ABBREVIATIONS			
ABBR.	DESCRIPTION		
Ac.	ACRE		
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS		
c.c.	CENTER TO CENTER		
CONC.	CONCRETE		
DEG.	DEGREE		
DIA.	DIAMETER		
E	EASTERLY		
ELEV.	ELEVATION		
Ft.	FOOT		
GS	GRAB SAMPLE		
GA.	GAUGE		
HC	HANDICAP		
In.	INCH		
Lb.	POUND		
MAX.	MAXIMUM		
MIN.	MINIMUM		
MLW	MEAN LOW WATER		
N	NORTHERLY		
N/A	NOT APPLICABLE		
N.I.C.	NOT IN CONTRACT		
O.C.	ON CENTER		
PSI	POUND PER SQUARE INCH		
SF	SQUARE FEET		
STD.	STANDARD		
TYP.	TYPICAL		

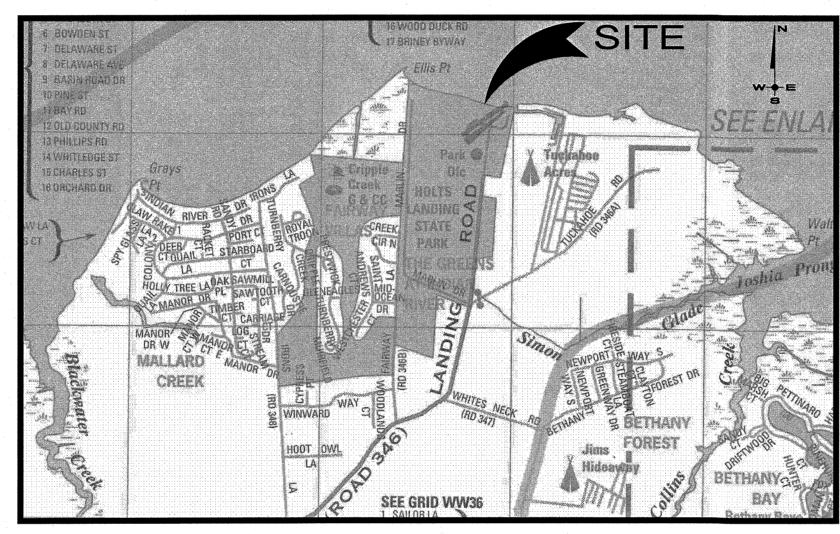
GENERAL NOTES

PROPOSED BOAT RAMP PARKING

HOLTS LANDING STATE PARK

Department of Natural Resources and Environmental Control **Division of Parks and Recreation**

> DNREC Contract No. _____ DNREC Project:



SHEET INDEX

C-101

C-102

ES-101

VICINITY MAP SCALE: 1" = 2500'

Permitted Use No. 12312014

Erosion & Sediment Control Plan

Erosion & Sediment Control Details

Cover Sheet

Site Plan

Site Details

SITE DATA

134-4.00-1.00 TAX MAP ID: VERTICAL DATUM: MLW

HORIZONTAL DATUM: NAD83/STATE PLANE SITE BENCHMARKS: PK NAIL FOUND - ELEV. 5.62' MLW

IRON ROD W/ CAP SET - ELEV. 6.49' MLW

STATE OF DELAWAR P.O. BOX 778

DOVER, DE 19903 ANDREWS, MILLER & ASSOCIATES A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC. ATTN: KEN EATON 106 N. WASHINGTON STREET, SUITE 103

EASTON, MD 21601 PHONE: 410-770-4744 FAX: 410-770-4515 PROPERTY ADDRESS: HOLTS LANDING ROAD (RD 346)

MILLVILLE, DE 19967

89 KINGS HIGHWAY

PHONE: 302-739-9211

DOVER, DE 19901

DNREC PROJECT MANAGER: JULIO SENEUS OFFICE OF DESIGN & DEVELOPMENT DIVISION OF PARKS & RECREATION

> Andrews, Miller & Associates A Division of:

ARCHITECTS ENGINEERS SURVEYORS EASTON, MARYLAND (410) 770-4744 SALISBURY, MARYLAND (410) 543-9091 MILFORD, DELAWARE (302) 424-1441

A.M.A. JOB NO. 1945C003.A01 SEPTEMBER 2017

DEMOLITION AND SAFETY GENERAL NOTES

ANDREWS, MILLER & ASSOCIATES ATTN: KEN EATON

DNREC, PROJECT MANAGER - JULIO SENEUS

11. SEE GENERAL CONSTRUCTION NOTE, SHEET ES-101

MISS UTILITY OF DELMARVA SHALL BE NOTIFIED THREE CONSECUTIVE WORKING DAYS PRIOR TO EXCAVATION, AT 1-800-282-8555.

VERTICAL DATUM IS MLW. BASED ON AN OPUS SOLUTION PREPARED BY NGS AND CONVERTED TO MLW BASED ON A VIDATUM SOLUTION

4- IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NATURALLY BE REQUIRED TO

CONTRACTOR SHALL PROVIDE STAKEOUT NECESSARY FOR THE INSTALLATION OF UTILITIES, STORM DRAINS, PAVING AND ALL OTHER SITE WORK

- 2. 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.
- THE CONTRACTOR SHALL REMOVE AND IMMEDIATELY REPLACE, RELOCATE, RESET OR RECONSTRUCT ALL OBSTRUCTIONS IN THE ROAD WAY 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.
- 4. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS AND ORDERS OF ANY PUBLIC BODY HAVING JURISDICTION. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND PROGRESS OF THE WORK. ALL NECESSARY SAFEGUARDS FOR SAFETY AND PROTECTION.
- 5. 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 CONTRACTOR TO PERFORM. ADDITIONAL COSTS WILL
- 6. DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL WORK MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, AS AMENDED AND ALL RULES AND REGULATIONS THERETO APPURTENANT.

INTERNAL PAVING / CONCRETE NOTES

- I. WARM MIX ASPHALT SHALL BE INSTALLED IN ACCORDANCE WITH THE 2001 DeIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION INCLUDING SPECIAL PROVISIONS: 1.1. SECTION 401 FOR PLACEMENT OF TACK COAT AND WARM MIX.
- 1.2. ASPHALT SHALL BE FROM A DelDOT APPROVED PLANT. 1.3. WARM MIX SHALL NOT BE APPLIED WHEN THE TEMPERATURE IS BELOW 40° F OR ON ANY WET OR FROZEN SURFACE.
- ALL DISTURBED AREAS NOT COVERED WITH IMPERVIOUS MATERIAL, SHALL BE TOPSOILED (6" MINIMUM), FERTILIZED, SEEDED AND MULCHED.
- 3. ALL SIGNING AND MAINTENANCE OF TRAFFIC IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL FOLLOW THE 2011 DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION).
- 4. DESIGN, FABRICATION, AND INSTALLATION OF ALL PERMANENT SIGNING SHALL BE AS OUTLINED IN THE 2011 DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION).
- 5. FOR FINAL PERMANENT PAVEMENT MARKINGS, EPOXY RESIN PAINT SHALL BE REQUIRED FOR LONG LINE STRIPING AND THERMO WