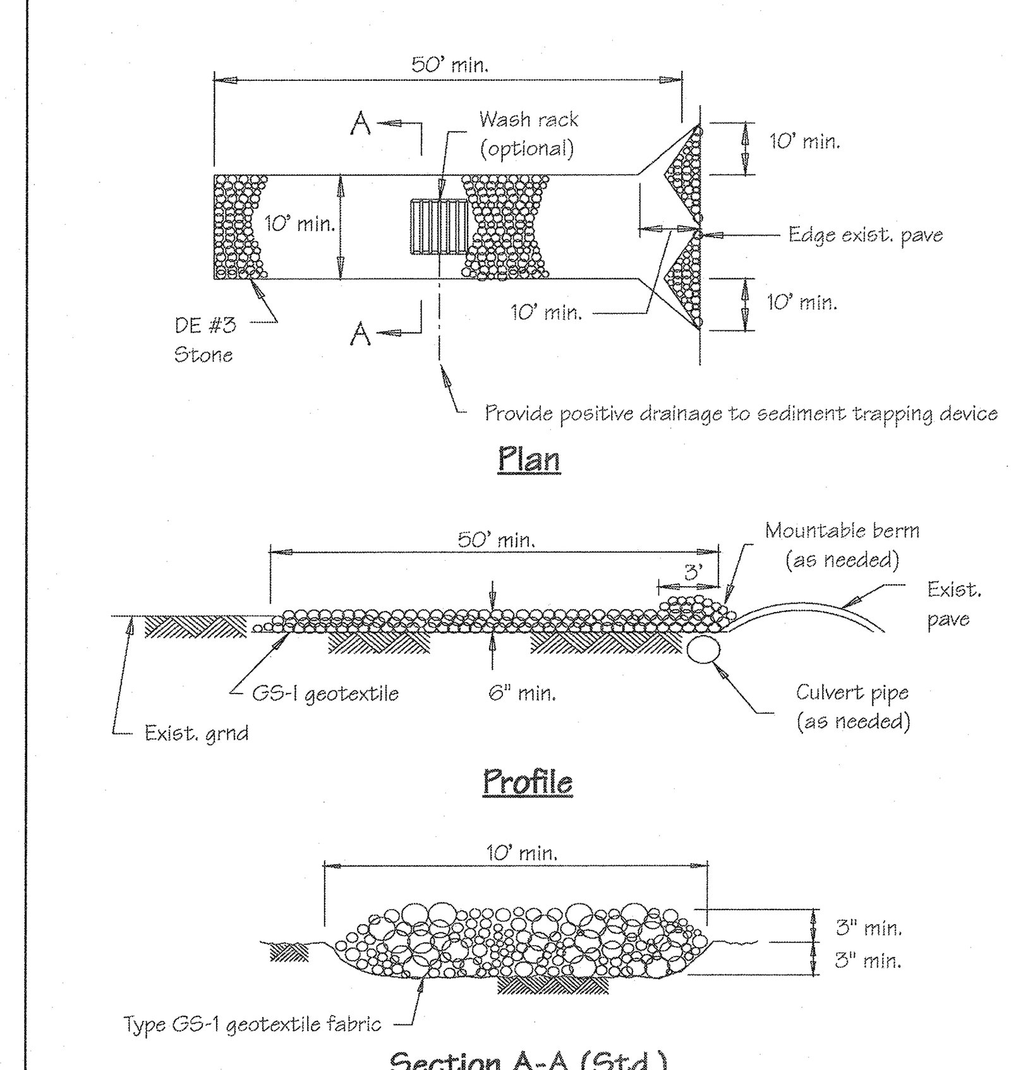
Standard Detail & Specifications
Mulching

MULCHING MATERIAL SELECTION GUIDE					
Percent Slope	Type of Mulch / App. Rate*	Dec. 1 to Feb. 28(29)	March 1 to May 31	June 1 to Aug. 31	Sept. 1 to Nov. 30
Less than 2%	Blended Fiber @ 2000 lbs/ac. minimum	xxxxxxxxxxxxxxx	OK (≤ 1 ac.)	xxxxxxxxxxxxxxx	OK (≤ 1 ac.)
	Wood Fiber @ 2000 lbs/ac. min.	xxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxx	OK
	BFM @ 3000 lbs/ac. min.	OK	OK	OK	OK
	Straw @ 2 Tons/ac. Min.	OK	OK	OK	OK
	Stabilization Matting**	OK	OK	OK	OK
	1" Compost Blanket (CB)	OK	OK	OK	OK
2% to 5.9%	Wood Fiber @ 2000 lbs/ac. min.	xxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxx	OK
	BFM @ 3000-3500 lbs/ac. min	OK	OK	OK	OK
	Straw @ 2 Tons/ac. min.	OK	OK	OK	OK
	Stabilization Matting**	OK	OK	OK	OK
	1" Compost Blanket (CB)	OK	OK	OK	OK
6% to 10.9%	Wood Fiber @ 2000-2500 lbs/ac. min.	xxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxx	OK
	BFM @ 3500-4000 lbs/ac. min.	OK	OK	OK	OK
	Straw @ 2 Tons/ac. min.	OK	OK	OK	OK
	Stabilization Matting**	OK	OK	OK	OK
	1" Compost Blanket (CB)	OK	OK	OK	OK
11% to 24.9%	Wood Fiber @ 2500-3000 lbs/ac. min.	xxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxx	OK
	BFM @ 3500-4000 lbs/ac. min.	OK	OK	OK	OK
	Straw @ 2 Tons/ac. min.	OK	OK	OK	OK
	Stabilization Matting**	OK	OK	OK	OK
	1" Compost Blanket (CB)	OK	OK	OK	OK
25% to 33%	Wood Fiber @ 2500-3000 lbs/ac. min.	xxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxx	OK
	BFM @ 4000 lbs/ac. min.	xxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxx	OK
	Straw @ 2 Tons/ac. min.	OK	OK	OK	OK
	Stabilization Matting**	OK	OK	OK	OK
	1" Compost Blanket (CB)	OK	OK	OK	OK
33% and up	BFM @ 4000-4500 lbs/ac. min.	xxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxx	OK
	Straw @ 2 Tons/ac. min.***	OK	OK	OK	OK
	Stabilization Matting**	OK	OK	OK	OK
	1" Compost Blanket (CB)	2:1 Max.	2:1 Max.	2:1 Max.	2:1 Max.

* Note: Manufacturers Recommended Rates for informational purposes only. Performance standard requires 100% soil coverage.
** Note: Stabilization Matting must be applied in accordance with Section 3.4.6 of the Delaware ESC Handbook.
*** Note: Straw applied on slopes greater than 33% must be netted (this does not apply to topsoil stockpiles).
OK = Acceptable to use during this time period.
xx = Not acceptable to use during this time period.
All application rates are minimums

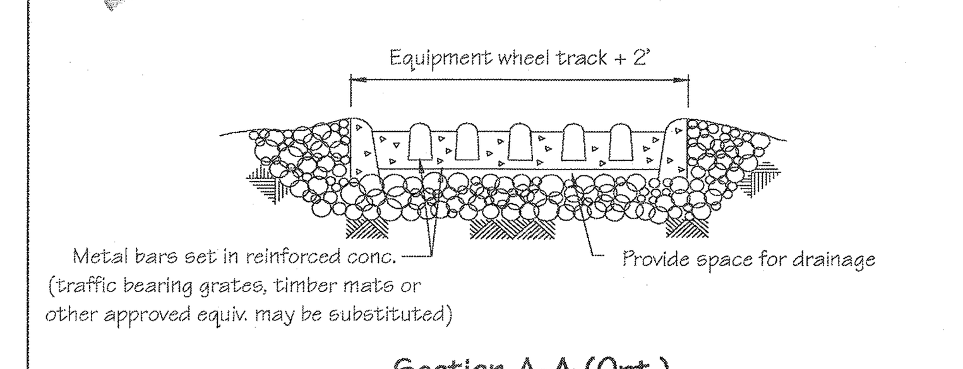
Source: Delaware ESC Handbook & Filtrexx™ International | Symbol: | Detail No. **DE-ESC-3.4.5** Sheet 3 of 3 Effective FEB 2019

Standard Detail & Specifications
Stabilized Construct. Entrance



Source: Adapted from VA ESC Handbook | Symbol: SCE | Detail No. **DE-ESC-3.4.7** Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Stabilized Construct. Entrance

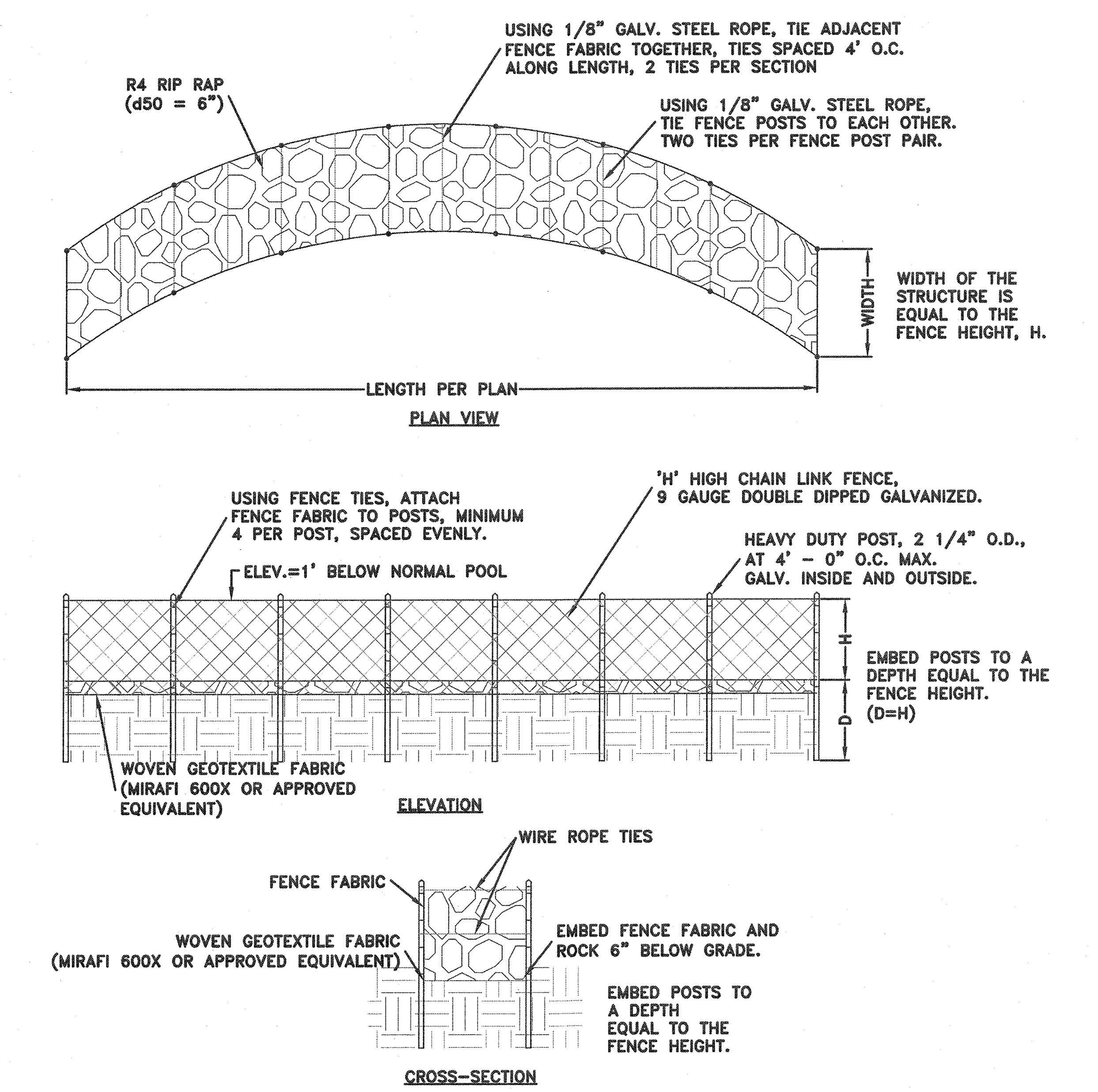


Section A-A (Opt.)

Construction Notes:

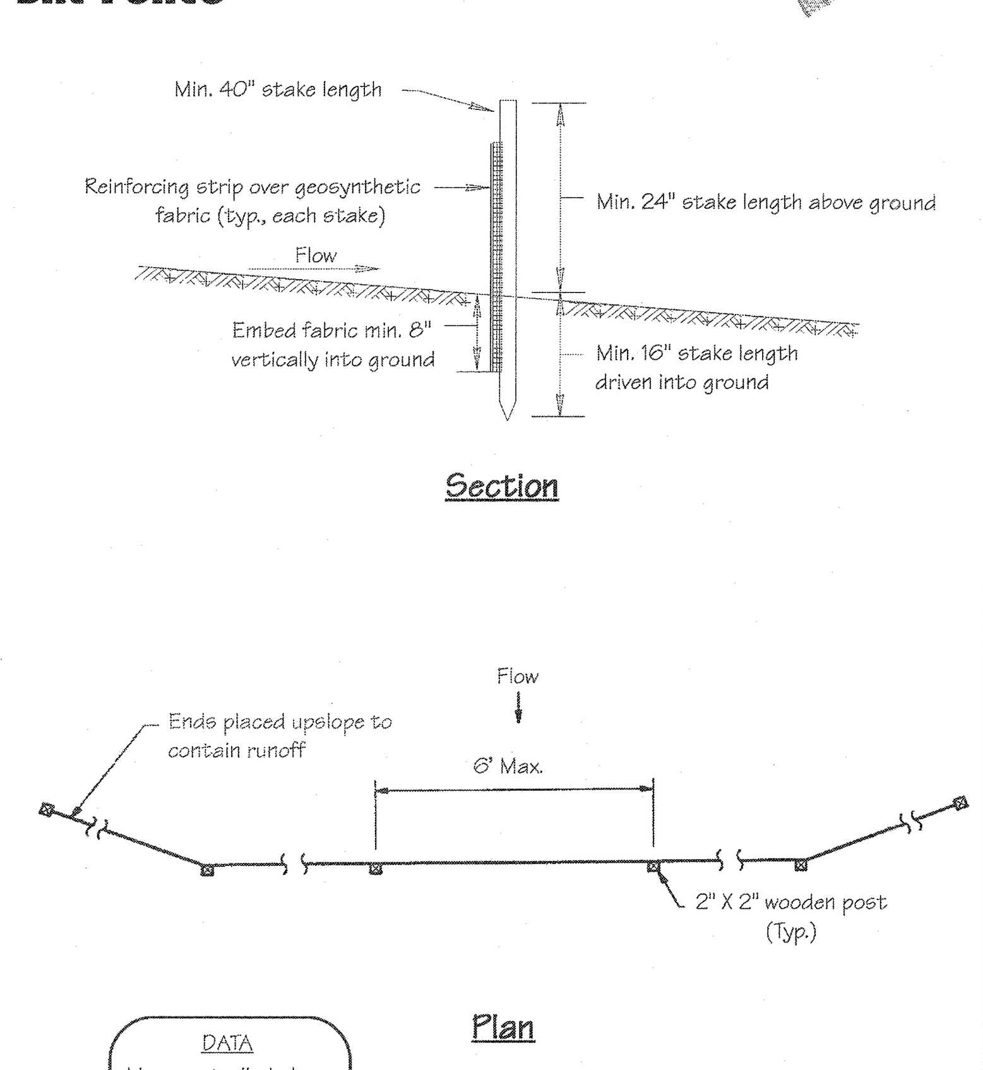
1. Stone size - Use DE #3 stone.
2. Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
3. Thickness - Not less than size (6) inches.
4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
5. Geotextile - Type GS-I; placed over the entire area prior to placing of stone.
6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
8. Washing - Vehicle wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
9. Inspection - Periodic inspection and needed maintenance shall be provided after each rain.

Source: Adapted from VA ESC Handbook | Symbol: SCE | Detail No. **DE-ESC-3.4.7** Sheet 2 of 2 Effective FEB 2019



MODIFIED GABION FOREBAY
NOT TO SCALE

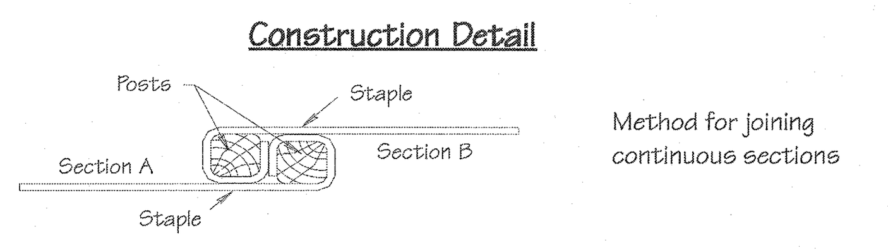
Standard Detail & Specifications
Silt Fence



Source: Adapted from MD Stds. & Specs. for ESC | Symbol: SF | Detail No. **DE-ESC-3.1.2.1** Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Silt Fence

Construction Detail



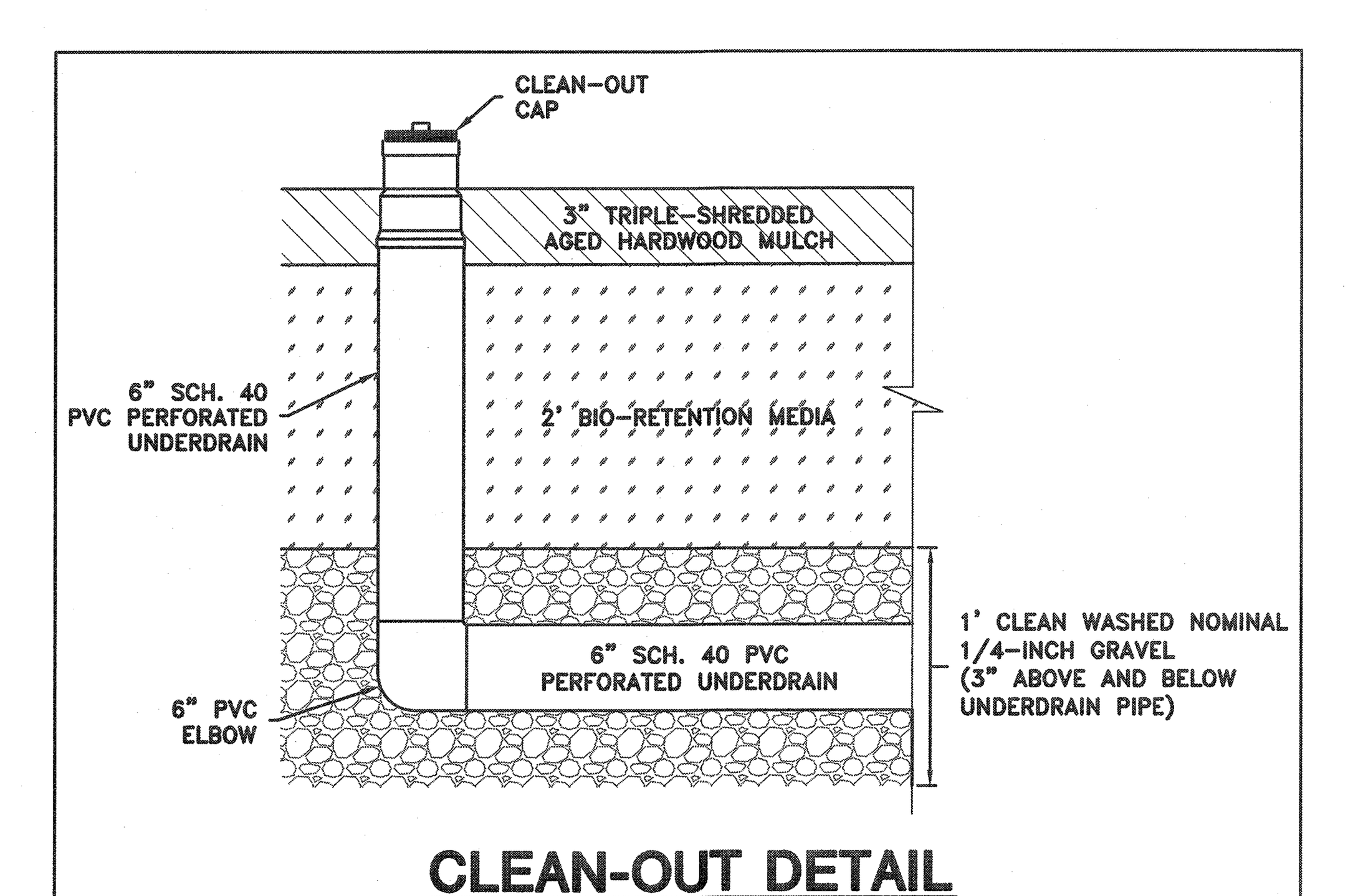
Construction Notes:

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

Materials:

1. Stakes: Steel (either T or U) or 2" x 2" hardwood
2. Geosynthetic Fabric: Type GD-I
3. Reinforcing strip: Wooden lath or plastic strip

Source: Adapted from MD Stds. & Specs. for ESC | Symbol: SF | Detail No. **DE-ESC-3.1.2.1** Sheet 2 of 2 Effective FEB 2019



CLEAN-OUT DETAIL
NOT TO SCALE

CLIFTON DANIEL MUMFORD LICENSED No. 10835 7/28/2021 DELAWARE PROFESSIONAL ENGINEER

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

CONSTRUCTION SITE DETAILS & NOTES

SEDIMENT AND STORMWATER MANAGEMENT PLANS

KENT CONSERVATION DISTRICT 08/17/2021 KCO

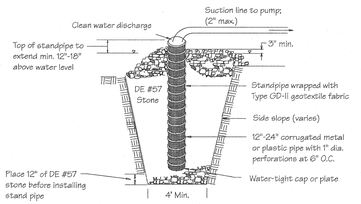
MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

REVISIONS:
04/19/2018: COM COMMENTS
02/28/2019: COM COMMENTS
11/06/2020: KCD
12/29/2020: DNREC
04/16/2021: COM COMMENTS KCD
05/20/2021: COM COMMENTS
06/23/2021: KCD

Date: APRIL, 2018
Scale: 1" = 30'
Dwn.By: SHF
Proj.No.: 2137A001
Dwg.No.: C-403

Standard Detail & Specifications

Pumping Pit - Type 1



Section

Construction Notes:

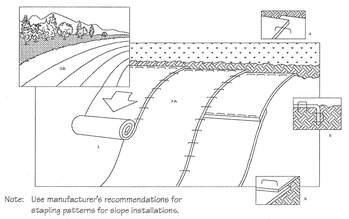
1. Pit dimensions are variable.
2. The standpipe should be constructed by perforating a 12" to 24" diameter corrugated or PVC pipe. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center.
3. A base of DE #57 aggregate should be placed in the pit to a depth of 12". After installing the standpipe, the pit surrounding the standpipe should then be backfilled with DE #57 aggregate.
4. The standpipe should extend 12" to 18" above the lip of the pit or riser crest elevation (basin dewatering).

NOTE: If discharge will be pumped directly to a storm drainage system, the standpipe must be wrapped with Type GD-II geotextile fabric before installation. If desired, 1/2" hardware cloth may be placed around the standpipe, prior to attaching the geotextile fabric. This will increase the rate of water seepage into the pipe.

Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	PP-1	DE-ESC-3.2.2.1 Sheet 1 of 1 Effective FEB 2019

Standard Detail & Specifications

Stabilization Matting - Slope



Perspective

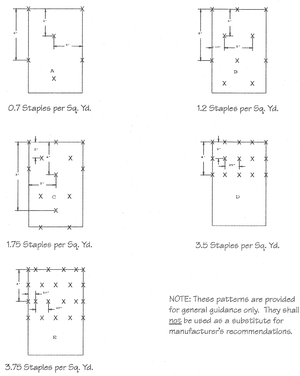
Construction Notes:

1. Prepare soil before installing matting, including application of lime, fertilizer, and seed.
2. Begin at the top of the slope by anchoring the mat in a 6" deep X 6" wide trench. Backfill and compact trench after stapling.
3. Roll the mats (A) down or (B) horizontally across the slope.
4. The edges of parrallel mats must be stapled with approx. 2" overlap.
5. When mats must be spliced down the slope, place mats end over end (shingle style) with approx. 4" overlap. Staple through overlapped area, approx. 12" apart.

Source:	Symbol:	Detail No.
Adapted from North American Green, Inc.	SM-S	DE-ESC-3.4.6.1 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications

Stabilization Matting - Slope



Stapling Patterns

Source:	Symbol:	Detail No.
Adapted from North American Green, Inc.	SM-S	DE-ESC-3.4.6.1 Sheet 2 of 2 Effective FEB 2019

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 (not effective on muck soils). Keep traffic off these areas. The following table may be used for general guidance.

Type of Emulsion	Water Dilution	Type of Nozzle	Apply Gal/Ac.
Latex emulsion	12.5:1	Fine spray	235
Resin-in-water emulsion	4:1	Fine spray	300
Acrylic emulsion (non-traffic)	7:1	Coarse spray	450
Acrylic emulsion (traffic)	3.5:1	Coarse spray	350

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.

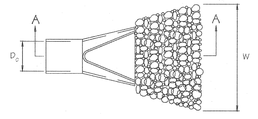
Permanent Methods:

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.

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook		DE-ESC-3.4.8 Sheet 1 of 1 Effective FEB 2019

Standard Detail & Specifications

Riprap Outlet Protection - 1



Plan

NOTE: Depress centerline of apron slightly to prevent edge-cutting

DATA
- Pipe diameter (D_o)
- Apron length (L_a)
- Apron width (W)
- Riprap size (R No.)
- Riprap thickness (T)

Section A-A

$T_W < 0.5\ D_o$

Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	ROP-1	DE-ESC-3.3.10.1 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications

Riprap Outlet Protection - 1

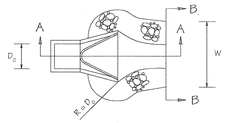
Construction Notes:

1. The subgrade for the riprap shall be prepared to the required lines and grades as shown on the plan. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The riprap shall conform to the grading limits as shown on the plan.
3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged area. All connecting joints should overlap a minimum of 1 ft. If the damage is extensive, replace the entire filter cloth.
4. Stone for the riprap or gabion outlets may be placed by equipment. Riprap shall be placed in a manner to prevent damage to the filter cloth. Hand placement will be required to the extent necessary to prevent damage to the conduits, structures, etc.

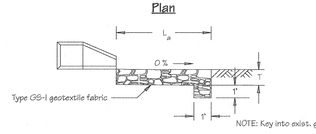
Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	ROP-1	DE-ESC-3.3.10.1 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications

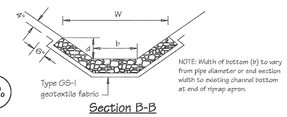
Riprap Outlet Protection - 2



Plan



Section A-A



$T_W \geq 0.5\ D_o$

Section B-B

Source:	Symbol:	Detail No.
Adapted from MD E&S Manual	ROP-2	DE-ESC-3.3.10.2 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications

Riprap Outlet Protection - 2

DATA
- Pipe diameter (D_o)
- Apron length (L_a)
- Apron width (W)
- Bottom width (b)
- Riprap depth (d)
- Riprap size (R No.)
- Riprap thickness (T)

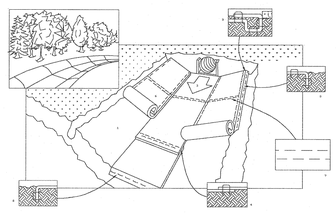
Construction Notes:

1. The subgrade for the riprap shall be prepared to the required lines and grades as shown on the plan. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The riprap shall conform to the grading limits as shown on the plan.
3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged area. All connecting joints should overlap a minimum of 1 ft. If the damage is extensive, replace the entire filter cloth.
4. Stone for the riprap or gabion outlets may be placed by equipment. Riprap shall be placed in a manner to prevent damage to the filter cloth. Hand placement will be required to the extent necessary to prevent damage to the conduits, structures, etc.

Source:	Symbol:	Detail No.
Adapted from MD E&S Manual	ROP-2	DE-ESC-3.3.10.2 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications

Stabilization Matting - Channel



Perspective

CRITICAL POINTS

A. Overlaps and seams
B. Projected waterline
C. Channel bottom/side slope vertices

Note: Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.

Use manufacturer's recommendations for stapling patterns for channel installations.

Source:	Symbol:	Detail No.
Adapted from North American Green, Inc.	SM-C	DE-ESC-3.4.6.2 Sheet 1 of 3 Effective FEB 2019

Standard Detail & Specifications

Stabilization Matting - Channel

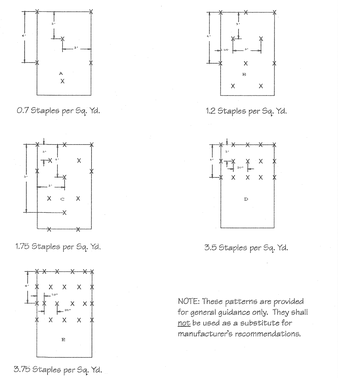
Construction Notes:

1. Prepare soil before installing matting, including application of lime, fertilizer, and seed.
2. Begin at the top of the channel by anchoring the mat in a 6" deep X 6" wide trench. Backfill and compact the trench after stapling.
3. Roll center mat in direction of water flow on bottom of channel.
4. Place mats end over end (shingle style) with a 6" overlap, use a double row of staggered staples 4" apart to secure mats.
5. Full Length edge of mats at top of side slopes must be anchored in 6" deep X 6" wide trench; backfill and compact the trench after stapling.
6. Mats on side slopes must be overlapped 4" over the center mat and stapled.
7. In high flow channel applications, a staple check slot is recommended at 30 to 40 foot intervals. Use a row of staples 4" apart over entire width of the channel. Place a second row 4" below the first row in a staggered pattern.
8. The terminal end of the mats must be anchored in a 6" X 6" wide trench. Backfill and compact the trench after stapling.

Source:	Symbol:	Detail No.
Adapted from North American Green, Inc.	SM-C	DE-ESC-3.4.6.2 Sheet 2 of 3 Effective FEB 2019

Standard Detail & Specifications

Stabilization Matting - Channel



Stapling Patterns

Source:	Symbol:	Detail No.
Adapted from North American Green, Inc.	SM-C	DE-ESC-3.4.6.2 Sheet 3 of 3 Effective FEB 2019

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CONSTRUCTION SITE DETAILS

SEDIMENT AND STORMWATER MANAGEMENT PLANS

KENT CONSERVATION DISTRICT 08/17/2021 KCD

MISPILLION LANDING
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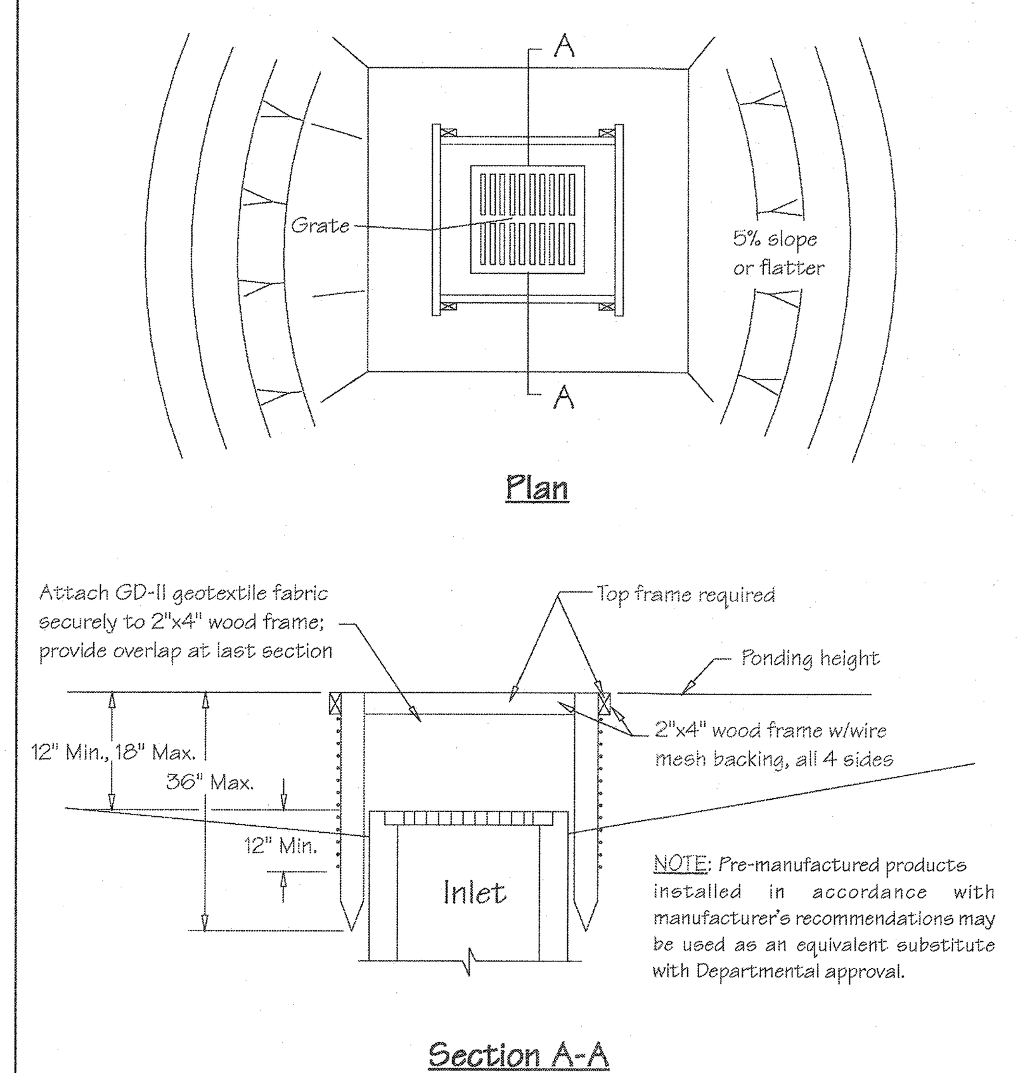
06/23/2021: KCD

Date:	APRIL, 2018
Scale:	1" = 30'
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-404

Standard Detail & Specifications
Inlet Protection - Type 1



Source:	Symbol:	Detail No.
Adapted from Erosion Draw Manual J. McCullah & Assoc.	IP-1	DE-ESC-3.1.5.1 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Inlet Protection - Type 1

Construction Notes:

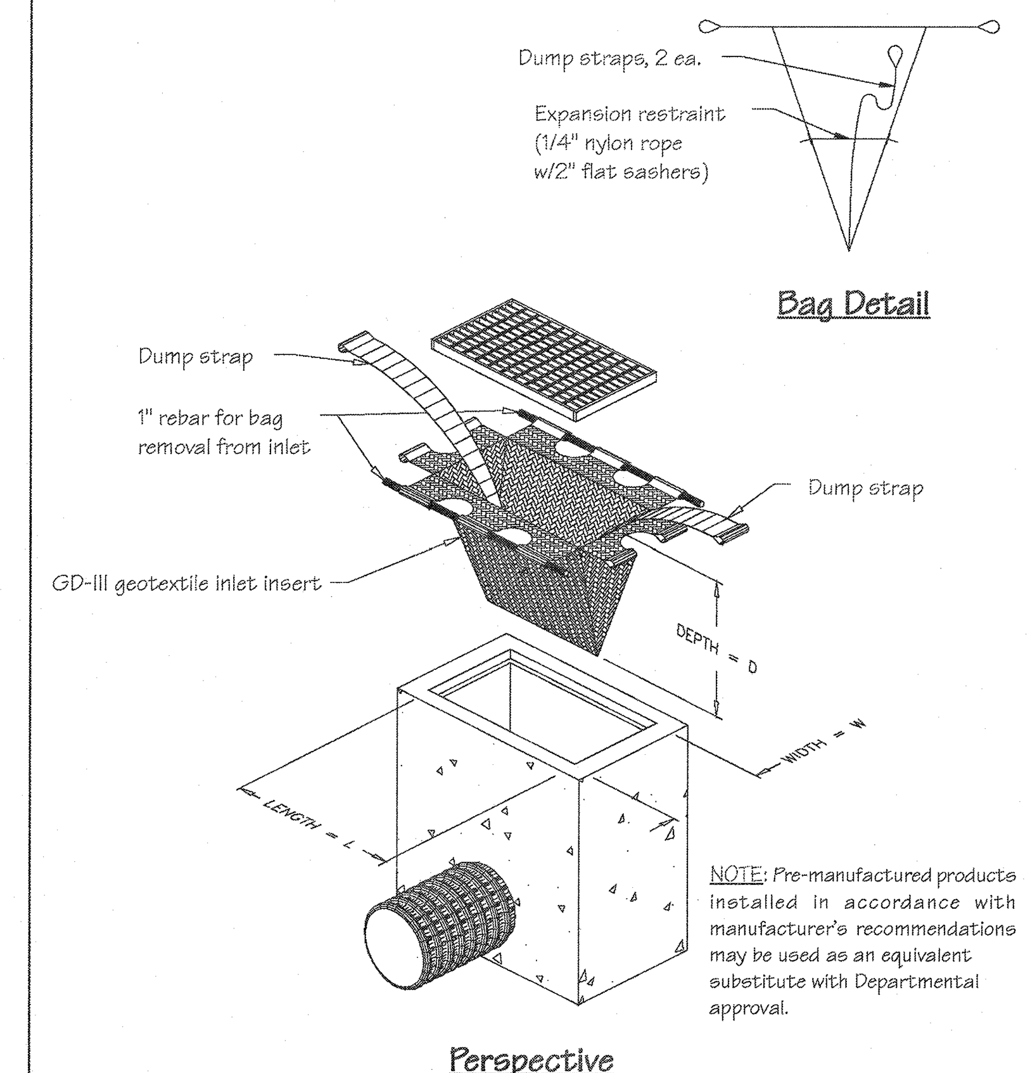
1. Excavate completely around inlet to a depth of 18" below grate elevation.
2. Drive 2" x 4" post 1' into ground at four corners of inlet. Place nail strips between posts on ends of inlet. Assemble top portion of 2" x 4" frame using overlap joint shown. Top of frame (weir) must be 6" below edge of roadway adjacent to inlet.
3. Stretch wire mesh tightly around frame and fasten securely. Ends must meet at post.
4. Stretch geotextile fabric tightly over wire mesh, the cloth must extend from top of frame to 18" below inlet grate elevation. Fasten securely to frame. Ends must meet at post, be overlapped and folded, then fastened down.
5. Backfill around inlet in compacted 6" layers until at least 12" of geotextile fabric is buried.
6. If the inlet is not in a low point, construct a compacted earth dike in the ditchline below it. The top of this dike is to be at least 6" higher than the top of frame (weir).
7. This structure must be inspected frequently and the filter fabric replaced when clogged.

Materials:

1. Wooden frame is to be constructed of 2" x 4" construction grade lumber.
2. Wire mesh must be of sufficient strength to support filter fabric with water fully impounded against it.
3. Geotextile fabric: Type GD-II

Source:	Symbol:	Detail No.
Adapted. from Erosion Draw Manual J. McCullah & Assoc.	IP-1	DE-ESC-3.1.5.1 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Inlet Protection - Type 2



Source:	Symbol:	Detail No.
Adapted from ACF Products, Inc.	IP-2	DE-ESC-3.1.5.2 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Inlet Protection - Type 2

Notes:

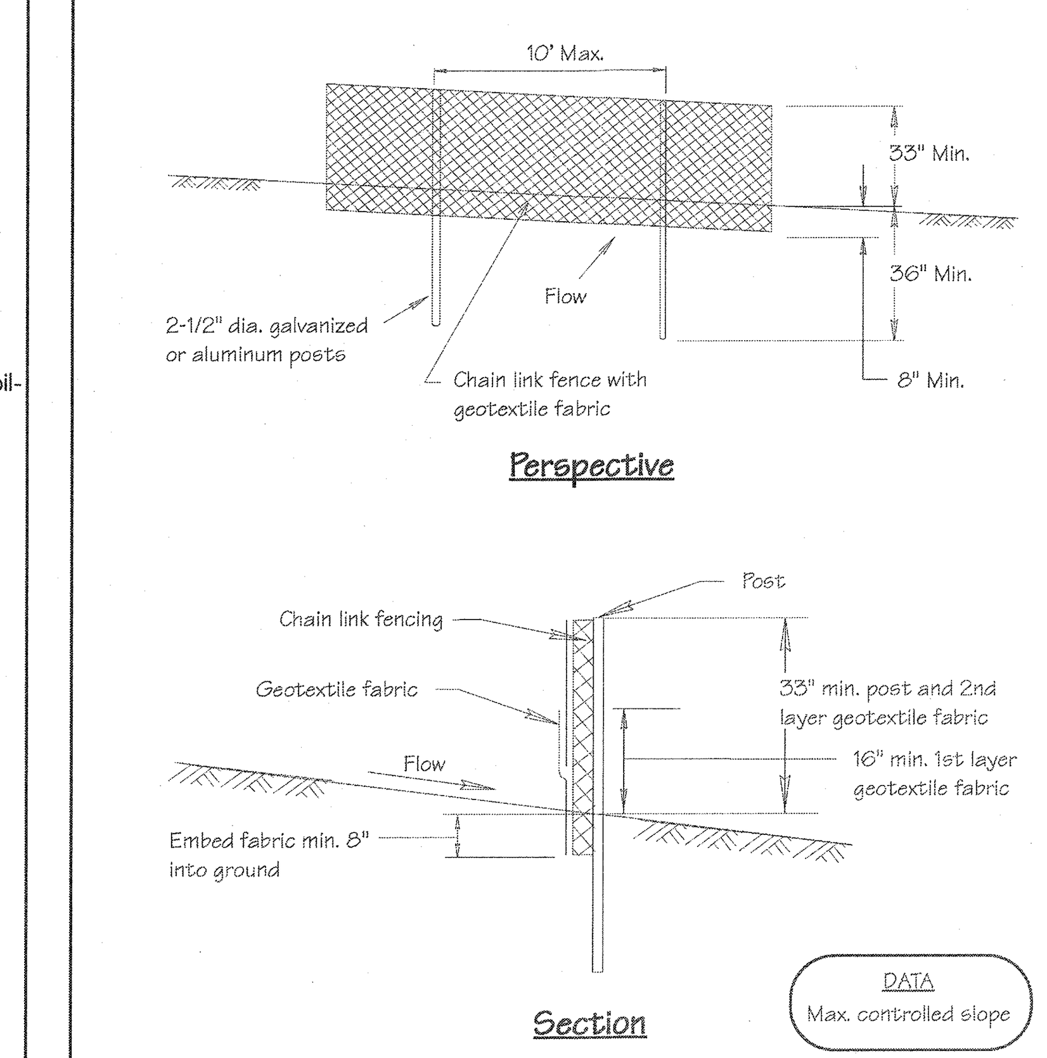
1. This practice shall only be used in situations in which Inlet Protection - Type 1 cannot be used due to site constraints. These include, but are not limited to partially completed parking areas, streets, roads, etc.
2. It may be necessary to transition from Type 1 to Type 2 Inlet Protection as construction proceeds.
3. For areas where there is a concern for oil run-off or spills, insert shall meet one of the above specifications with an oil-absorbant pillow or shall be made completely from an oil-absorbant material with a woven pillow.

Materials:

The geotextile inlet insert shall meet or exceed the specifications of Type GD-III geotextile in accordance with Appendix A-3 of the Delaware Erosion & Sediment Control Handbook.

Source:	Symbol:	Detail No.
Adapted from ACF Products, Inc.	IP-2	DE-ESC-3.1.5.2 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Super Silt Fence



Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	—— SSF ——	DE-ESC-3.1.2.3 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Super Silt Fence

Construction Notes:

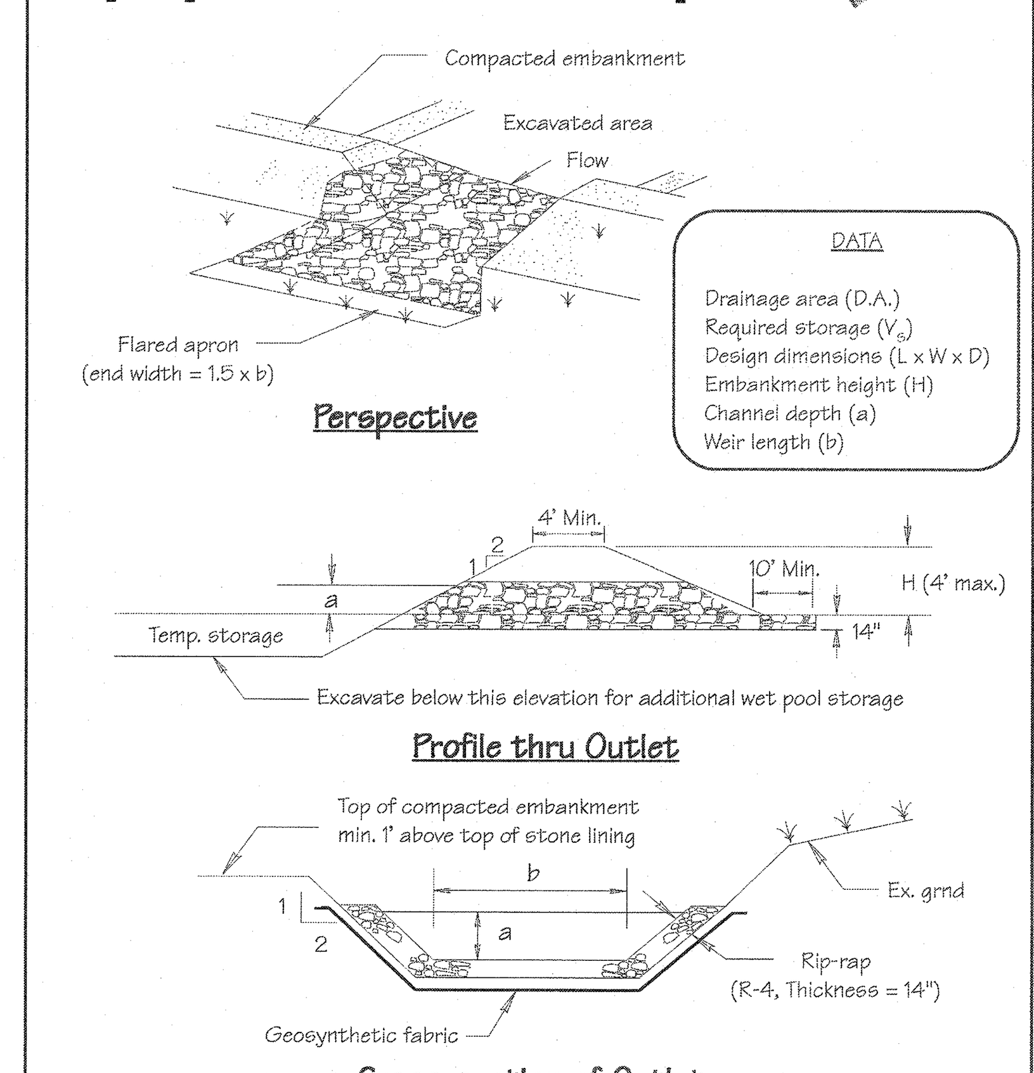
1. The poles do not need to be set in concrete.
2. Chain link fence shall be fastened securely to the fence posts with wire ties or staples.
3. Geotextile fabric shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Geotextile fabric shall be embedded a minimum of 8" into the ground.
5. When two sections of geotextile fabric adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence.

Materials:

1. Fencing: Fencing shall be 42 inches in height and constructed in accordance with the latest Delaware Department of Transportation (Del-DOT) Specifications for Chain Link Fencing (Section 727). The Del-DOT specification for a 6 foot fence shall be used, substituting 42 inch fabric and 6 foot length posts.
2. Geosynthetic Fabric: Type GD-I

Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	—— SSF ——	DE-ESC-3.1.2.3 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Riprap Outlet Sediment Trap



Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	RST	DE-ESC-3.1.3.3 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Riprap Outlet Sediment Trap

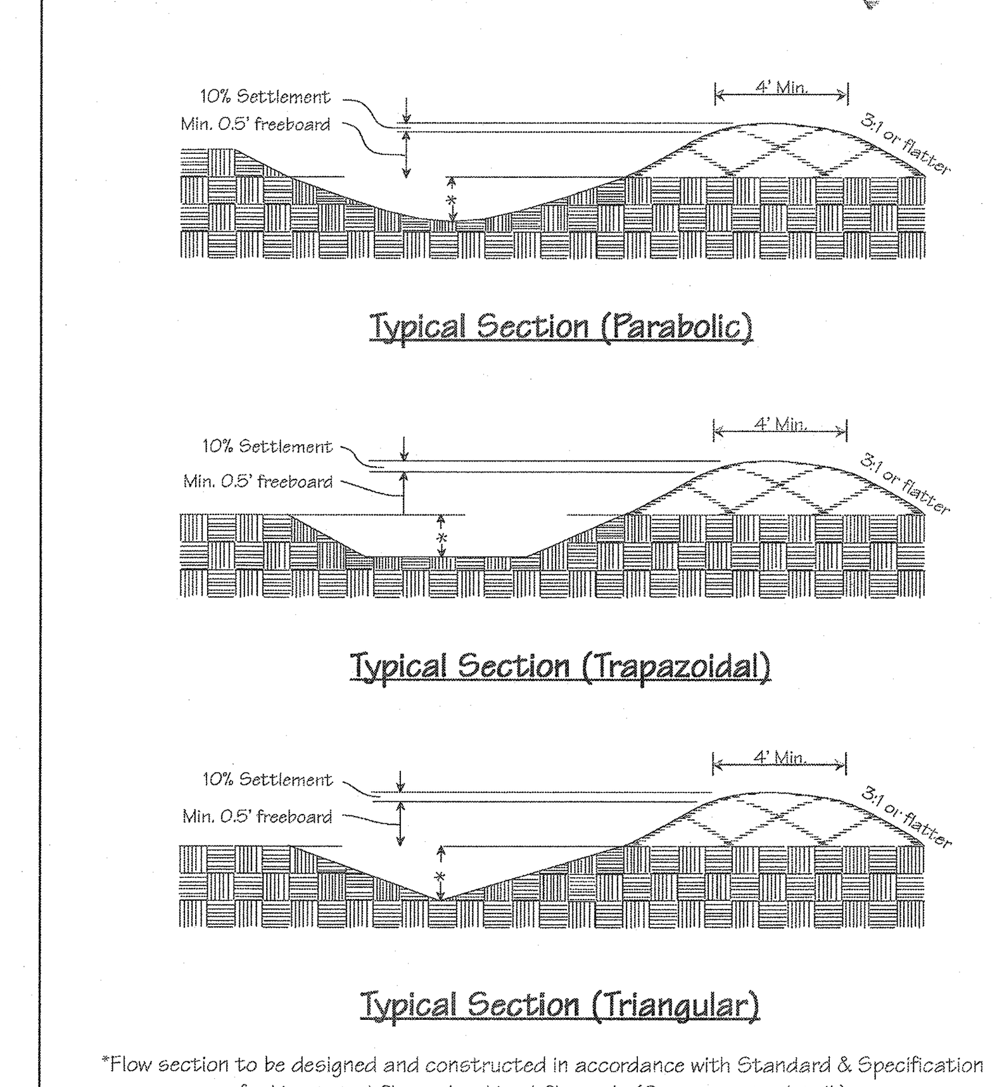
Construction Notes:

1. The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be four (4) feet, measured at centerline of the embankment.
3. All fill slopes shall be 2:1 or flatter; cut slopes 1:1 or flatter.
4. Elevation of the top of any dike directing water into trap must equal or exceed the height of embankment.
5. Storage area provided shall be figured by computing the volume available behind the outlet channel up to the elevation of the crest of the outlet weir channel.
6. Filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Sections of fabric must overlap at least one (1) foot with section nearest the entrance placed on top. Fabric shall be embedded at least six (6) inches into existing ground at entrance of outlet channel.
7. Stone used in the outlet shall be R-4 riprap with a thickness of 14".
8. **An approved dewatering device shall be considered an integral part of the trap. Dewatering operations shall be conducted in accordance with any and all regulatory requirements.**
9. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
10. The structure shall be inspected after each rain and repaired as needed.
11. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized. Disturbed areas shall be stabilized in accordance with the Standards and Specifications for vegetative Stabilization contained in this Handbook.
12. The structure shall be removed and the area stabilized when the contributing drainage area has been properly stabilized.

MAXIMUM DRAINAGE AREA: 15 ACRES

Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	RST	DE-ESC-3.1.3.3 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Diversion



*Flow section to be designed and constructed in accordance with Standard & Specification for Vegetated Channel or Lined Channel. (See separate detail.)

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook	—(VC/LC)- (P/T)→ —D→	DE-ESC-3.3.5 Sheet 1 of 2 Effective FEB 2019

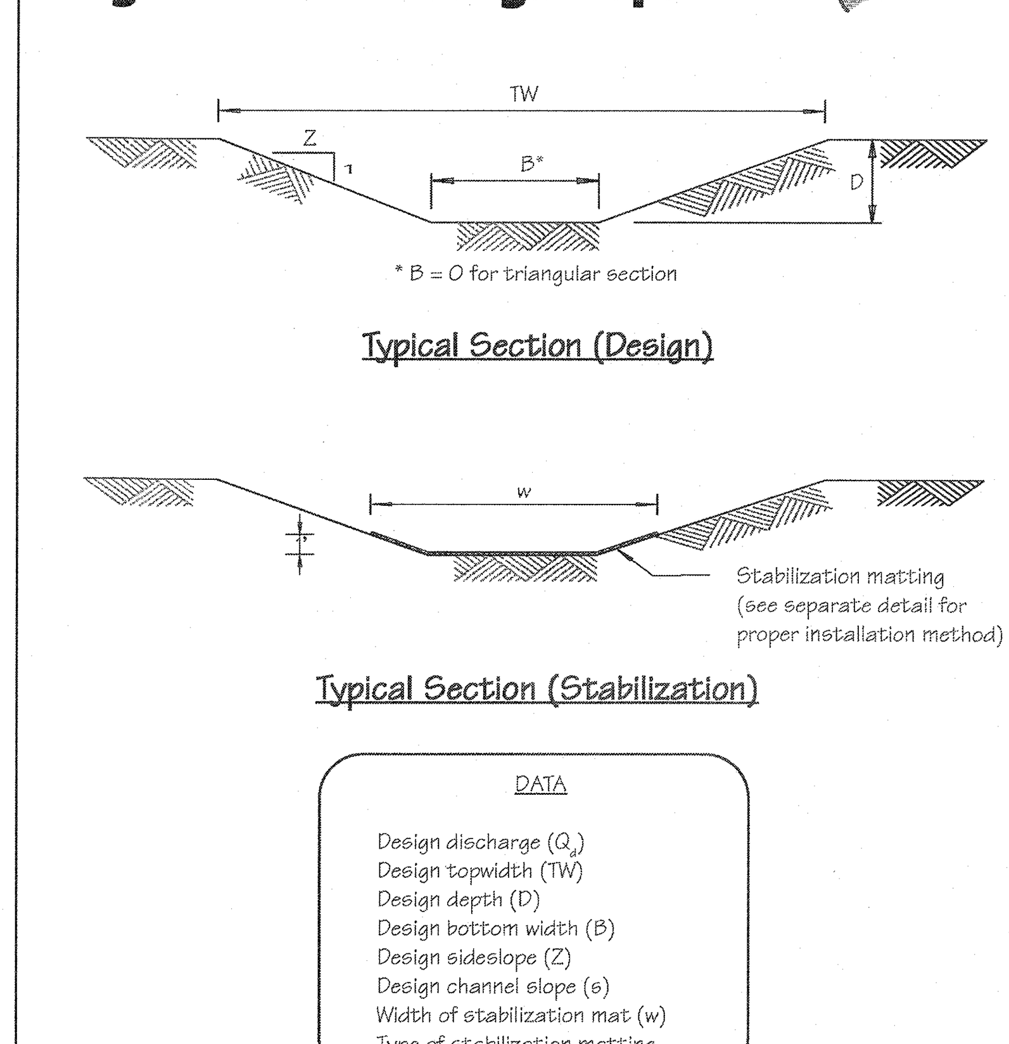
Standard Detail & Specifications
Diversion

Construction Notes

1. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the diversion.
2. The diversion shall be excavated or shaped to line, grade, and cross section as required to meet the criteria specified herein, and be free of irregularities which will impede normal flow.
3. Fills shall be compacted as needed to prevent unequal settlement that would cause damage in the completed diversion.
4. All earth removed and not needed in construction shall be spread or disposed of so that it will not interfere with the functioning of the diversion.
5. Flow section shall be installed in accordance with the Standard and Specifications for Vegetated Channel or Lined Channel, as appropriate.
6. Stabilization shall be done according to the appropriate Standard and Specifications for Vegetative Stabilization.

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook	—(VC/LC)- (P/T)→ —D→	DE-ESC-3.3.5 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Veg. Channel - Triang./Trap.



Source:	Symbol:	Detail No.
Delaware ESC Handbook	—— VC-T ——→	DE-ESC-3.3.3.2 Sheet 1 of 2 Effective FEB 2019

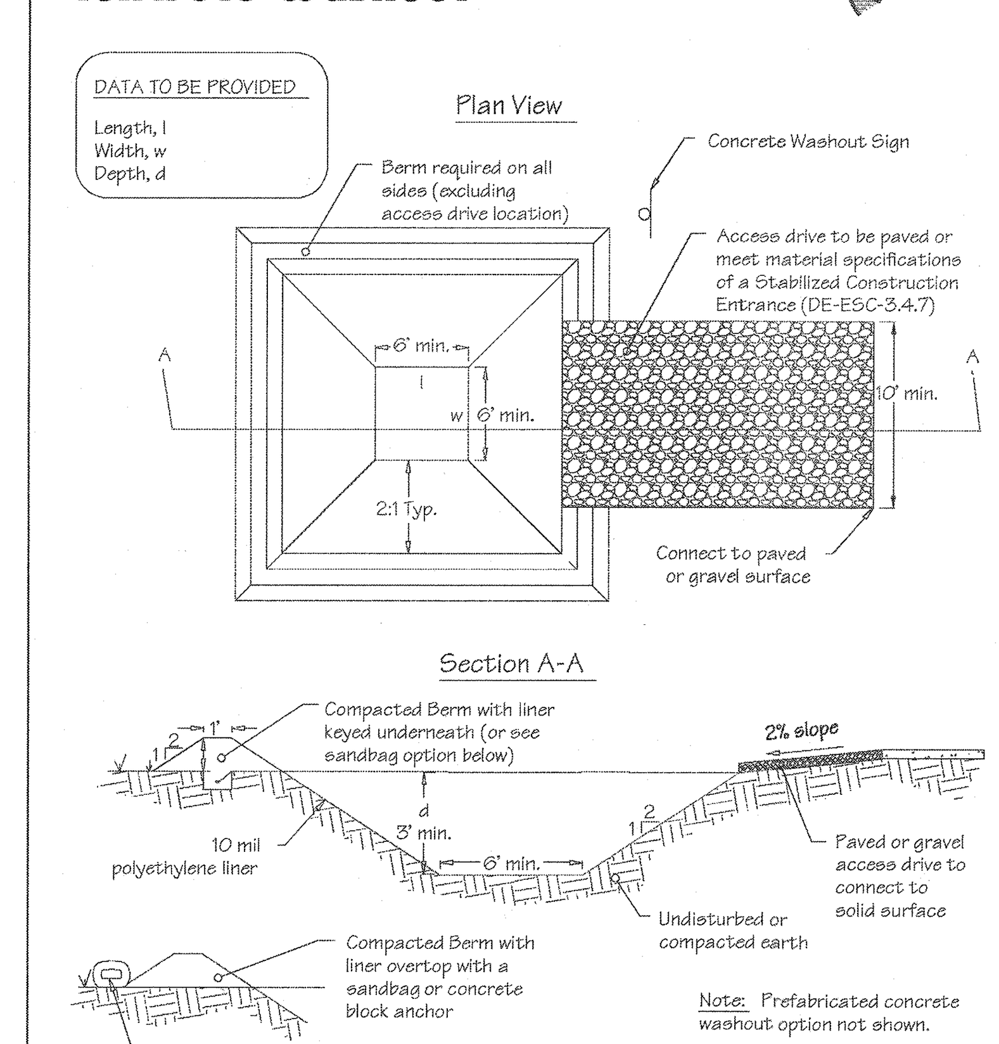
Standard Detail & Specifications
Veg. Channel - Triang./Trap.

Construction Notes:

1. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the waterway.
2. The channel shall be excavated or shaped to line, grade, and cross section as required to meet the criteria specified herein, and be free of bank projections or other irregularities which will impede normal flow.
3. Fills shall be compacted as needed to prevent unequal settlement that would cause damage in the waterway.
4. All earth removed and not needed in construction shall be spread or disposed of so that it will not interfere with the functioning of the waterway.
5. Stabilization shall be done in accordance with the appropriate Standard and Specifications for Vegetative Stabilization and Stabilization Mat.
   a. It is recommended that, when conditions permit, temporary diversions or other means should be used to prevent water from entering the waterway during the establishment of the vegetation.
   b. Should groundwater or base flow conditions preclude the establishment of adequate vegetative stabilization throughout the entire design section, provisions shall be made through use of a lining material, stone center drain and/or subsurface drain. Such practices shall be designed and constructed in accordance with the appropriate Standard(s) and Specifications and Standard Detail(s).

Source:	Symbol:	Detail No.
Delaware ESC Handbook	—— VC-T ——→	DE-ESC-3.3.3.2 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Concrete Washout



Source:	Symbol:	Detail No.
Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3	CW	DE-ESC-3.6.2 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Concrete Washout

Construction Notes:

1. Locate washout area a minimum of 50 feet from open channels, stormdrain inlets, wetlands or waterbodies.
2. Locate washout area so that it is accessible to concrete equipment (service with a minimum 10 foot wide gravel accessway), but so it is not in a highly active construction area causing accidental damage.
3. Minimum dimensions for prefabricated units are 4 feet by 4 feet by 1 foot deep with a minimum 4mil polyethylene plastic liner. Minimum dimensions for constructed concrete washout areas are 6 feet by 6 feet by 3 feet deep, with a minimum 10mil polyethylene liner, 2:1 side slopes, and a 1 foot high by 1 foot wide compacted fill berm.
4. The liner must be free of tears or holes and placed over smooth surfaces to prevent puncturing. For excavated washouts, anchor the liner underneath the berm or overtop with sandbags or concrete blocks to hold in place.
5. Provide a sign designating the washout area, and for large construction sites, provide signs throughout directing traffic to its location.
6. Allow washed out concrete mixture to harden through evaporation of the wastewater. Once the facility has reached 75 percent of its capacity, remove the hardened concrete by reusing the broken aggregate onsite, recycling, or disposing of offsite. The hardened material can be buried on site with minimum of 1 foot of clean, compacted fill.
7. Apply a new liner before reusing the station for additional washouts after maintenance has occurred.

Source:	Symbol:	Detail No.
Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3	CW	DE-ESC-3.6.2 Sheet 2 of 2 Effective FEB 2019

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SEDIMENT AND STORMWATER MANAGEMENT PLANS

KENT CONSERVATION DISTRICT 08/17/2021 KCO

MISPILLION LANDING
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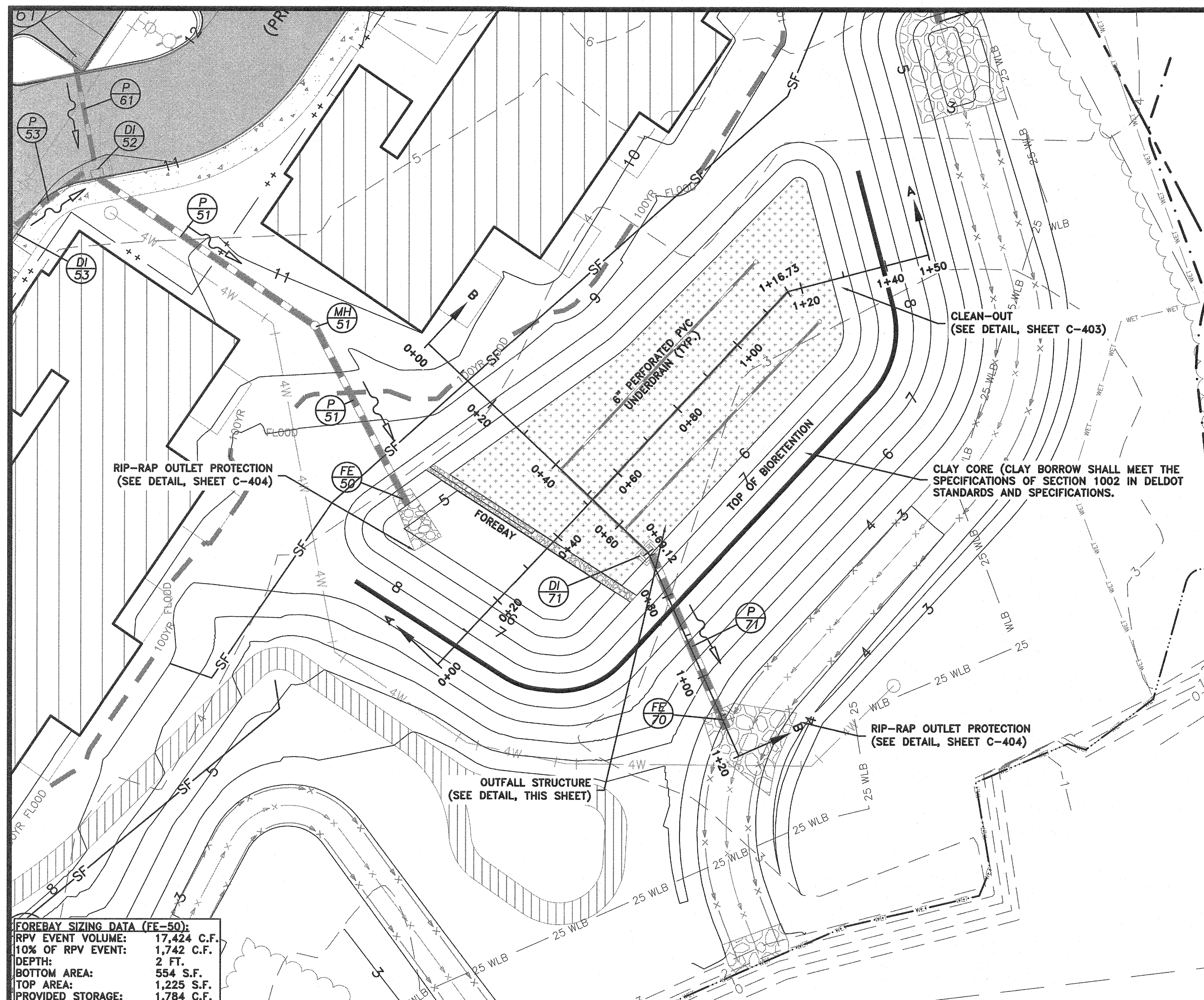
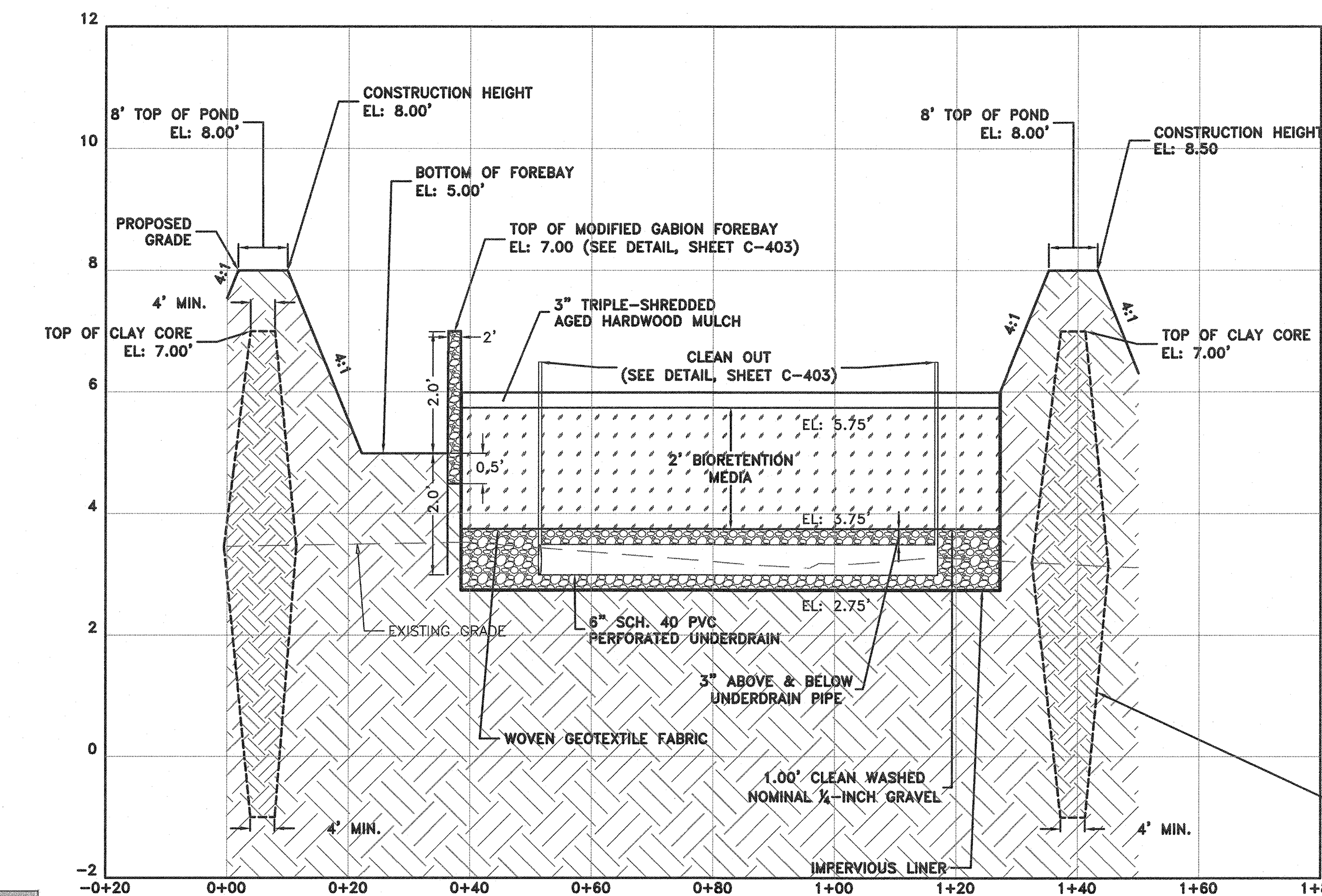


BIORETENTION PLAN VIEW

SCALE: 1"=20'

GENERAL OPERATION AND MAINTENANCE NOTES

1. THE KENT CONSERVATION DISTRICT RESERVES THE RIGHT TO ENTER PRIVATE PROPERTY FOR PURPOSES OF PERIODIC SITE REVIEWS.
2. THE KENT CONSERVATION DISTRICT SHOULD BE NOTIFIED WITHIN 30 BUSINESS DAYS IF THE PROPERTY OWNERSHIP IS TRANSFERRED TO A NEW PERSON OR ENTITY.
3. THE KENT CONSERVATION DISTRICT MAY SEEK ENFORCEMENT ACTION AGAINST ANY OWNER DEEMED NEGLIGENT IN FULFILLING THE OPERATION AND MAINTENANCE REQUIREMENTS OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
4. THE KENT CONSERVATION DISTRICT SHALL BE NOTIFIED WHEN A CONCERN ARISES REGARDING ANY STORMWATER MANAGEMENT FACILITIES, BEFORE ANY NON-ROUTINE MAINTENANCE, OR IF MODIFICATIONS TO THE FACILITY ARE DESIRED.
5. ANY DESIGN MODIFICATIONS MADE TO THE STORMWATER SYSTEM SHALL REQUIRE THE CREATION OF A NEW POST CONSTRUCTION STORMWATER MANAGEMENT PLAN AND/OR OPERATIONS AND MAINTENANCE PLAN, WITH APPROVAL OF THE PLAN(S) BY THE KENT CONSERVATION DISTRICT.
6. FOR ALL STORMWATER EASEMENT AREAS (I.E., ACCESS, MAINTENANCE, OR OFFSITE) AND THE MINIMUM 15-FOOT WIDE ACCESS WAYS TO ALL STORMWATER FACILITIES AND THEIR STRUCTURAL COMPONENTS, REGULAR MOWING SHALL BE PERFORMED TO KEEP THE GRASS 6" OR LESS; NO TREES OR SHRUBS SHALL BE PLANTED, AND ANY FOUND GROWING SHALL BE REMOVED; AND NO PERMANENT STRUCTURES, SUCH AS FENCES OR SHEDS, SHALL BE LOCATED WITHIN THE EASEMENT OR ACCESS WAY.
7. TREES SHOULD NOT BE PLANTED, AND SHOULD BE REMOVED IF FOUND GROWING, ON AND WITHIN 15 FEET OF ALL POND EMBANKMENTS, ON POND SLOPES OR SAFETY BENCHES, AND WITHIN 10 FEET OF STRUCTURAL COMPONENTS, SUCH AS PIPE INLETS.
8. WHEN THE FACILITY IS EXCAVATED TO REMOVE ACCUMULATED SEDIMENT, THE DISPOSAL AREA SHALL BE PERMANENTLY STABILIZED SO THAT IT DOES NOT RECREATE AN EROSION PROBLEM. ANY MATERIAL TAKEN OFF-SITE SHALL STILL BE UTILIZED OR DISPOSED OF IN AN APPROVED DNREC MANNER.
9. BEFORE ANY EARTHWORK OR EXCAVATION TAKES PLACE, THE CONTRACTOR SHOULD CALL MISS UTILITY AT 811 OR 1-800-282-8555 AT LEAST 3 WORKING DAYS PRIOR TO CONSTRUCTION, TO HAVE ALL EXISTING UTILITIES MARKED ONSITE.
10. SELF INSPECT SEMI-ANNUALLY (SPRING AND FALL) AND AFTER STORM EVENTS OF 2 INCHES OR MORE.
11. REMOVE TRASH AND DEBRIS ON A REGULAR BASIS. IT IS ESPECIALLY IMPORTANT TO REMOVE DEBRIS FROM ALL INLETS AND OUTFALL STRUCTURES.
12. IF BARE SOIL EXISTS ON POND SIDE SLOPES OR EMBANKMENT, RESEED AND/OR REPLANT AS REQUIRED BASED UPON INSPECTION FINDINGS. STABILIZE APPLICABLE ERODED AREAS WITH REINFORCING EROSION CONTROL PRODUCTS (RECP) OR TURF REINFORCING MATS (TRM), AS REQUIRED. IF RECP IS APPLIED, IT IS RECOMMENDED TO USE TRULY BIODEGRADABLE PRODUCTS TO AID IN MOWING MAINTENANCE AND DETER WILDLIFE ENTANGLEMENT. THESE PRODUCTS CAN BE RECOGNIZED AS HAVING "BN" FOR BIONETTING OR "B" FOR BIODEGRADABLE.
13. MOW AROUND BASIN WEEKLY DURING PEAK GOWNING SEASON (APRIL-NOVEMBER). MOW 10-FOOT WIDE ACCESS PATH TO ALL INLET AND OUTLET STRUCTURES, ALSO MOWING AROUND THESE STRUCTURES REGULARLY. USE MULCHING MOWER TO ENSURE THAT NUTRIENTS ARE RECYCLED. FOR WARM SEASON GRASSES, THE PREVIOUS SEASON'S STALKS SHOULD BE CUT DOWN TO 8-12 INCHES IN EARLY SPRING (MID MARCH), BEFORE NEW SEASON'S GROWTH EMERGES.
14. LEAVING A BUFFER (NO MOW ZONE) IS OPTIONAL, AND RECOMMENDED TO BE AT LEAST 10 TO 15-FEET WIDE. IF A BUFFER IS PREFERRED, MOW AT LEAST ONCE A YEAR TO DETER GROWTH OF SAPLINGS. MOW BETWEEN SEPTEMBER 1 AND 30 TO ALLOW FOR RE-GROWTH OF WINTER COVER WHILE AVOIDING POTENTIAL NEGATIVE EFFECTS ON NESTING BIRDS.
15. FENCING IS NOT RECOMMENDED AND NOT REQUIRED; HOWEVER, IF A FENCE IS PREFERRED, ENSURE THAT IT IS IN GOOD REPAIR AND PROVIDES ACCESS FOR MAINTENANCE AND INSPECTIONS.
16. CONSULT THE DELAWARE DEPARTMENT OF AGRICULTURE FOR LICENSING REQUIREMENTS PERTAINING TO THE APPLICATION OF CHEMICALS TO WATER, INCLUDING STORMWATER PONDS. DO NOT PLANT TREES ON POND EMBANKMENTS. REMOVE SAPLINGS ON EMBANKMENTS OF PONDS AND AROUND PERIMETER, INCLUDING OUTLET/INLET STRUCTURES.
17. REPAIR OF SEVERE EROSION; REPLACEMENT OF DETERIORATING PIPES OR STRUCTURAL COMPONENTS; IF MOSQUITOES ARE SUSPECTED TO BE PROBLEMATIC; RECONSTRUCTION OF EMBANKMENT AND OUTLET STRUCTURE; REMOVAL OF ACCUMULATED SEDIMENT; AQUATIC VEGETATION CONTROL (CHEMICAL APPLICATION) IF LICENSING REQUIRED BE DE DEPARTMENT OF AGRICULTURE; IF DREDGING (SEDIMENT REMOVAL IS REQUIRED).



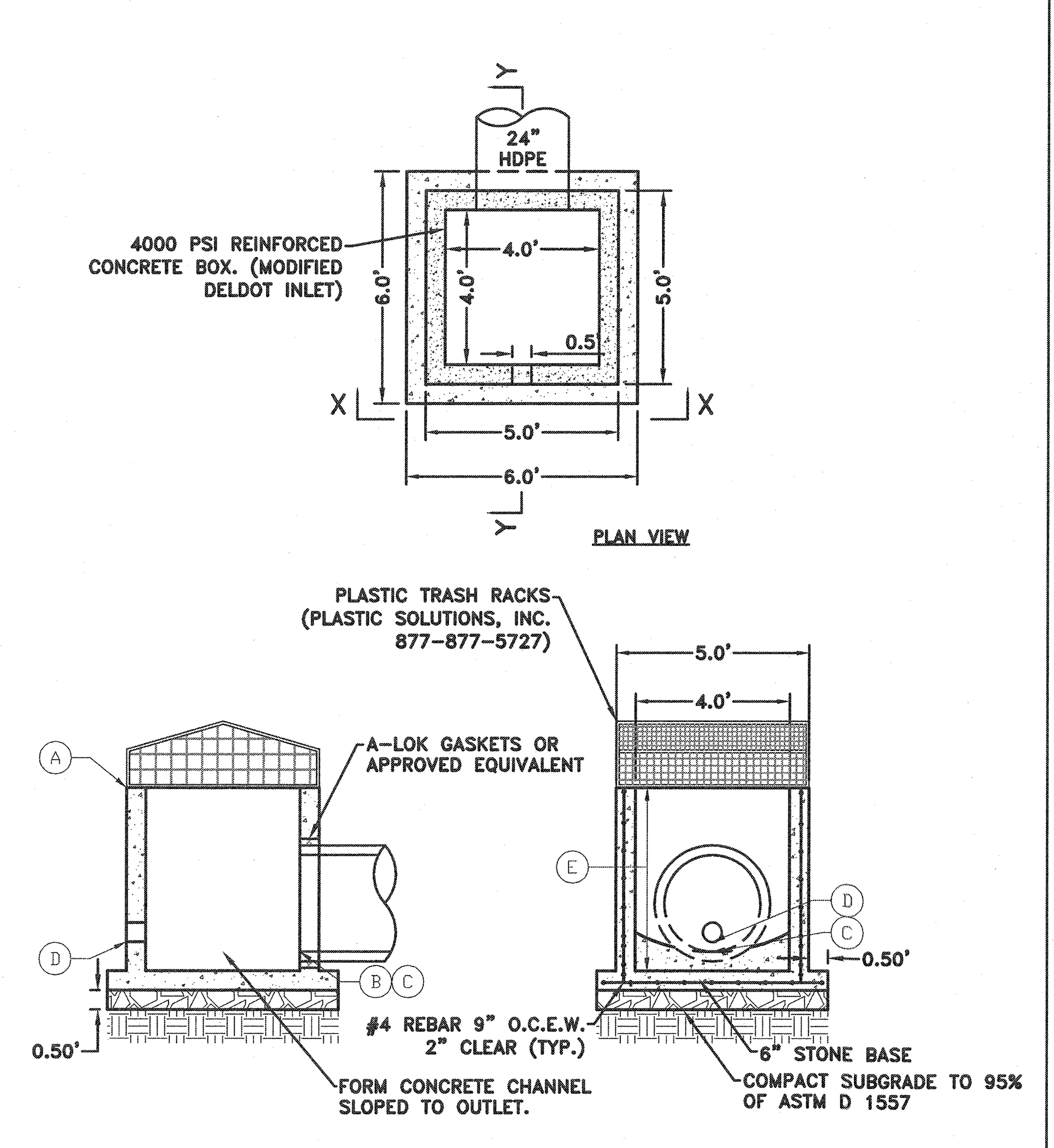
SECTION A

SCALE: HORZ.: 1"=20'
VERT.: 1"=2'

EMBANKMENT CONSTRUCTION NOTES

1. AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL.
2. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL.
3. THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT, AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE.
4. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.
5. THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN 4 PASSES OF ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRED OR VIBRATORY ROLLER.
6. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.
7. WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

OUTFALL STRUCTURE DI-71		
ID	DESCRIPTION	OUTFALL STRUCTURE
A	STRUCTURE TOP ELEV.	7.00'
B	STRUCTURE BOTTOM ELEV.	2.25'
C	STRUCTURE OUTLET ELEV.	2.75'
D	STRUCTURE WEIR BOTTOM ELEV.	3.00'
E	STRUCTURE INSIDE HEIGHT	4.75'



OUTFALL STRUCTURE DETAIL (DI-71)

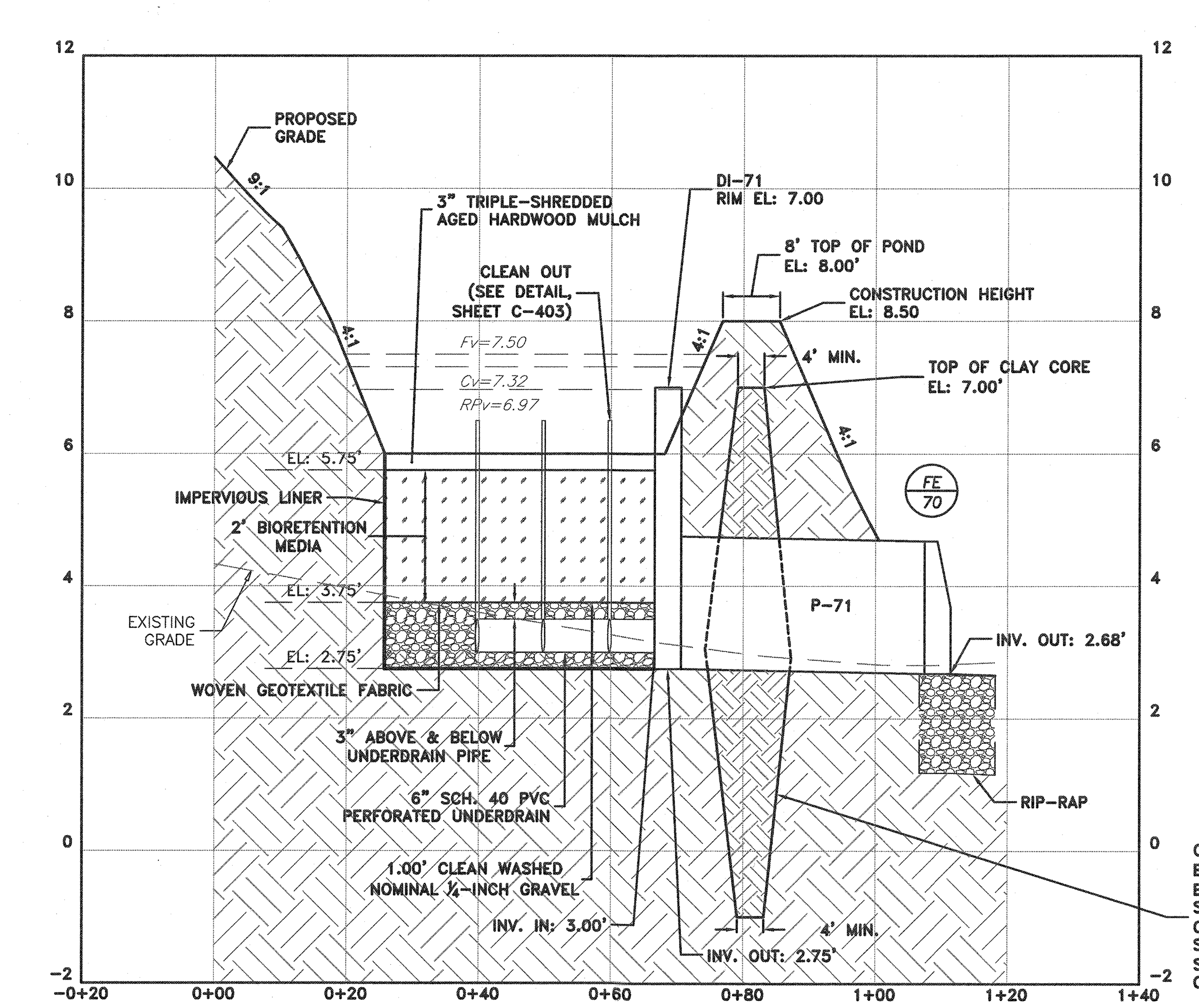
SCALE: 1"=4'

Table 2.3. Bioretention Material Specifications

Material	Specification
Biosoil Media	• Biosoil-14 soil mixture shall have the following volumetric composition: ○ 60% concrete sand; fineness modulus > 2.75 ○ 30% triple-shredded hardwood mulch ○ 10% aged, STA certified compost, meeting the requirements of Delaware Erosion and Sediment Control Handbook Appendix A-6 Compost Material Properties. • Biosoil media must be obtained from a Department approved vendor. • The design permeability rate for biosoil media shall be 2.83 inches per hour. • The biosoil media bed depth shall be a minimum of 24 inches for traditional bioretention and advanced bioretention systems. • Gravel layers used for extending the bioretention facility into a more permeable layer shall meet the same requirements as those for an underdrain design.
Biosoil Media Testing	• Biosoil media must be obtained from a Department approved vendor. • The design permeability rate for biosoil media shall be 2.83 inches per hour.
Surface Cover	• A surface cover shall be provided over the biosoil media. • Mulch if used as a surface cover, shall be triple shredded hardwood aged for a minimum of six months. • Use of alternative surface cover shall be shown on the approved plan.
Underdrain Stone (as needed)	• Underdrains shall be incased in a layer of clean, washed nominal 1/4" gravel with a maximum of 2.0 percent passing the #200 sieve • Minimum of 3" of cover over underdrain • The gravel layer in traditional bioretention shall be extended a minimum of 2' below the invert of the underdrain.
Storage Layer (optional)	• To increase storage for larger storm events, chambers, perforated pipe, stone, or other acceptable material can be incorporated below the biosoil media layer
Underdrains, Cleanouts, and Inspection ports	• The underdrain shall be a minimum of 4-inch perforated corrugated polyethylene pipe (CPP) • All traditional bioretention practices shall include at least one inspection port and/or cleanout pipe.

TYPICAL BIORETENTION MAINTENANCE ITEMS AND FREQUENCY

FREQUENCY	MAINTENANCE ITEMS
DURING ESTABLISHMENT, AS NEED (FIRST YEAR)	* INSPECT THE SITE AFTER STORM EVENT THAT EXCEEDS 0.5 INCHES OF RAINFALL. * STABILIZE ANY BARE OR ERODING AREAS IN THE CONTRIBUTING DRAINAGE ARE INCLUDING THE BIORETENTION PERIMETER AREA. * WATER TREES AND SHRUBS PLANTED IN THE BIORETENTION PLANTING BED DURING THE FIRST GROWING SEASON. IN GENERAL, WATER EVERY 3 DAYS FOR THE FIRST MONTH, AND THEN WEEKLY DURING THE REMAINDER OF THE FIRST GROWING SEASON (APRIL – OCTOBER), DEPENDING ON RAINFALL.
QUARTERLY OR AFTER MAJOR STORMS (>1 INCH OF RAINFALL)	* REMOVE DEBRIS AND BLOCKAGES * REPAIR UNDERCUT, ERODED, AND BARE SOIL AREAS
TWICE A YEAR	* MOWING OF THE BIORETENTION VEGETATED PERIMETER AREA AND BANKS (AS DIRECTED IN APPROVED O & M PLAN)
ANNUALLY	* CLEANUP TO REMOVE TRASH, DEBRIS AND FLOATABLES * A FULL MAINTENANCE REVIEW * CHECK CONDITION OF OUTLET STRUCTURE * REPAIR BROKEN MECHANICAL COMPONENTS, IF NEEDED
ONE TIME – DURING THE SECOND YEAR FOLLOWING CONSTRUCTION	* BIORETENTION PLANTING BED REPLACEMENT/REINFORCEMENT PLANTINGS
EVERY 5 TO 7 YEARS	* FOREBAY SEDIMENT REMOVAL (AS APPLICABLE) * FLUSH UNDERDRAIN SYSTEM (AS APPLICABLE)
FROM 5 TO 25 YEARS	* REPAIR PIPES, OUTLET STRUCTURE AND SPILLWAY, AS NEEDED * REMOVE ANY ACCUMULATED SEDIMENT WITHIN FACILITY, AS NEEDED



SECTION B

SCALE: HORZ.: 1"=20'
VERT.: 1"=2'

BIO-RETENTION POND SEQUENCE OF CONSTRUCTION

1. CONSTRUCT BIO-RETENTION POND
   - 1.1. NOTIFY KENT CONSERVATION DISTRICT BEFORE BEGINNING POND CONSTRUCTION. CONDUCT A PRE-CONSTRUCTION MEETING. CONSTRUCTION OF THE BIORETENTION POND MAY ONLY BEGIN AFTER THE ENTIRE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED WITH VEGETATION.
   - 1.2. PLACE SILT FENCE ON THE UPSTREAM SIDE OF THE POND BETWEEN THE BUILDING PADS AND THE POND. REQUEST KCD INSPECTION OF SILT FENCE.
   - 1.3. CHECK INLET PROTECTION OF PIPE NETWORK DRAINING TO POND IS IN GOOD CONDITION. CLEAN OUT AND REPLACE INLET PROTECTION AS NECESSARY. REMOVE SEDIMENT FROM PIPES PRIOR TO CONSTRUCTION OF BIORETENTION POND.
   - 1.4. CHECK FOR EXISTING UTILITIES PRIOR TO ANY EXCAVATION. EXCAVATE THE POND TO THE DESIGN DIMENSIONS. EXACAVATE THE FOREBAY AREA FIRST AND CONSTRUCT THE GABION FOREBAY WALL. DEWATER THE POND AS NECESSARY UTILIZING A PUMPING PIT OR OTHER APPROVED METHOD. ENSURE PROCEDURES ARE IMPLEMENTED THAT PREVENT TURBID DISCHARGES TO NEARBY WATERS DURING EXCAVATION.
   - 1.5. CONSTRUCT EMBANKMENT WITH CLAY CORE AND CUT-OFF TRENCH. SEE NOTES FOR EMBANKMENT CONSTRUCTION ON THIS SHEET. OUTFALL STRUCTURE AND PIPE TO BE INSTALLED CONCURRENTLY WITH THE EMBANKMENT. REQUEST KCD INSPECTION OF GRADING.
   - 1.6. PLACE 3" OF ¼" GRAVEL WITH A MAXIMUM 2% PASSING THE #200 SIEVE ON THE BOTTOM OF THE BASIN AT ELEVATION 2.75. INSTALL THE PERFORATED UNDERDRAIN PIPES. PACK GRAVEL LAYER TO 3" ABOVE THE UNDERDRAIN PIPE. REQUEST KCD INSPECTION OF OUTFALL STRUCTURE, PIPE, GRAVEL, UNDERDRAIN AND INSPECTION PORTS.
   - 1.7. BEGIN PLACEMENT OF BIO-SOIL MEDIA. MEDIA MUST BE OBTAINED FROM A DEPARTMENT APPROVED VENDOR. IF NOT USED UPON DELIVERY, STORE ON AN ADJACENT IMPERVIOUS AREA OR PLASTIC SHEETING. APPLY THE MEDIA IN 12-INCH LIFTS TO A DEPTH OF 2 FEET. WET THE BIO-SOIL MEDIA BETWEEN LIFTS TO REDUCE SETTLING. WAIT A FEW DAYS TO CHECK FOR SETTLEMENT AND ADD ADDITIONAL MEDIA AS NEEDED TO ACHIEVE THE DESIGN ELEVATION. WETTING THE BIOSOIL MEDIA BETWEEN LIFTS MAY REDUCE THE AMOUNT OF SETTLING THAT OCCURS. REQUEST KCD INSPECTION OF BIOSOIL MEDIA.
   - 1.8. PREPARE PLANTING HOLES FOR PLANTS. INSTALL THE VEGETATION AND VEGETATED PERIMETER AREA, WATER ACCORDINGLY. FOLLOW THE PLANTING PLAN ON SHEET C-408.
   - 1.9. PLACE THE SURFACE COVER OVER THE BIO-SOIL MEDIA. SURFACE COVER TO BE 3" OF TRIPLE SHREDDED HARDWOOD MULCH THAT HAS BEEN AGED FOR A MINIMUM OF SIX MONTHS. STABILIZE DISTURBED AREAS WITH PERMANENT SEED MIX #3, AS SHOWN ON SHEET C-408. REQUEST KCD INSPECTION OF THE PLANTINGS AND VEGETATIVE STABILIZATION.
   - 1.10. LEAVE SILT FENCE IN PLACE AROUND THE TOP OF THE BIO-RETENTION POND UNTIL THE SIDE SLOPES HAVE 70% VEGETATIVE COVER.
   - 1.11. DEWATER THE ADJACENT SEDIMENT TRAP WITH A PUMPING PIT AND FILL TO FINISHED GRADE ELEVATIONS IN 8" LIFTS.
   - 1.12. COMPLETE POST CONSTRUCTION VERIFICATION DOCUMENTATION AND SUBMIT TO KENT CONSERVATION DISTRICT FOR REVIEW AND APPROVAL.
   - 1.13. SCHEDULE FINAL INSPECTION INCLUDING THE DEVELOPMENT OF A PUNCH LIST FOR FACILITY ACCEPTANCE.
2. 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.

0 20 40 60

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POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

SEDIMENT AND STORMWATER MANAGEMENT PLANS

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

REVISIONS:
04/19/2018: COM COMMENTS
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Date:	APRIL, 2018
Scale:	AS NOTED
Dwn.By:	SHF
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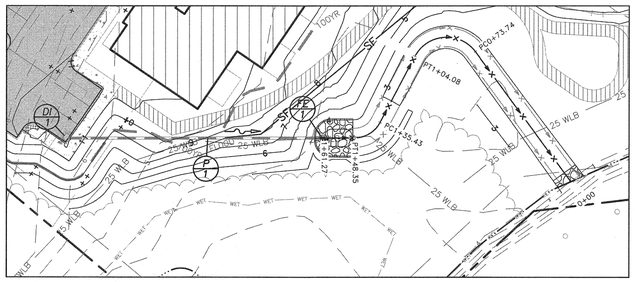
VEGETATED CHANNEL MAINTENANCE ACTIVITY	SCHEDULE
MOW VEGETATED CHANNELS DURING THE GROWING SEASON TO MAINTAIN MINIMUM GRASS HEIGHTS IN THE 4" TO 6" RANGE.	AS NEEDED
ENSURE THAT THE CONTRIBUTING DRAINAGE AREA, INLETS, AND FACILITY SURFACE ARE CLEAR OF DEBRIS.	QUARTERLY
ENSURE THAT THE CONTRIBUTING DRAINAGE AREA IS STABILIZED. PERFORM SPOT-RESEEDING WHERE NEEDED.	
REMOVE ACCUMULATED SEDIMENT AND OIL/GREESE FROM INLETS, PRE-TREATMENT DEVICES, FLOW DIVERSION STRUCTURES, AND OVERFLOW STRUCTURES.	
REPAIR UNDERCUT AND ERODED AREAS AT INFLOW AND OUTFLOW STRUCTURES.	
ADD REINFORCEMENT PLANTING TO MAINTAIN 90% TURF COVER. RESEED ANY SALT-KILLED VEGETATION.	ANNUAL INSPECTION
REMOVE AND ACCUMULATED SAND OR SEDIMENT DEPOSITS BEHIND CHECK DAMNS.	
INSPECT UPSTREAM AND DOWNSTREAM OF CHECK DAMS FOR EVIDENCE OF UNDERCUTTING OR EROSION, AND REMOVE ANY TRASH OR BLOCKAGES AT WEEP HOLES.	
EXAMINE CHANNEL BOTTOM FOR EVIDENCE OF EROSION, BRAIDING, EXCESSIVE PONDING OR DEAD GRASS.	
CHECK INFLOW POINTS FOR CLOGGING AND REMOVE AND SEDIMENT.	
INSPECT SIDE SLOPES AND PRETREATMENT AREAS FOR EVIDENCE OF ANY RILL OR GULLY EROSION AND REPAIR.	
LOOK FOR ANY BARE SOIL OR SEDIMENT SOURCES IN THE CONTRIBUTING DRAINAGE AREA AND STABILIZE IMMEDIATELY.	

BIO-SWALE
GENERAL OPERATION AND MAINTENANCE NOTES

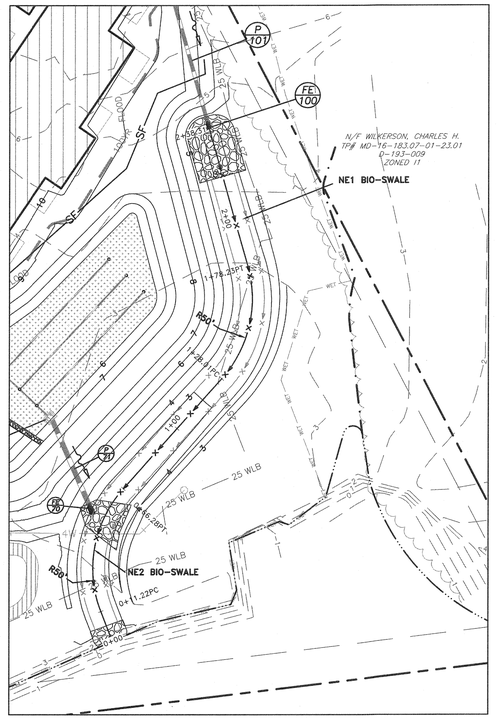
1. THE DNREC SEDIMENT AND STORMWATER PROGRAM AND/OR THE RELEVANT DELEGATED AGENCY RESERVES THE RIGHT TO ENTER PRIVATE PROPERTY FOR PURPOSES OF PERIODIC SITE REVIEWS.
2. THE KENT CONSERVATION DISTRICT SHALL BE NOTIFIED WITHIN 30 BUSINESS DAYS IF THE PROPERTY OWNERSHIP IS TRANSFERRED TO A NEW PERSON OR ENTITY.
3. THE DNREC SEDIMENT AND STORMWATER PROGRAM AND/OR THE RELEVANT DELEGATED AGENCY MAY SEEK ENFORCEMENT ACTION AGAINST ANY OWNER DEEMED NEGLIGENT IN FULFILLING THE OPERATION AND MAINTENANCE REQUIREMENTS OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
4. THE KENT CONSERVATION DISTRICT SHALL BE CONTACTED IF A CONCERN ARISES REGARDING A STORMWATER MANAGEMENT FACILITY, BEFORE ANY NON-ROUTINE MAINTENANCE, OR IF MODIFICATIONS TO THE FACILITY ARE DESIRED.
5. ANY DESIGN MODIFICATIONS MADE TO THE STORMWATER SYSTEM SHALL REQUIRE THE CREATION OF A NEW POST CONSTRUCTION STORMWATER MANAGEMENT PLAN AND/OR OPERATIONS AND MAINTENANCE PLAN, WITH APPROVAL OF THE PLAN(S) BY THE SUSSEX CONSERVATION DISTRICT.
6. FOR ALL STORMWATER EASEMENT AREAS (I.E., ACCESS, MAINTENANCE, OR OFFSITE) AND THE MINIMUM 10-FOOT WIDE ACCESSWAYS TO ALL STORMWATER FACILITIES AND THEIR STRUCTURAL COMPONENTS, REGULAR MOWING SHALL BE PERFORMED TO KEEP THE GRASS 6" OR LESS; NO TREES OR SHRUBS SHALL BE PLANTED, AND ANY FOUND GROWING SHALL BE REMOVED; AND NO PERMANENT STRUCTURES, SUCH AS FENCES OR SHEDS, SHALL BE LOCATED WITHIN THE EASEMENT OR ACCESSWAY.
7. TREES SHALL NOT BE PLANTED, AND SHALL BE REMOVED IF FOUND GROWING, ON AND WITHIN 15 FEET OF ALL POND EMBANKMENTS, ON POND SLOPES OR SAFETY BENCHES, AND WITHIN 10 FEET OF STRUCTURAL COMPONENTS, SUCH AS PIPE INLETS.
8. WHEN THE FACILITY IS EXCAVATED TO REMOVE ACCUMULATED SEDIMENT, THE DISPOSAL AREA SHALL BE PERMANENTLY STABILIZED SO THAT IT DOES NOT RECREATE AN EROSION PROBLEM. ANY MATERIAL TAKEN OFF-SITE SHALL STILL BE UTILIZED OR DISPOSED OF IN AN APPROVED DNREC MANNER.
9. BEFORE ANY EARTHWORK OR EXCAVATION TAKES PLACE, THE CONTRACTOR SHALL CALL MISS UTILITY AT 811 OR 1.800.282.8555 AT LEAST 3 WORKING DAYS PRIOR TO CONSTRUCTION, TO HAVE ALL EXISTING UTILITIES MARKED ONSITE.
10. SELF INSPECT SEMI-ANNUALLY (SPRING AND FALL) AND AFTER STORM EVENTS OF 2 INCHES OR MORE.
11. REMOVE TRASH AND DEBRIS ON A REGULAR BASIS.
12. STABILIZE APPLICABLE ERODED AREAS WITH REINFORCING EROSION CONTROL PRODUCTS (RECP) OR TURF REINFORCING MATS (TRM), AS REQUIRED. IF RECP IS APPLIED, IT IS RECOMMENDED TO USE TRULY BIODEGRADABLE PRODUCTS TO AID IN MOWING MAINTENANCE AND DETER WILDLIFE ENTANGLEMENT. THESE PRODUCTS CAN BE RECOGNIZED AS HAVING "BN" FOR BIONETTING OR "B" FOR BIODEGRADABLE.
13. IF TURF COVER IS USED MOW REGULARALY (WEEKLY FROM APRIL TO NOVEMBER). MOW NO LOWER THAN 6" TO MAINTAIN DESIRED DESIGN HEIGHT.
14. FOR NATIVE GRASSES: CUT DOWN STANDING STALKS TO 12 INCHES IN SPRING (MID-MARCH), JUST BEFORE NEW GROWTH EMERGES. SELECTIVELY HAND-APPLY AN APPROPRIATE HERBICIDE WITH A CUT STUMP APPLICATOR OR DIRECT FOLIAR SPRAYS. RESEED AND/OR REPLANT AS NEEDED BASED ON INSPECTION FINDINGS.
15. REMOVE MATERIALS THAT ACCUMULATE ON THE UPSTREAM FACE OF THE CHECK DAMS. REMOVE ALL VEGETATION THAT EXTENDS ROOTS WITHIN THE CHECK DAMS MANUALLY AND APPLY HERBICIDES AS NECESSARY TO ELIMINATE HERBACEOUS SPECIES WITH PERSISTENT ROOTS.
16. CONSULT THE DELAWARE DEPARTMENT OF AGRICULTURE FOR LICENSING REQUIREMENTS PERTAINING TO THE APPLICATION OF CHEMICALS
17. HIRE A PROFESSIONAL IF PONDING IS OBSERVED; IF FACILITY DOES NOT DRAIN WITHIN 48 HOURS; REPLACEMENT OF DETERIORATING PIPES OR STRUCTURAL COMPONENTS; FACILITY RECONSTRUCTION; REPAIR OF SEVERE EROSION; AQUATIC VEGETATION CONTROL (CHEMICAL APPLICATION) IF LICENSING REQUIRED BY DE DEPARTMENT OF AGRICULTURE.



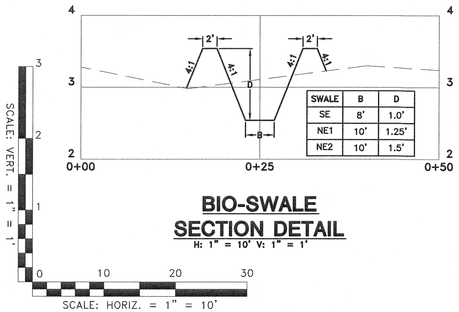
BIO-SWALE SE PLAN VIEW
SCALE: 1"=30'

BIO-SWALE – SEQUENCE OF CONSTRUCTION

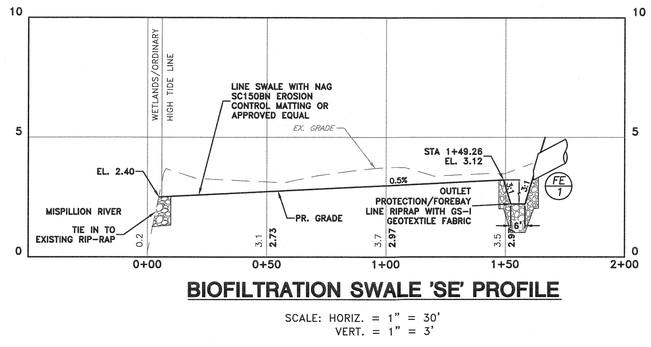
1. NOTIFY KENT CONSERVATION DISTRICT BEFORE BEGINNING BIO-SWALE CONSTRUCTION. CONDUCT A PRE-CONSTRUCTION MEETING. CONSTRUCTION OF THE BIO-SWALE MAY ONLY BEGIN AFTER THE ENTIRE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED WITH VEGETATION.
2. PLACE SILT FENCE ON THE NORTHWEST SIDE (UPSTREAM SIDE) OF THE BIO-SWALE BETWEEN THE TOP OF BANK AND THE BUILDINGS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE KCD INSPECTOR. REQUEST KCD INSPECTION OF SILT FENCE.
3. CHECK INLET PROTECTION OF PIPE NETWORK DRAINING TO POND IS IN GOOD CONDITION. CLEAN OUT AND REPLACE INLET PROTECTION AS NECESSARY. REMOVE SEDIMENT FROM PIPES PRIOR TO CONSTRUCTION OF BIO-SWALE POND.
4. EXCAVATE AND GRADE THE CHANNEL TO THE DESIGN DIMENSIONS SHOWN ON THE PLANS. KEEP EXCAVATION EQUIPMENT OUT OF THE CHANNEL TO AVOID UNNECESSARY COMPACTION. REQUEST KCD INSPECTION OF CHANNEL GRADING.
5. SEED THE BOTTOM AND BANKS OF THE CHANNEL USING A COMBINATION OF PERMANENT SEED MIX #6 & #9. PLACE EROSION CONTROL BLANKET NORTH AMERICAN GREEN SC150BN OR APPROVED EQUIVALENT ALONG THE CHANNEL AS SPECIFIED ON THE PLANS.
6. CONTACT THE KENT CONSERVATION DISTRICT FOR FINAL INSPECTION ONCE CHANNEL IS STABILIZED.
7. REMOVE PERIMETER CONTROLS WITH WRITTEN APPROVAL FROM THE AGENCY CONSTRUCTION SITE REVIEWER.



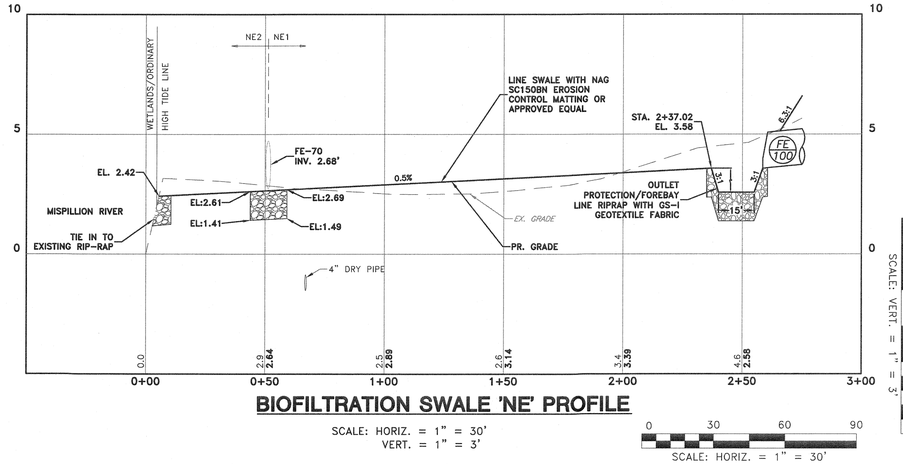
BIO-SWALE NE PLAN VIEW
SCALE: 1"=30'



BIO-SWALE SECTION DETAIL
H: 1" = 10' V: 1" = 1'



BIOFILTRATION SWALE 'SE' PROFILE
SCALE: HORIZ. = 1" = 30'
VERT. = 1" = 3'



BIOFILTRATION SWALE 'NE' PROFILE
SCALE: HORIZ. = 1" = 30'
VERT. = 1" = 3'

SCALE: HORIZ. = 1" = 30'

CLIFTON DANIEL MUNFORD
LICENSED
No. 16035
7/28/2021
DELAWARE
PROFESSIONAL ENGINEER

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SEDIMENT AND STORMWATER MANAGEMENT PLANS

KENT CONSERVATION DISTRICT
08/17/2021 KCD

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

REVISIONS:
04/19/2018: COM COMMENTS
02/28/2019: COM COMMENTS
11/06/2020: KCD
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05/20/2021: COM COMMENTS
06/23/2021: KCD

Date:	APRIL, 2018
Scale:	1" = 30'
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-407

BIORETENTION PLAN VIEW

SCALE: 1"=20'

LEGEND

BIO-RETENTION AREA

GENERAL LANDSCAPE NOTES

1. QUALITY AND SIZE OF PLANTS, SPREAD OF ROOTS, AND SIZE OF BALLS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERYMEN "AMERICAN STANDARDS FOR NURSERY STOCK".
2. CONTRACTOR SHALL BE REQUIRED TO GUARANTEE ALL PLANT MATERIALS FOR A PERIOD OF ONE YEAR AFTER INSTALLATION IS COMPLETE AND FINAL ACCEPTANCE OF ALL SITE WORK HAS BEEN GIVEN. AT THE END OF ONE YEAR ALL PLANT MATERIAL WHICH IS DEAD OR DYING SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE AS ORIGINALLY SPECIFIED.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND MAY MAKE MINOR ADJUSTMENTS IN SPACING AND/OR LOCATION OF PLANT MATERIALS. CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES.
4. NO SUBSTITUTIONS SHALL BE MADE WITHOUT APPROVAL OF THE OWNER.
5. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THIS DRAWING AND AS SPECIFIED.
6. ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL GRADE BEFORE DIGGING.
7. THE CONTRACTOR SHALL WATER ALL PLANTS THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING, AND THEN WEEKLY OR MORE OFTEN, IF NECESSARY, DURING THE FIRST GROWING SEASON.
8. CONTRACTOR SHALL FERTILIZE PLANTS WITH SLOW-RELEASE GRANULAR FERTILIZER CONSISTING OF 50 PERCENT WATER-INSOLUABLE NITROGEN, PHOSPHORUS, AND POTASSIUM IN AMOUNTS RECOMMENDED IN SOIL REPORTS FROM A QUALIFIED SOIL-TESTING AGENCY HIRED BY THE CONTRACTOR.
9. ALL AREAS NOT STABILIZED IN PAVING OR PLANT MATERIALS SHOULD BE SEEDED AND MULCHED. (SEE SSM CONSTRUCTION PLAN.)

BIORETENTION AREA PLANT SCHEDULE

SYMBOL	KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
		DECIDUOUS SHRUBS			
	AA	ARONIA arbutifolia	RED CHOKEBERRY	18"-24", Cont.	7
		EVERGREEN SHRUBS			
	IG	ILEX glabra	INKBERRY	18"-24", Cont.	8

0 20 40 60

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No. 16608
7/28/2021
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SEDIMENT AND STORMWATER MANAGEMENT PLANS

KENT CONSERVATION DISTRICT 08/17/2021 JCC/

POND LANDSCAPE PLAN

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

REVISIONS:
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KCD
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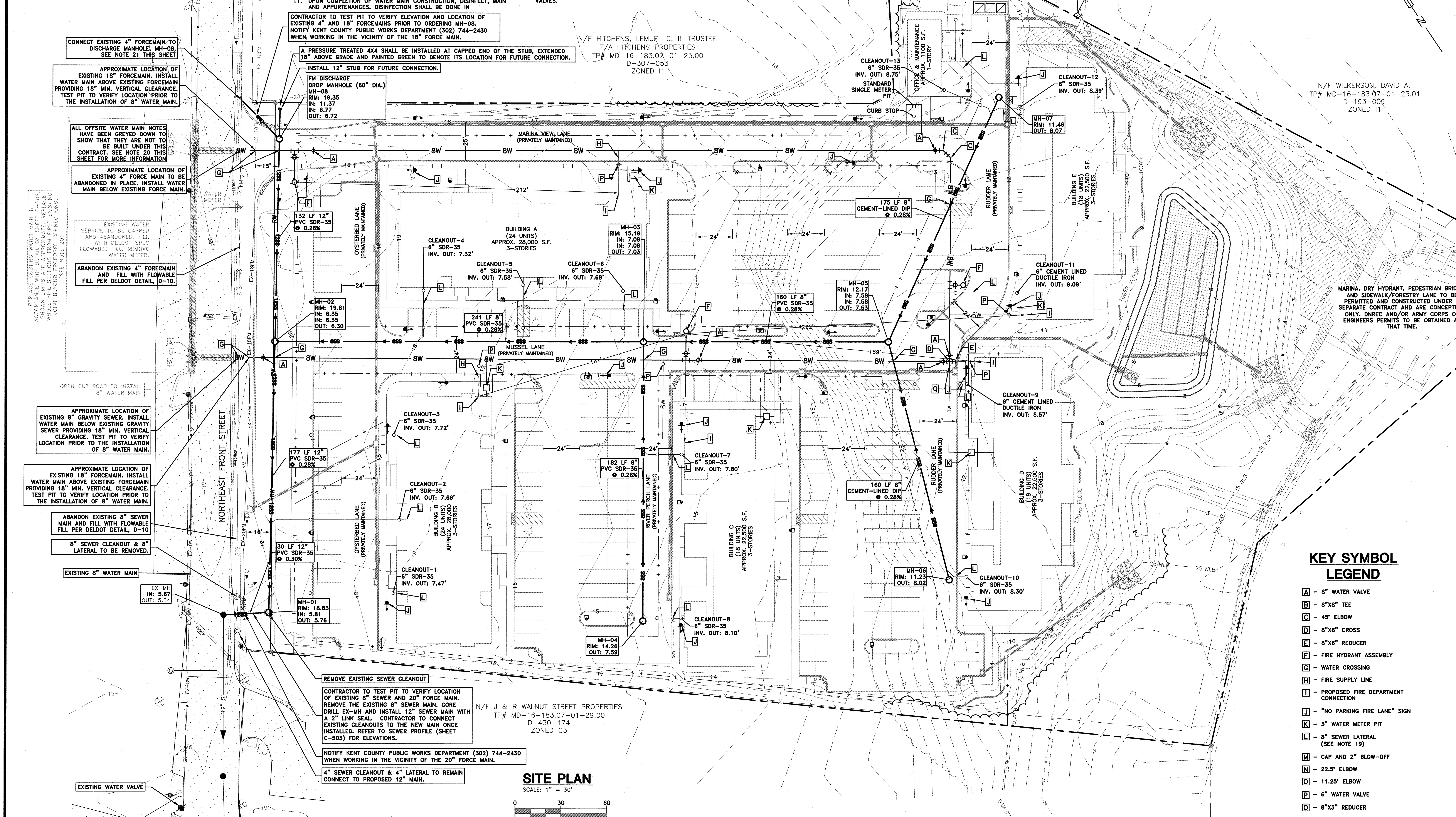
Date:	APRIL, 2018
Scale:	1" = 20'
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-408

UTILITY NOTES

1. PRIOR TO THE START OF UTILITY WORK, CONTRACTOR IS TO CONDUCT A PRE-CONSTRUCTION MEETING WITH KENT COUNTY PUBLIC WORKS, DELDOT, CITY OF MILFORD AND THE DESIGN ENGINEER.
2. MAINTAIN 1.5 FEET OF MINIMUM VERTICAL SEPARATION BETWEEN SANITARY SEWER AND WATER MAINS.
3. MAINTAIN 1 FOOT OF MINIMUM VERTICAL SEPARATION BETWEEN SANITARY SEWER AND ALL OTHER UTILITIES.
4. MAINTAIN 10 FEET OF MINIMUM HORIZONTAL SEPARATION BETWEEN SANITARY SEWER AND WATER MAINS.
5. MAINTAIN 5 FEET OF MINIMUM HORIZONTAL SEPARATION BETWEEN SANITARY SEWER AND ALL OTHER UTILITIES.
6. MINIMUM 3.5 FEET OF PIPE COVERAGE FROM PROPOSED GRADE FOR NORMAL INSTALLATION OF SANITARY SEWER MAINS. STONE BEDDING 1.0 FT. ABOVE THE PIPE IS REQUIRED WHERE PIPE COVERAGE IS LESS THAN 3.5 FEET.
4. DEPTH OF WATER MAINS SHALL BE 3.5 FEET FROM PROPOSED GRADE, AS MEASURED FROM THE TOP OF PIPE.
8. PLACE TRACER TAPE ON ALL WATER AND SANITARY PIPES.
9. THE CONTRACTOR SHALL PROVIDE BUTTRESSES FOR ALL HORIZONTAL AND VERTICAL BENDS AS REQUIRED PER STANDARDS AND SPECIFICATIONS OF THE CITY OF MILFORD.
10. THE CONTRACTOR SHALL ADJUST WATER LINE LOCATION AS REQUIRED TO AVOID CONFLICTS WITH OTHER UTILITIES.
11. UPON COMPLETION OF WATER MAIN CONSTRUCTION, DISINFECT, MAIN AND APPURTENANCES. DISINFECTION SHALL BE DONE IN ACCORDANCE WITH ANSI/AWWA C-601, LATEST EDITION. CONTRACTOR SHALL SUBMIT A PLAN OF DISINFECTION FOR APPROVAL BY THE ENGINEER. CONTRACTOR IS TO REFER TO CITY'S STANDARD AND SPECIFICATIONS FOR ADDITIONAL INFORMATION ON THE DISINFECTION OF WATERMAINS.
12. ALL MATERIALS OF CONSTRUCTION FOR WATER AND SEWER SHALL CONFORM TO THE CITY OF MILFORD'S SITE CONSTRUCTION STANDARDS AND SPECIFICATIONS, LATEST EDITION AND THE KENT COUNTY DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS AND DETAILS, RESPECTIVELY. THE ENTIRE WATER DISTRIBUTION SYSTEM MUST BE IN COMPLIANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE DELAWARE STATE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL AND THE DELAWARE STATE DIVISION OF PUBLIC HEALTH.
13. 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 DELMARVA (1-800-282-8555).
14. FOR WATER MAIN CONNECTION, CUT IN AN 8" TEE WITH ISOLATION VALVES.
15. SEWER MAIN FROM MH-6 TO MH-7 AND MH-6 TO MH-8 SHALL BE CEMENT LINED DUCTILE IRON WITH GASKETED JOINTS DUE TO COVER ISSUES.
16. ALL FITTINGS SHALL BE SDR-26 UNLESS OTHERWISE SPECIFIED ON PLANS.
17. FIRE DETECTOR CHECK VALVES ARE TO BE INSTALLED INSIDE A MECHANICAL ROOM PROVIDED WITHIN THE FOOTPRINT OF THE BUILDING, WITH SEPARATE ACCESSWAY.
18. ALL WATER MAINS ARE TO BE C-900 DR-18.
19. SEWER LATERALS SHALL HAVE A MINIMUM 2% SLOPE. SEWER CLEANOUT ELEVATIONS SHOWN ARE MINIMUM TO ACHIEVE 2% SLOPE FROM THE MAIN. THE LATERALS CAN BE RAISED TO A DEPTH OF 3.5' BELOW GRADE. FOLLOW CITY OF MILFORD DETAIL D3-7 ON SHEET C-505.
20. THE CONTRACT TO REPLACE THE WATER MAIN ALONG NORTH EAST FRONT ST. HAS BEEN AWARDED TO ECM CONSTRUCTION. THE ANTICIPATED PROJECT COMPLETION DATE IS LABOR DAY 2021. THE WATER STUBS TO SERVE THIS PROJECT HAVE BEEN INCLUDED IN THE SCOPE OF THE PROJECT AWARDED TO ECM.
21. CONTRACTOR TO FOLLOW THE STEPS BELOW IN REGARDS TO CONNECTING THE 4" FORCEMAIN TO THE PROPOSED MANHOLE:
    - 21.1. COORDINATE THE FORCE MAIN WORK WITH THE CITY OF MILFORD TO TURN OFF THE PUMP STATION WHILE THE WORK IS BEING PERFORMED.
    - 21.2. CUT THE FORCEMAIN AND INSTALL A 45° BEND TO CONNECT TO MH-08.
    - 21.3. FILL THE ABANDONED SECTION OF 4" FORCEMAIN AND THE 8" GRAVITY MAIN WITH FLOWABLE FILL AS PER DELDOT PIPE PLUGGING DETAIL D-10 (2020).
22. THE CONTRACTOR IS TO NOTIFY KENT COUNTY PUBLIC WORKS (302) 744-2430 WHILE WORKING IN THE VICINITY OF THE 18" OR 20" FORCE MAIN.



KEY SYMBOL LEGEND

- A – 8" WATER VALVE
- B – 8"X8" TEE
- C – 45° ELBOW
- D – 8"X8" CROSS
- E – 8"X6" REDUCER
- F – FIRE HYDRANT ASSEMBLY
- G – WATER CROSSING
- H – FIRE SUPPLY LINE
- I – PROPOSED FIRE DEPARTMENT CONNECTION
- J – "NO PARKING FIRE LANE" SIGN
- K – 3" WATER METER PIT
- L – 8" SEWER LATERAL (SEE NOTE 19)
- M – CAP AND 2" BLOW-OFF
- N – 22.5° ELBOW
- O – 11.25° ELBOW
- P – 6" WATER VALVE
- Q – 8"X3" REDUCER

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UTILITY PLAN - SITE PLAN

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

REVISIONS:
04/19/2018: COM COMMENTS
02/28/2019: COM COMMENTS
11/06/2020: KCD
12/29/2020: DNREC
04/16/2021: COM COMMENTS KCD
05/20/2021: COM COMMENTS
06/23/2021: KCD

Date:	APRIL, 2018
Scale:	1" = 30'
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-501

FIRE HYDRANT FLOW TEST RESULTS

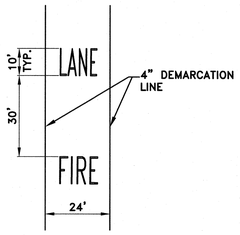
DATE/TIME: 05/31/2011 TIME: 07:40

LOCATION: ALONG WESTBOUND LANE NORTHEAST FRONT STREET. BY WELL 5.

ELEVATION: 0

TESTER: BILLY

HYDRANT:	K-56
GAGE:	0
DIAMETER:	2.5 IN.
COEFF.:	0.9
PITOT:	48 PSI
FLOW:	1163 GPM
STATIC:	53 PSI
RESIDUAL:	47 PSI

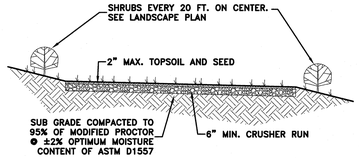


FIRE LANE DETAIL
NO SCALE

R7-107a
SYMBOL [J]

NOTE: ALL (R7-107A) SIGNS SHALL BE LOCATED NO LESS THAN SIX FEET AND NO HIGHER THAN EIGHT FEET ABOVE THE PAVEMENT. (DSFPR PART V, CHAPTER 5, SECTION 5-6.1.2B)

SIGN DETAIL
NO SCALE



FORESTRY LANE DETAIL
NO SCALE
(TO BE BUILT UNDER A SEPARATE CONTRACT.)

FIRE PROTECTION NOTES:

1. ALL FIRE LANES, FIRE HYDRANTS, AND FIRE DEPARTMENT CONNECTIONS SHALL BE MARKED IN ACCORDANCE WITH THE DELAWARE STATE FIRE PREVENTION REGULATIONS (DSFPR, Part II Chapters 6 & 7).
2. ALL MULTI-FAMILY DWELLINGS WILL BE PROTECTED BY AUTOMATIC SPRINKLERS IN ACCORDANCE WITH NFPA 13.
3. AUTOMATIC FIRE SPRINKLERS ARE NOT PROPOSED FOR THE OFFICE/MAINTENANCE BUILDING.
4. ALL MULTI-FAMILY DWELLINGS SHALL BE EQUIPPED WITH A LOCK BOX WITH A KEY. CONTRACTOR SHOULD CONTACT LOCAL FIRE CHIEF FOR ORDERING INFORMATION AND LOCATION OF BOX ON THE BUILDING(S).

DATA COLUMN

TAX MAP IDS & SITE AREA: MD16-183.07-01-27.00 6.673 AC.±

PRESENT USE: VACANT
PROPOSED USE: RESIDENTIAL

WETLANDS AREA: 0.408 AC.±

UTILITIES
CENTRAL WATER: CITY OF MILFORD
CENTRAL SEWER: CITY OF MILFORD
ELECTRIC: CITY OF MILFORD

FLOOD HAZARD MAP: 10005C0041K, DATED 03/16/2015 (ZONES X & AE9)

VERTICAL DATUM: NAVD 1988

ZONING: R-3 GARDEN APARTMENT AND TOWNHOUSE DISTRICT

FRONTAGE ROAD: N.E FRONT STREET (KCR 409)
CLASSIFICATION: MAJOR COLLECTOR
POSTED SPEED: 35 MPH

BUILDING HEIGHT: NOT TO EXCEED THREE STORIES OR 35 FEET

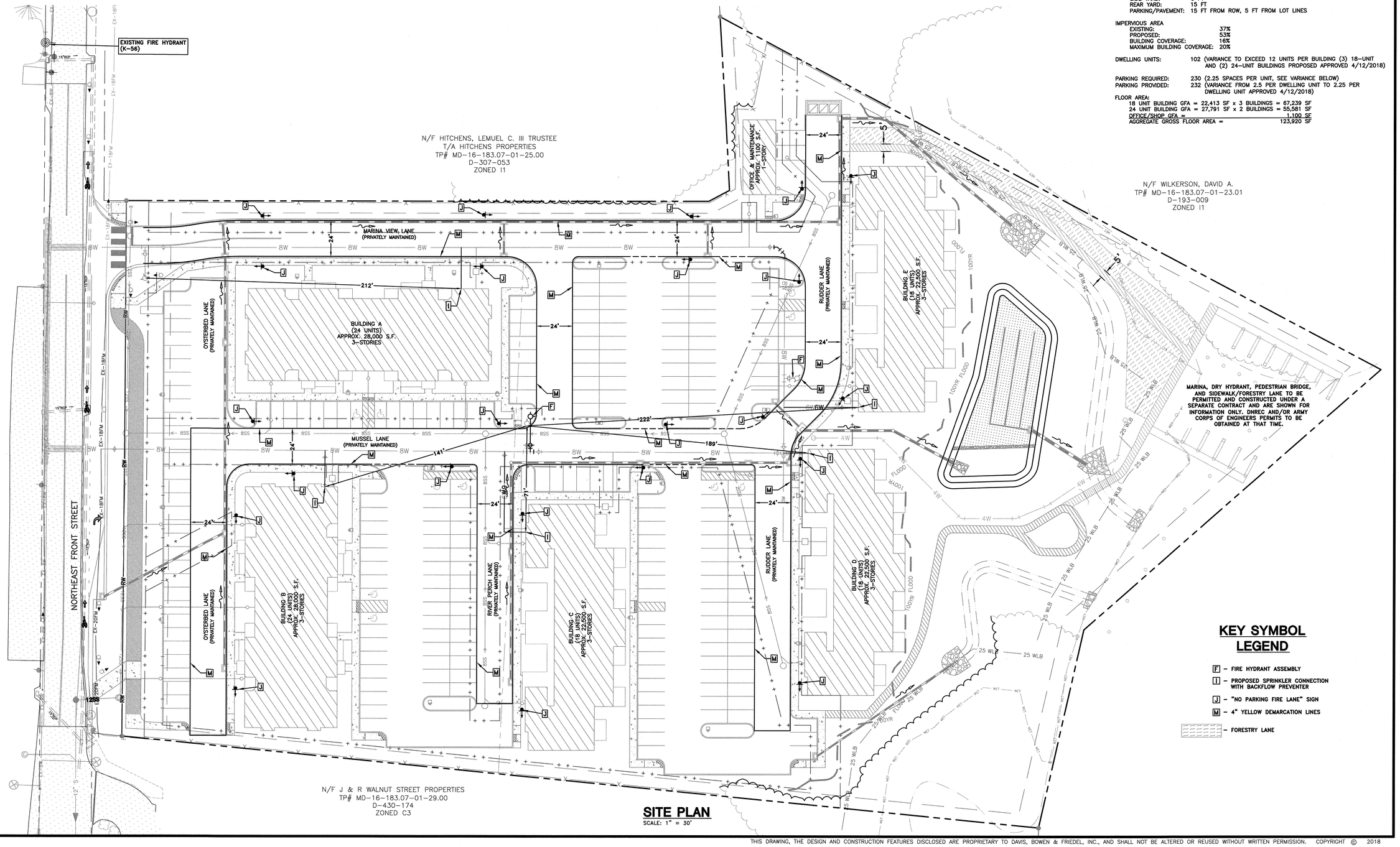
SETBACKS
FRONT YARD: 30 FT
SIDE YARD: 8 FT
REAR YARD: 15 FT
PARKING/PAVEMENT: 15 FT FROM ROW, 5 FT FROM LOT LINES

IMPERVIOUS AREA
EXISTING: 37%
PROPOSED: 53%
BUILDING COVERAGE: 16%
MAXIMUM BUILDING COVERAGE: 20%

DWELLING UNITS: 102 (VARIANCE TO EXCEED 12 UNITS PER BUILDING (3) 18-UNIT AND (2) 24-UNIT BUILDINGS PROPOSED APPROVED 4/12/2018)

PARKING REQUIRED: 230 (2.25 SPACES PER UNIT, SEE VARIANCE BELOW)
PARKING PROVIDED: 232 (VARIANCE FROM 2.5 PER DWELLING UNIT TO 2.25 PER DWELLING UNIT APPROVED 4/12/2018)

FLOOR AREA:
18 UNIT BUILDING GFA = 22,413 SF x 3 BUILDINGS = 67,239 SF
24 UNIT BUILDING GFA = 27,791 SF x 2 BUILDINGS = 55,581 SF
OFFICE/SHOP GFA = 1,100 SF
AGGREGATE GROSS FLOOR AREA = 123,920 SF



SITE PLAN
SCALE: 1" = 30'

KEY SYMBOL LEGEND

- [F] – FIRE HYDRANT ASSEMBLY
- [I] – PROPOSED SPRINKLER CONNECTION WITH BACKFLOW PREVENTER
- [J] – "NO PARKING FIRE LANE" SIGN
- [M] – 4" YELLOW DEMARCATION LINES
- – FORESTRY LANE

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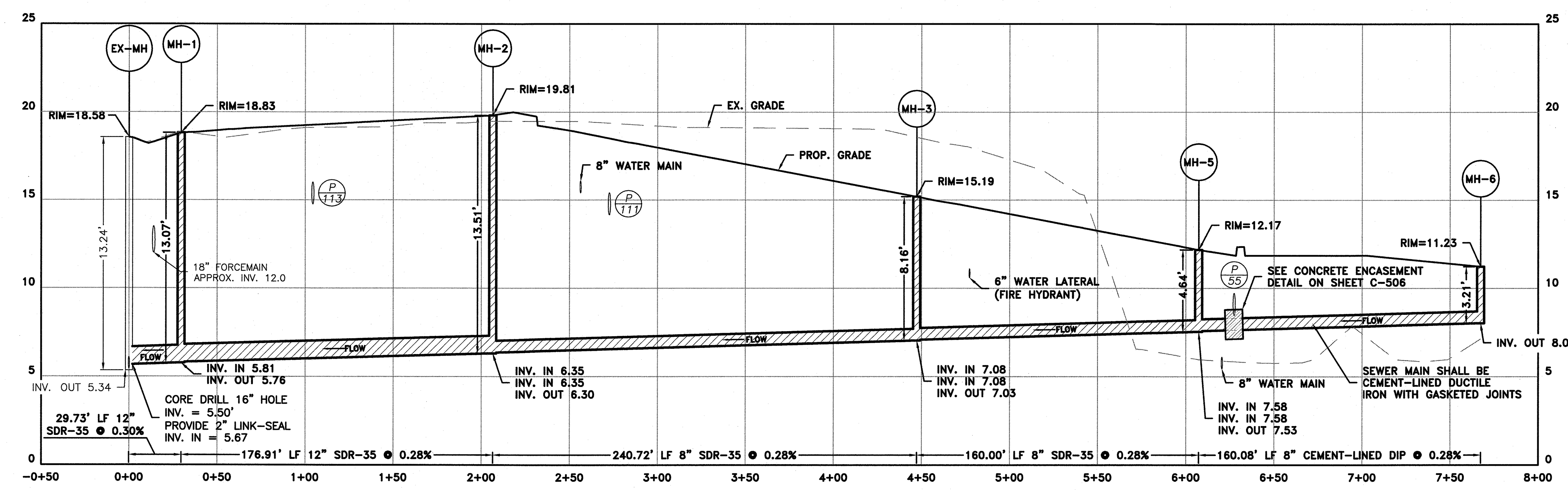
MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

UTILITY PLAN - FIRE MARSHAL PLAN

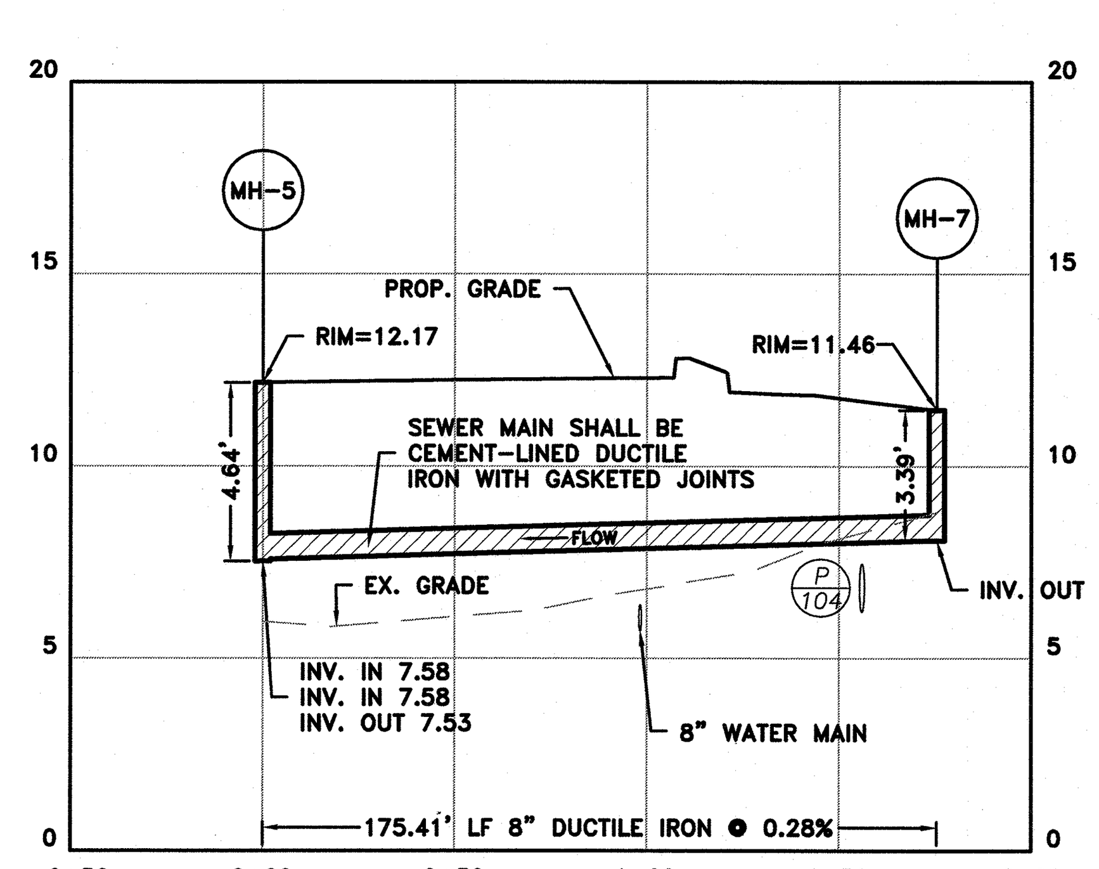
REVISIONS:
04/19/2018: COM COMMENTS
02/28/2019: COM COMMENTS
1/06/2020: KCD
12/29/2020: DNREC
04/16/2021: COM COMMENTS KCD
05/20/2021: COM COMMENTS
06/23/2021: KCD

Date:	APRIL, 2018
Scale:	1" = 30'
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-502



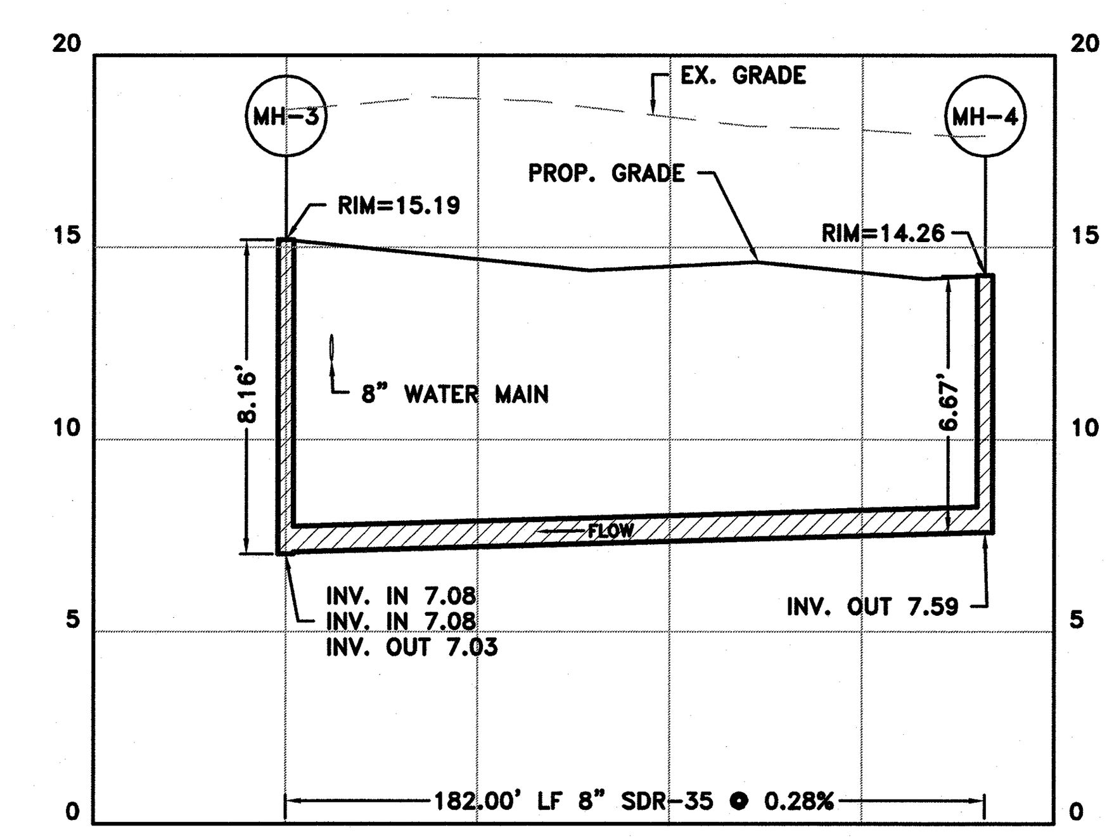
SANITARY SEWER PROFILE
EX-MH TO MH-6

SCALE: HORIZ. = 1" = 50'
VERT. = 1" = 5'



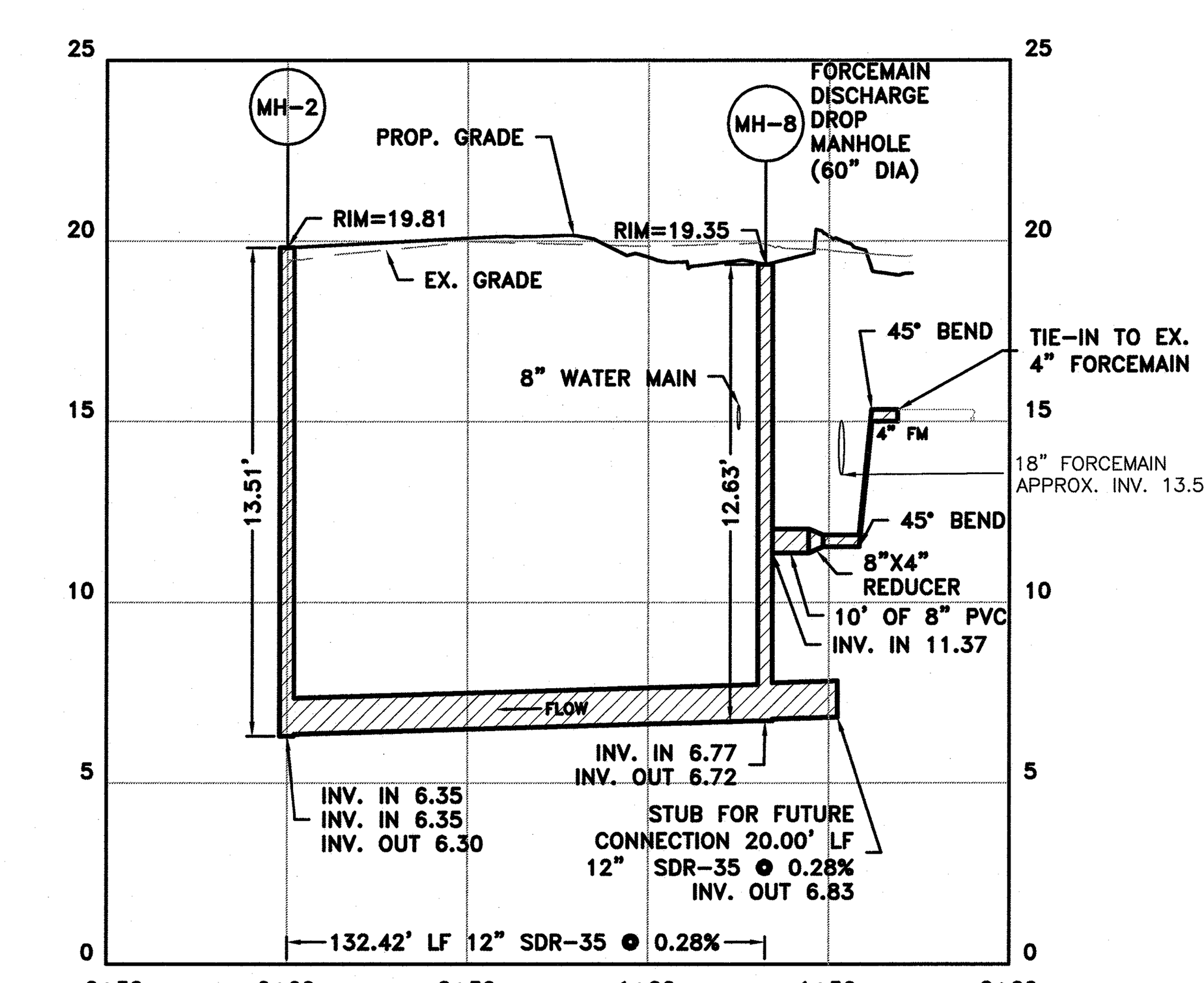
SANITARY SEWER PROFILE
MH-5 TO MH-7

SCALE: HORIZ. = 1" = 50'
VERT. = 1" = 5'



SANITARY SEWER PROFILE
MH-3 TO MH-4

SCALE: HORIZ. = 1" = 50'
VERT. = 1" = 5'



SANITARY SEWER PROFILE
MH-2 TO MH-8

SCALE: HORIZ. = 1" = 50'
VERT. = 1" = 5'

NOTES:
1. CONTRACTOR TO TEST PIT TO VERIFY LOCATION AND ELEVATION OF BOTH 4" AND 18" FORCEMANIS PRIOR TO ORDERING SEWER MANHOLE 8. CONTACT ENGINEER IF THERE WILL BE A CONFLICT BETWEEN THE 18" FORCE MAIN AND 4" FORCE MAIN.
2. NOTIFY THE KENT COUNTY PUBLIC WORKS DEPARTMENT (302) 744-2430 WHEN WORKING IN THE VICINITY OF THE 18" OR 20" FORCE MAIN.

NOTE:
ALL SLOPES ARE SHOWN FROM CENTERLINE OF STRUCTURE TO CENTERLINE OF STRUCTURE.

SCALE: HORIZ. = 1" = 50'
SCALE: VERT. = 1" = 5'

CLIFTON DANIEL MUMFORD LICENSED PROFESSIONAL ENGINEER DELAWARE
SEP 24 2021

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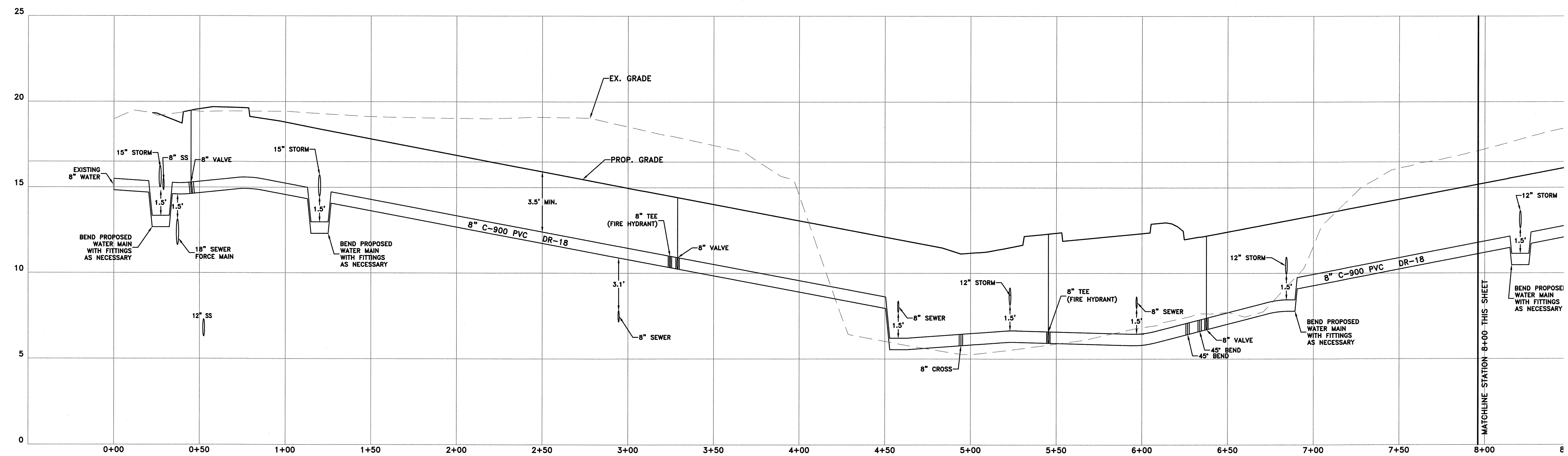
MILFORD, DELAWARE (302) 424-1441

UTILITY PLAN - SEWER PROFILES

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

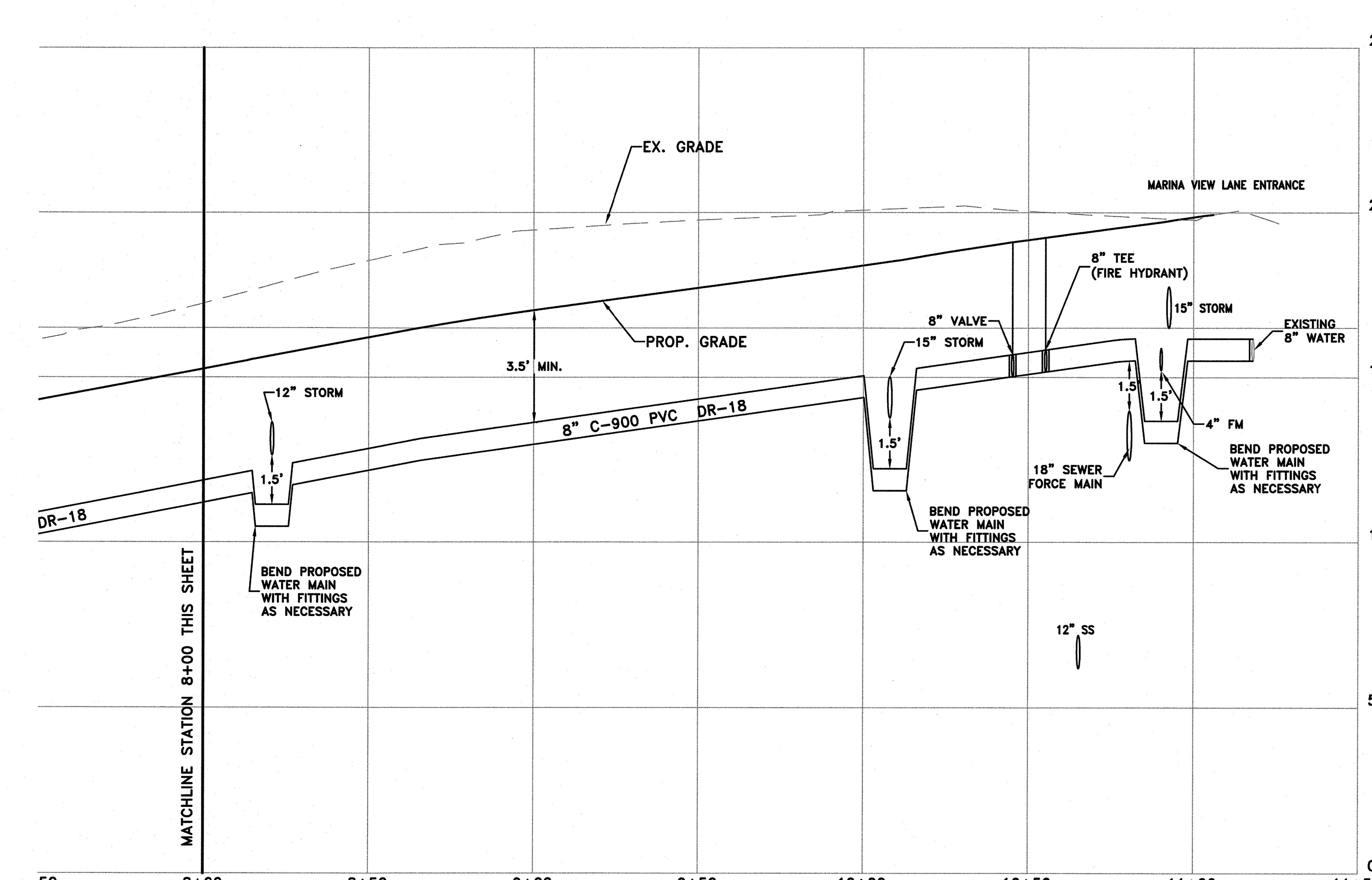
REVISIONS:
04/19/2018: COM COMMENTS
02/28/2019: COM COMMENTS
11/06/2020: KCD
12/29/2020: DNREC
04/16/2021: COM COMMENTS KCD
05/20/2021: COM COMMENTS
06/23/2021: KCD

Date:	APRIL, 2018
Scale:	H:1"=50' V:1"=5'
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-503



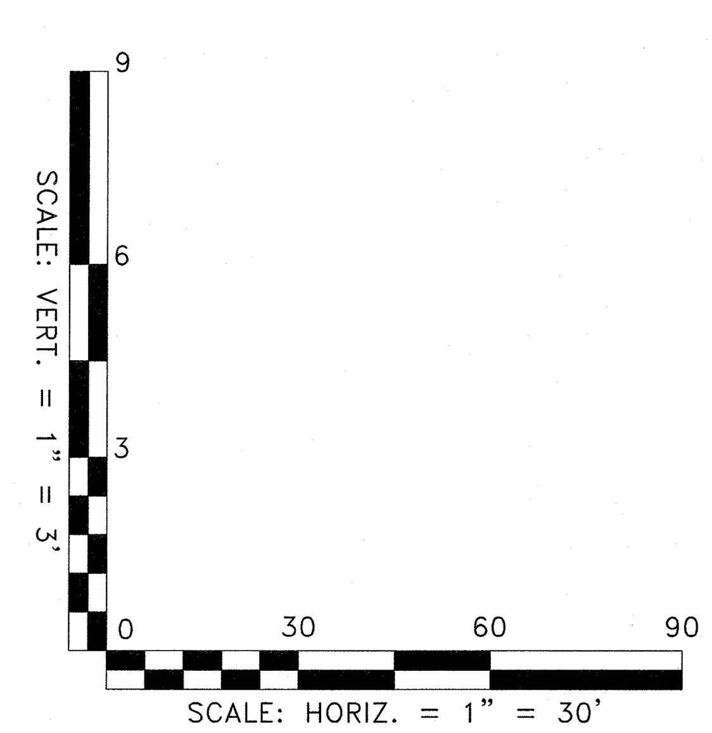
PRIMARY WATER MAIN LOOP

SCALE: HORIZ. = 1" = 30'
VERT. = 1" = 3'



PRIMARY WATER MAIN LOOP

SCALE: HORIZ. = 1" = 30'
VERT. = 1" = 3'



SEP 24 2021

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UTILITY PLAN - WATER MAIN PROFILE

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

REVISIONS:
04/19/2018: COM COMMENTS
02/28/2019: COM COMMENTS
11/06/2020: KCD
12/29/2020: DNREC
04/16/2021: COM COMMENTS KCD
05/20/2021: COM COMMENTS

Date:	APRIL, 2018
Scale:	H:1"=30' V:1"=3'
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-504

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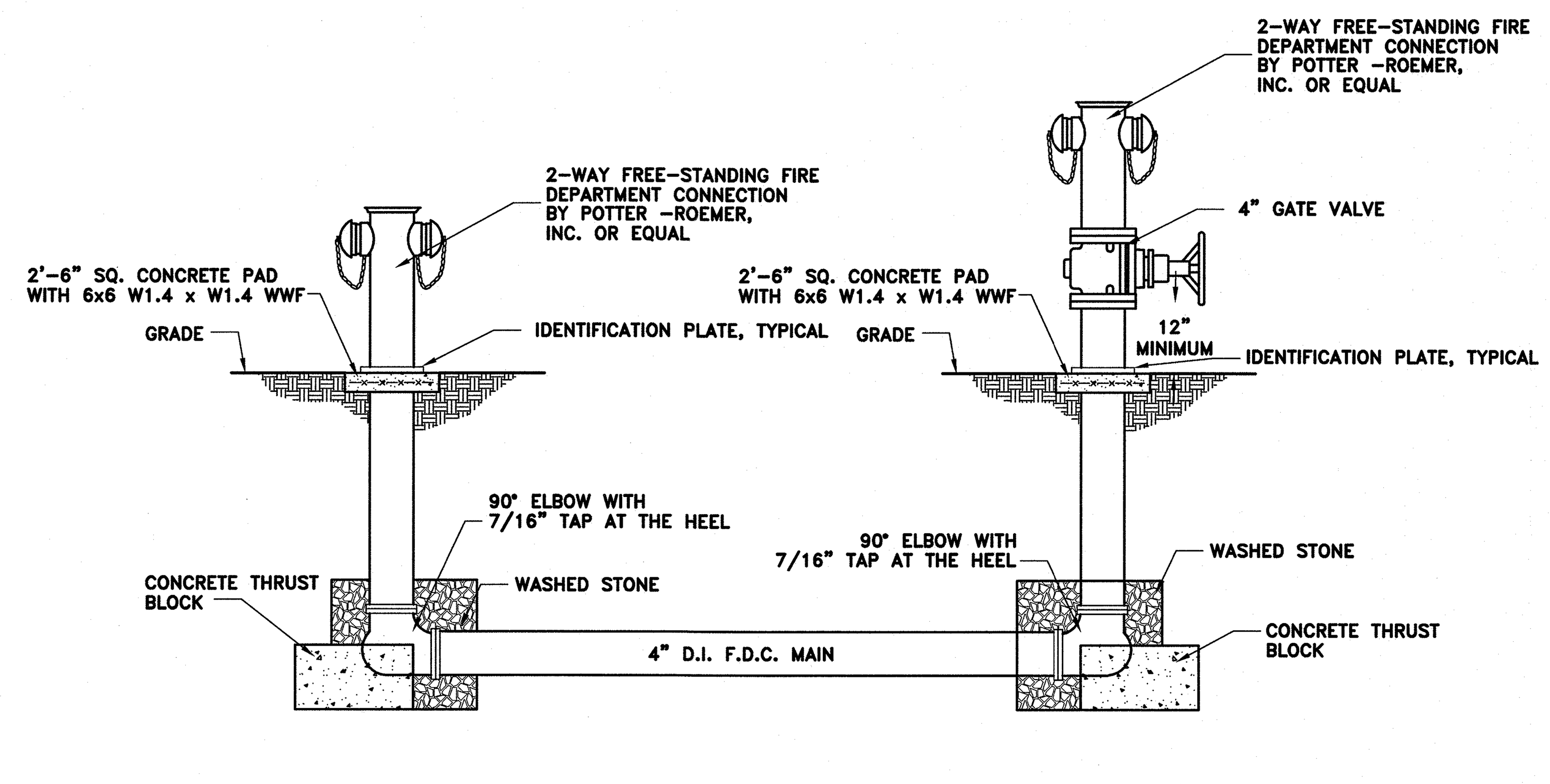
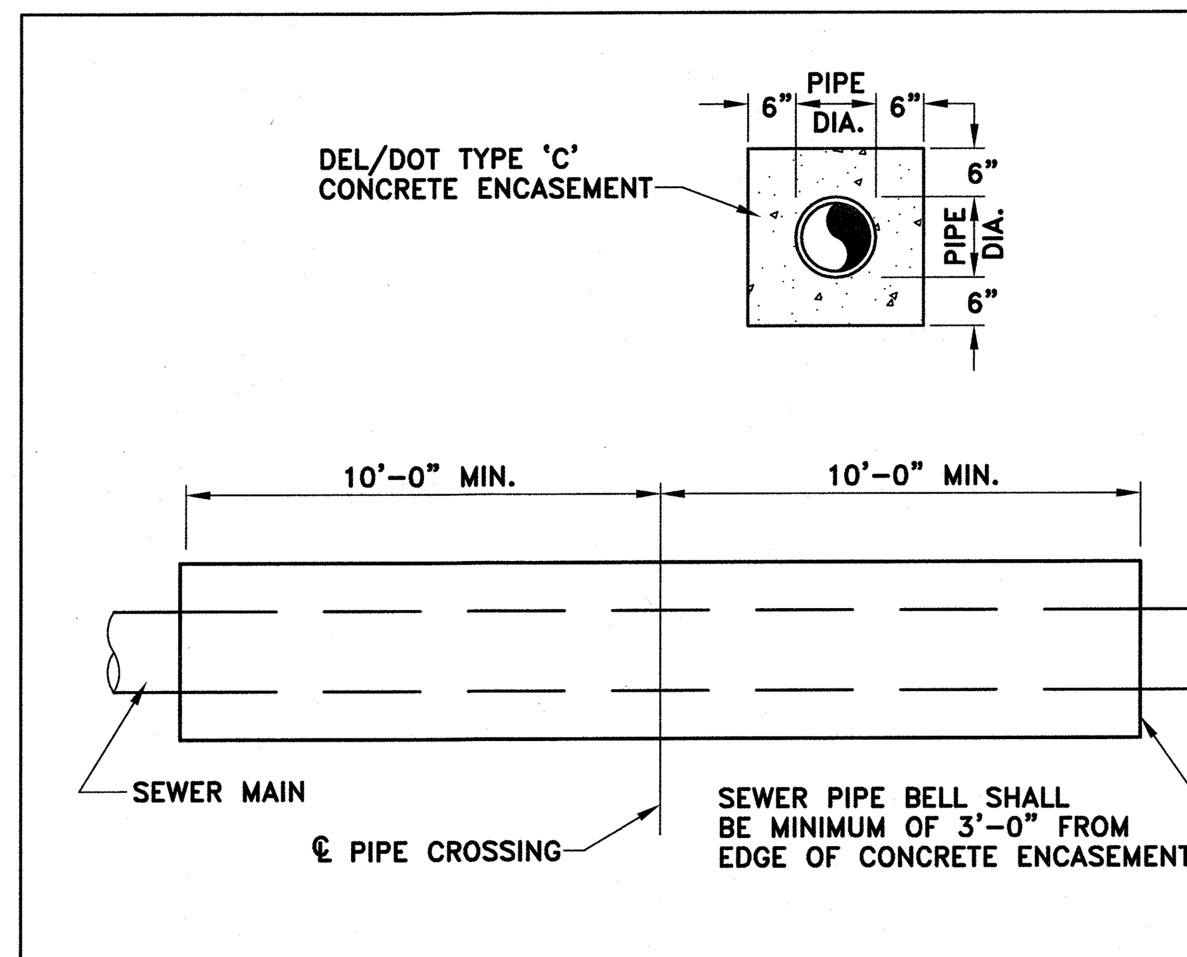


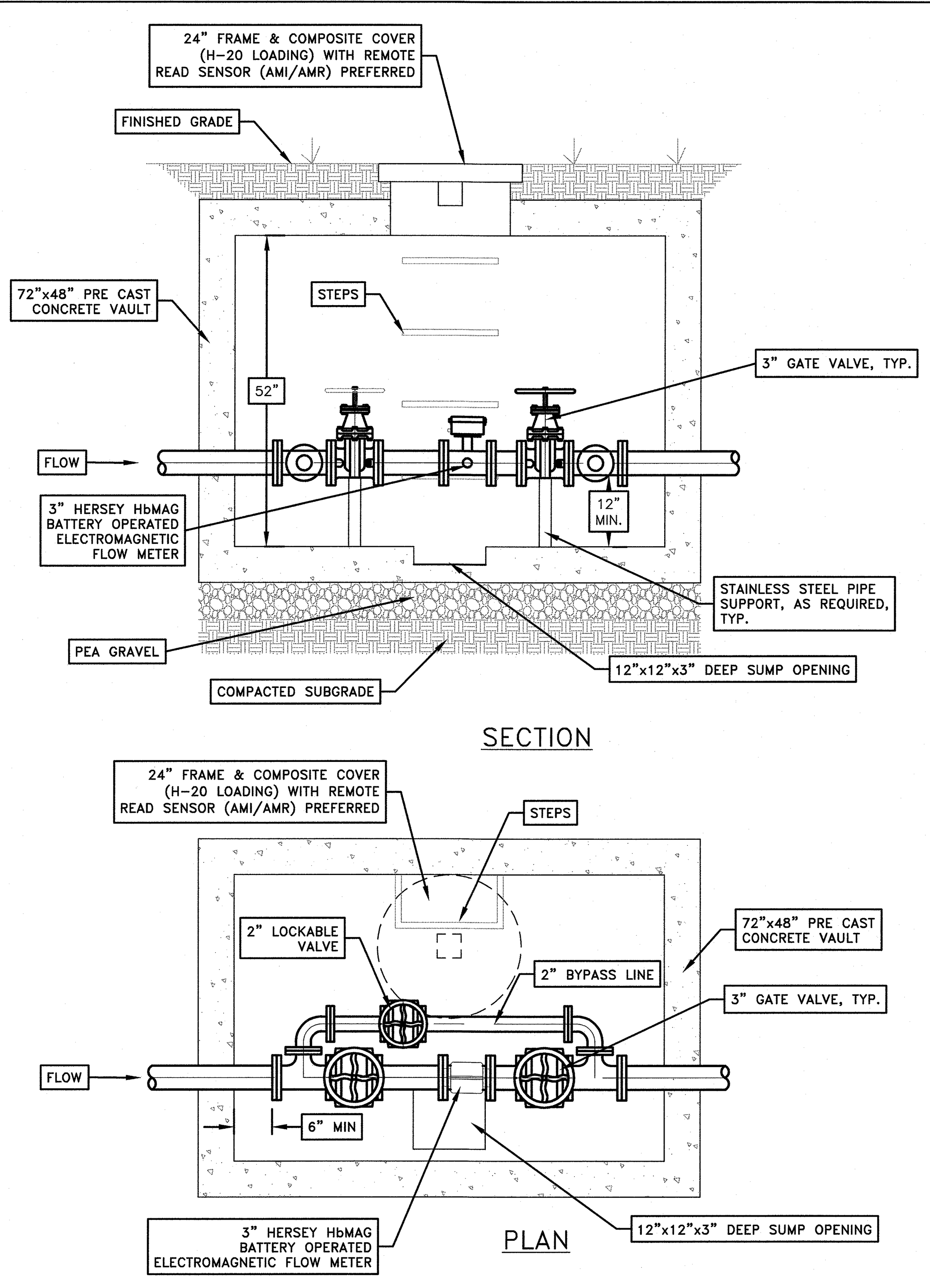
FREE-STANDING FIRE DEPARTMENT CONNECTION DETAIL

(TO BE BUILT UNDER SEPARATE CONTRACT)



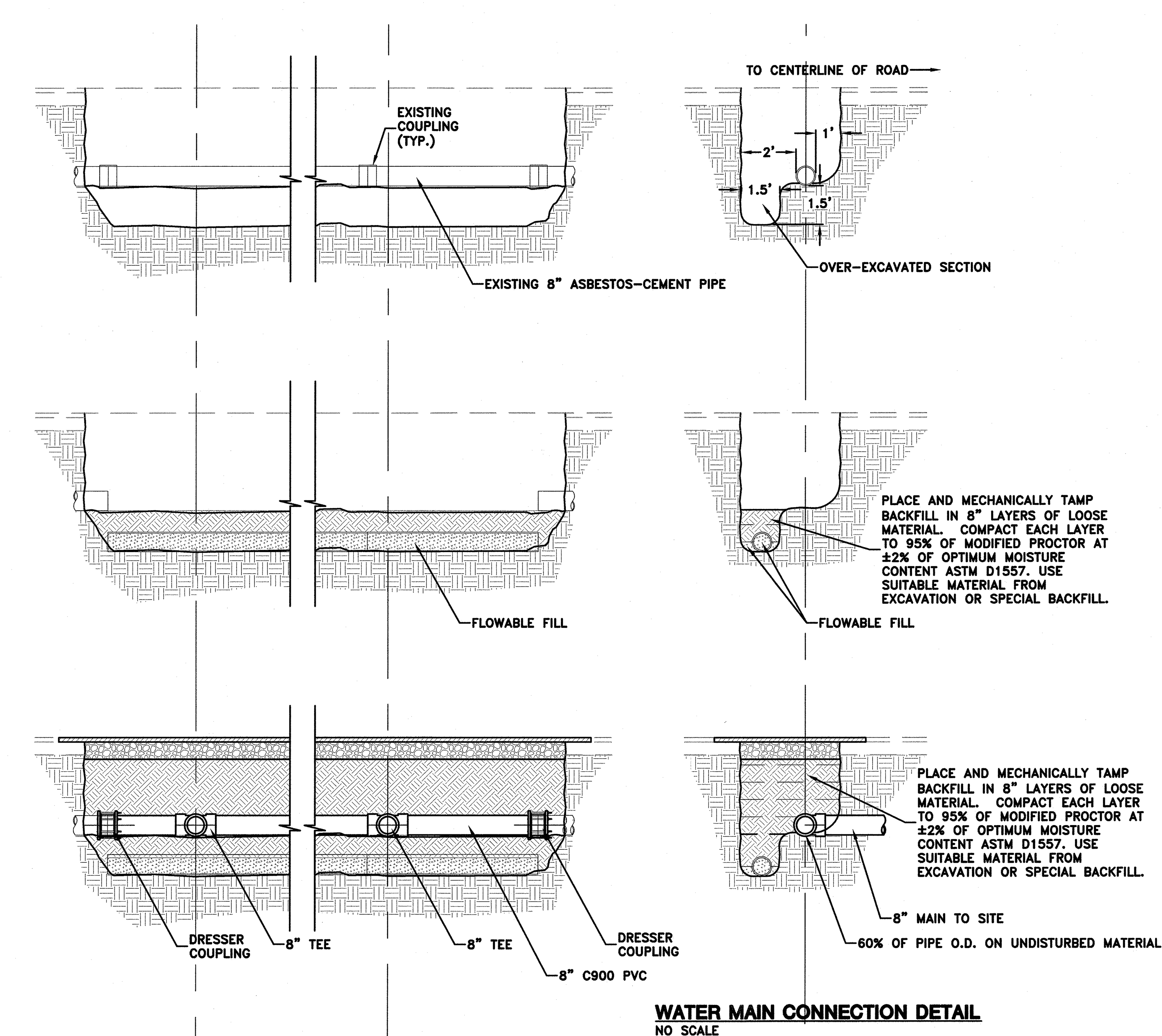
CONCRETE ENCASEMENT

NOT TO SCALE



3" METER PIT DETAIL

SCALE: ½" = 1'-0"



1. Contractor shall take all precautions necessary to prevent any damage to the existing asbestos-cement pipe.
2. Excavate trench around existing pipe as shown to expose the first pipe joint beyond the proposed connections.
3. Remove the couplings at each pipe joint within the excavation.

4. Remove the pipe sections within the trench and place in bottom of over-exavation.
5. Fill the existing pipe and trench up to the pipe springline with flowable fill per DelDOT Standard Specification 208500.
6. Backfill remainder of over-excavated trench section as shown.

7. Install 8" C900 PVC water main and connection tees between existing pipe ends.
8. Connect 8" C900 PVC main to existing asbestos-cement pipe sections with Dresser couplings (or equivalent approved by City of Milford Public Works).
9. Backfill according to specifications and install paving restoration in accordance with City of Milford and DelDOT standards.

WATER MAIN CONNECTION DETAIL

NO SCALE

CLIFTON DANIEL MUMFORD LICENSED NO. 19635 DELAWARE PROFESSIONAL ENGINEER
SEP 24 2021

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
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UTILITY PLAN - DETAILS

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

REVISIONS:
04/19/2018: COM COMMENTS
02/28/2019: COM COMMENTS
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Date:	APRIL, 2018
Scale:	1" = 30'
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	C-506

LANDSCAPE PLANT SCHEDULE

SYMBOL	KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
		DECIDUOUS TREE			
	AC	Amelanchier canadensis	SHADBLOW SERVICEBERRY	1 3/4"–2" Cal., B&B	9
	LI	Lagerstroemia indica x fauriei 'Tuscarora'	TUSCARORA CRAPE MYRTLE	6–7' Ht., B&B	16
	PR	Prunus serrulata 'Amanogawa'	AMANOGAWA JAPANESE FLOWERING CHERRY	1 3/4"–2" Cal., B&B	7
	CC	Cercis canadensis	REDBUD	5'/6' Ht., B&B	5
	TC	Tilia cordata	LITTLELEAF LINDEN	1 3/4"–2" Cal., B&B	9
	PO	Platanus occidentalis	SYCAMORE	1 3/4"–2" Cal., B&B	6
		EVERGREEN SHRUB			
	IG	Ilex glabra 'Shamrock'	INKBERRY	3 GAL.	18
				TOTAL	70

GENERAL LANDSCAPE NOTES

1 QUALITY AND SIZE OF PLANTS, SPREAD OF ROOTS, AND SIZE OF BALLS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERYMEN "AMERICAN STANDARDS FOR NURSERY STOCK".

2 CONTRACTOR SHALL BE REQUIRED TO GUARANTEE ALL PLANT MATERIALS FOR A PERIOD OF ONE YEAR AFTER INSTALLATION IS COMPLETE AND FINAL ACCEPTANCE OF PHASE I SITE WORK HAS BEEN GIVEN. AT THE END OF ONE YEAR ALL PLANT MATERIAL WHICH IS DEAD OR DYING SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE AS ORIGINALLY SPECIFIED.

3 CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND MAY MAKE MINOR ADJUSTMENTS IN SPACING AND/OR LOCATION OF PLANT MATERIALS. CONTRACTOR TO VERIFY "AS BUILT" LOCATION OF ALL UTILITIES.

4 NO SUBSTITUTIONS SHALL BE MADE WITHOUT APPROVAL OF THE OWNER.

5 ALL AREAS NOT STABILIZED IN PAVING OR PLANT MATERIALS SHOULD BE SEEDED AND MULCHED. (SEE EROSION & SEDIMENT CONTROL PLAN.)

6 EVERGREEN TREES SHALL HAVE A FULL, WELL–BRANCHED, CONICAL FORM TYPICAL OF THE SPECIES.

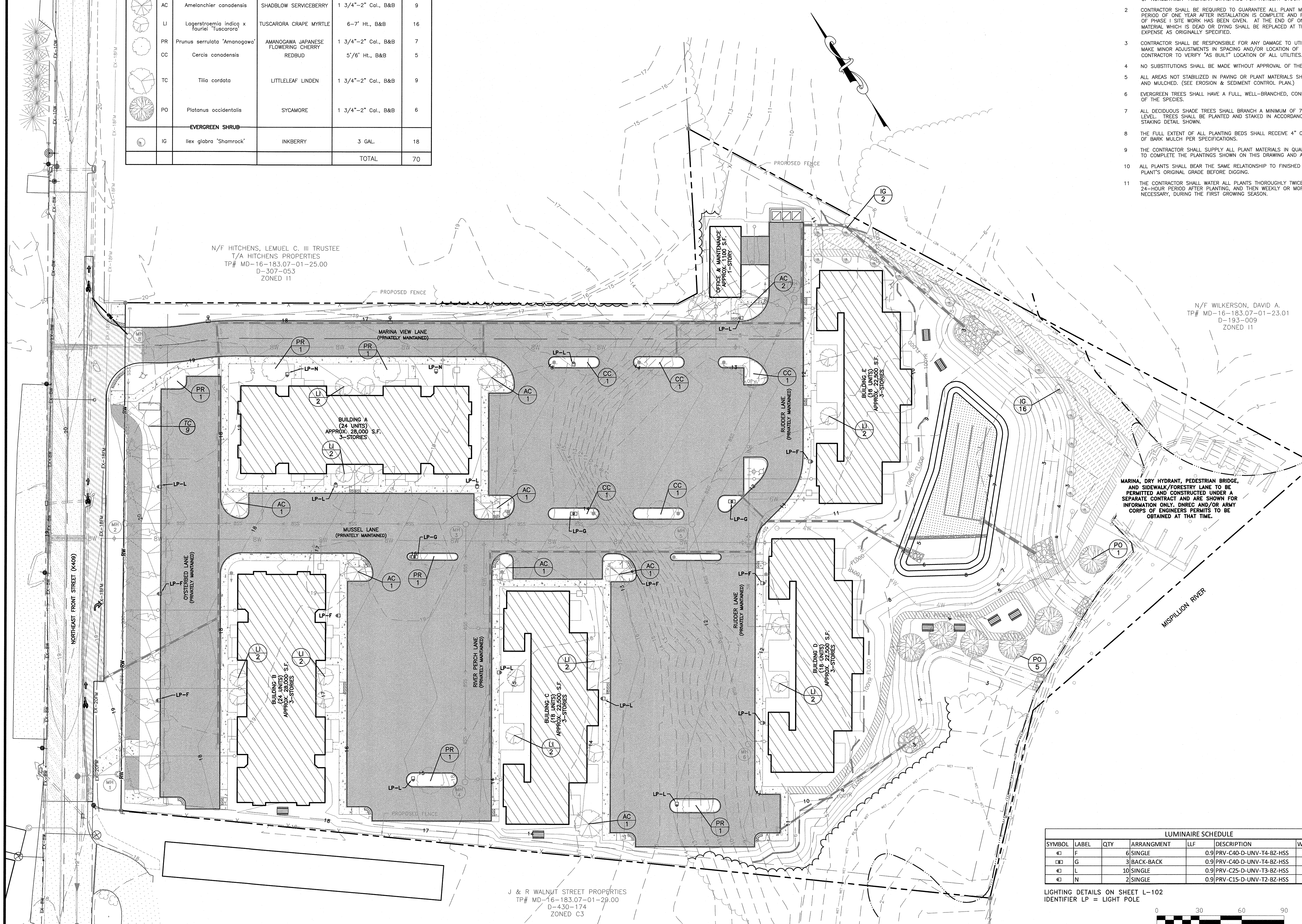
7 ALL DECIDUOUS SHADE TREES SHALL BRANCH A MINIMUM OF 7'–0" ABOVE GROUND LEVEL. TREES SHALL BE PLANTED AND STAKED IN ACCORDANCE WITH THE STAKING DETAIL SHOWN.

8 THE FULL EXTENT OF ALL PLANTING BEDS SHALL RECEIVE 4" OF TOPSOIL AND 3" OF BARK MULCH PER SPECIFICATIONS.

9 THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THIS DRAWING AND AS SPECIFIED.

10 ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL GRADE BEFORE DIGGING.

11 THE CONTRACTOR SHALL WATER ALL PLANTS THOROUGHLY TWICE DURING THE FIRST 24–HOUR PERIOD AFTER PLANTING, AND THEN WEEKLY OR MORE OFTEN, IF NECESSARY, DURING THE FIRST GROWING SEASON.



LUMINAIRE SCHEDULE							
SYMBOL	LABEL	QTY	ARRANGMENT	LLF	DESCRIPTION	WATTS	LUMENS
	F	6	SINGLE	0.9	PRV-C40-D-UNV-T4-BZ-HSS	131	15800
	G	3	BACK-BACK	0.9	PRV-C40-D-UNV-T4-BZ-HSS	131	15800
	L	10	SINGLE	0.9	PRV-C25-D-UNV-T3-BZ-HSS	96	11975
	N	2	SINGLE	0.9	PRV-C15-D-UNV-T2-BZ-HSS	52	6551

LIGHTING DETAILS ON SHEET L–102
IDENTIFIER LP = LIGHT POLE

0 30 60 90

CLIFTON DANIEL MUMFORD
LICENSED No. 15625
DELAWARE PROFESSIONAL ENGINEER
SEP 24 2021

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

LANDSCAPE PLAN

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

REVISIONS:
04/19/2018: COM COMMENTS
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Date:	ARPIL, 2018
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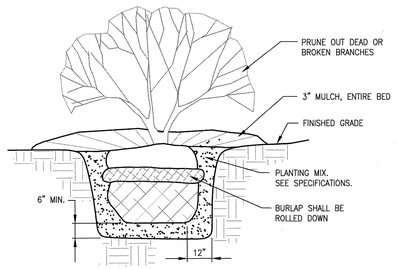
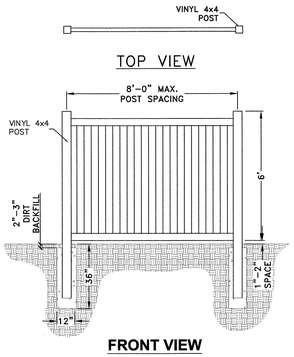
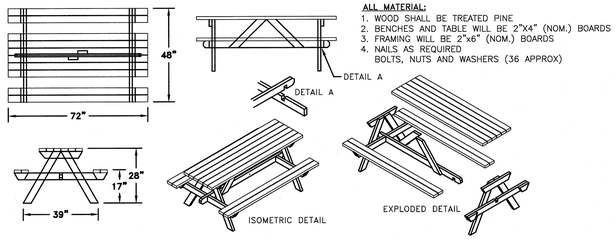
Dwn.By:	SHF
Proj.No.:	2137A001
Dwg.No.:	L-101



SHRUB PLANTING DETAIL
NO SCALE

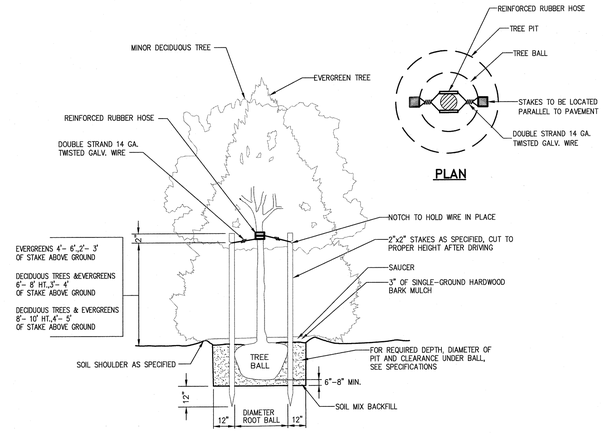


6' VINYL FENCE DETAIL
NOT TO SCALE



ALL MATERIAL:
1. WOOD SHALL BE TREATED PINE
2. BENCHES AND TABLE WILL BE 2"X4" (NOM.) BOARDS
3. FRAMING WILL BE 2"x6" (NOM.) BOARDS
4. NAILS AS REQUIRED
   BOLTS, NUTS AND WASHERS (36 APPROX)

PICNIC TABLE DETAILS
NOT TO SCALE



STAKING DETAIL
NO SCALE

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

MISPILLION LANDING
CITY OF MILFORD
KENT COUNTY, DELAWARE

LANDSCAPE PLAN - DETAILS

REVISIONS:
04/19/2018: COM COMMENTS
02/28/2019: COM COMMENTS
11/06/2020: KCD
12/29/2020: DNREC
04/16/2021: COM COMMENTS KCD
05/20/2021: COM COMMENTS
06/23/2021: KCD

Date: ARPIL, 2018
Scale: 1" = 30'
Dwn.By: SHF
Proj.No.: 2137A001
Dwg.No.: L-102

Lumark

Catalog #		Type
Project		
Comments		Date
Prepared by		

DESCRIPTION

The Prevail™ LED pole and fixture combination makes selection and installation of poles and fixtures simple. Included is the die-cast Prevail area, site and roadway luminaire with standard mounting arm, square straight steel pole, anchor bolts, base cover, template and hardware. Stock configurations are available in single and dual fixture combinations. The Prevail luminaire delivers a new level of versatility and value in patent pending, architectural design that delivers energy savings greater than 85% and replaces 150-450W metal halide fixtures. The Prevail fixture and pole combo is ideal for general area/site lighting applications.

SPECIFICATION FEATURES

Construction
Construction is comprised of a heavy-duty, single-piece die-cast aluminum housing in dark bronze polyester powder paint. The die-cast aluminum door is tethered to provide easy access to the driver if replacement is required. The optics is mounted on a versatile, aluminum plate that dissipates heat from the LEDs resulting in longer life of the fixture. The fixture is IP66 and 3G vibration rated (ANSI C136.31).

Optics
Available in Type III and IV distributions with lumen packages ranging from 7,000 to 20,000 nominal lumens. Light engine configurations consist of 1 or 2 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L91/50,000 hours at 25°C) per IESNA TM-21. For the ultimate level of spill light control, an optional house side shield accessory can be field or factory installed.

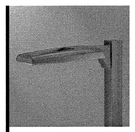
Electrical
Available in 120-277V 50/60Hz. 10kV/10kA surge protection standard. 0-10V dimming driver is standard with leads external to the fixture to accommodate controls capability such as dimming and occupancy. Suitable for ambient temperatures from -40°C to 40°C.

Mounting
The versatile, patent pending, standard mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8". Removal of the door on the standard mounting arm enables wiring of the fixture without having to access the driver compartment. A knock-out on the standard mounting arm enables round pole mounting.

Pole
Shaft is one-piece construction ASTM A500 grade "B" steel, shot blasted and finished in dark bronze polyester powder coat. Anchor base is fabricated from ASTM grade steel. ASTM A366 steel full base cover is provided to enclose base plate and anchor bolts. Anchor bolts are per ASTM A576 with two nuts, two flat washers, and one lock washer. Hardware and threaded portion of bolt are hot dip galvanized. 3" hook for 3/4" bolt. 4" hook for 1" bolt.

Finish
Housing and cast parts finished in five-stage super TGIC polyester bronze powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear.

Warranty
Five-year warranty.

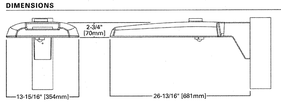


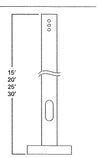
PFPRV PREVAIL POLE AND FIXTURE COMBO

LED

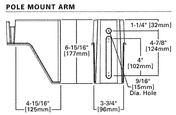
POLE AND FIXTURE COMBO

DIMENSIONS





POLE MOUNT ARM



CERTIFICATION DATA
UL and cUL Wet Location Listed
IP66 Rated
3G Vibration Rated
ISO 9001

ENERGY DATA
Electronic LED Driver
0.9 Power Factor
<20% Total Harmonic Distortion
120-277V/50 and 60Hz,
347V/60Hz, 480V/60Hz
-40°C Minimum Temperature Rating
+40°C Ambient Temperature Rating

EPA
Effective Projected Area (Sq. Ft.): 0.75 (1 fixture)

SHIPPING DATA
Approximate Net Weight:
20lbs. (9.09 kgs.) **(1 fixture)**

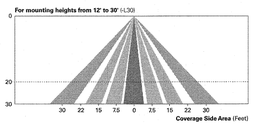
CONTROL OPTIONS

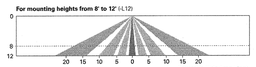
0-10V (D)
This fixture is offered standard with 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (PER and PER7)
Photocontrol receptacles provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PER7 receptacle.

Dimming Occupancy Sensor (MSP/DIM-LXX)
These sensors are factory installed in the luminaire housing. When a sensor for dimming operation (/DIM) is selected, the luminaire will dim down to approximately 50 percent power after five minutes of no activity detected. When activity is detected, the luminaire returns to full light output.

These occupancy sensors include an integral photocell that can be activated or inactivated with the programming remote / configuration tool for "dusk-to-dawn" control or "daylight harvesting". Note: For MSP sensors, the factory preset is ON (Enabled). The programming remote / tool is a wireless tool that can be utilized to change the dimming level, time delay, sensitivity and other parameters. A variety of sensor lenses are available to optimized the coverage pattern for mounting heights from 8'-30'.





POWER AND LUMENS

Light Engine		C15	C25	C40	C60
Nominal Power (Watts)		57W	87W	143W	163W
Input Current @ 120V (A)		0.43	0.80	1.09	1.32
Input Current @ 277V (A)		0.19	0.35	0.48	0.57
Type III	Lumens	7,111	13,183	17,144	20,050
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4
Type IV	Lumens	7,088	13,140	17,087	19,984
	BUG Rating	B1-U0-G3	B2-U0-G4	B2-U0-G4	B3-U0-G5

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (50,000 Hours)	Theoretical L70 (Hours)
25°C	> 91.30%	> 194,000
40°C	> 87.59%	> 134,000

LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
10°C	1.02
15°C	1.01
25°C	1.00
40°C	0.99

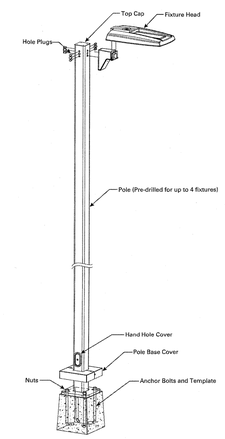
ORDERING INFORMATION

Sample Number: PFPRV-1-C25-T3-15-NAB

Series [1,2]	Number of Fixtures	Light Engine	Distribution	Pole Height	Maximum Wind Zone (MPH)	Options (Add as Suffix)	Accessories (Order Separately)
PFPRV=Prevail Pole and Fixture Combo	**1**=1 **2**=2 **3**=3 **4**=4	**C15**=(1 LED) 7,100 Nominal Lumens **C25**=(2 LED) 13,100 Nominal Lumens **C40**=(2 LED) 17,100 Nominal Lumens **C60**=(2 LED) 20,000 Nominal Lumens	**T3**=Type III **T4**=Type IV	**15**=15' **20**=20' **25**=25' **30**=30'	**Blank**=80 **9**=90 **0**=100	**NAB**=No Anchor Bolts (Used when ordered separately) **HSS**=House Side Shield [3] **MSP/DIM-L12**=Integrated Sensor for Dimming Operation, 8' - 12' Mounting Height **MSP/DIM-L30**=Integrated Sensor for Dimming Operation, 12' - 30' Mounting Height **PER**=NEMA 3PIN Twistlock Photocontrol Receptacle [4] **PER7**=NEMA 7PIN Twistlock Photocontrol Receptacle [4]	**HS/VERD**=House Side Shield [3]

NOTES: 1 4000K CCT, standard bronze, 120-277V, 0-10V dimming. **2** Standard mount arm included with fixture. Supplied with straight steel shaft, anchor bolts, template, base cover and hardware. **3** HSS not available with C60 lumen package. Ordered as an option, it will come factory-installed. Ordered as a field-installable accessory, must order quantity one per optic/LED. **4** Not available with MSP options.

PREVAIL POLE AND FIXTURE COMBO

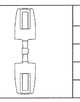


INCLUDED POLE REFERENCE TABLES

1 Fixture (EPA= 0.75)

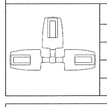
Pole Height (Feet)	Wind Zone (MPH) 80	90	100
15	SSS4A15SFM[4]		
20	SSS4A20SFM[4]		
25	SSS4A25SFM[4]	SSS5A25SFM[4]	
30	SSS5A30SFM[4]	SSS5M30SFM[4]	

2 Fixtures (EPA= 1.50)



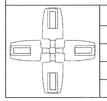
Pole Height (Feet)	Wind Zone (MPH) 80	90	100
15	SSS4A15SFM[4]		
20	SSS4A20SFM[4]		
25	SSS4A25SFM[4]	SSS5A25SFM[4]	
30	SSS5A30SFM[4]	SSS5M30SFM[4]	

3 Fixtures (EPA= 2.25)



Pole Height (Feet)	Wind Zone (MPH) 80	90	100
15	SSS4A15SFM[4]		
20	SSS4A20SFM[4]		
25	SSS4A25SFM[4]	SSS5A25SFM[4]	
30	SSS5A30SFM[4]	SSS5M30SFM[4]	

4 Fixtures (EPA= 3.00)



Pole Height (Feet)	Wind Zone (MPH) 80	90	100
15	SSS4A15SFM[4]		
20	SSS4A20SFM[4]		
25	SSS4A25SFM[4]	SSS5A25SFM[4]	
30	SSS5A30SFM[4]	SSS5M30SFM[4]	

NOTES:
1. Uses hardware kit POLSSHDWC4FCHHP.
2. Uses hardware kit POLSSHDWC5FCHHP.

Cooper Lighting Solutions
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.cooperlighting.com

Specifications and dimensions subject to change without notice.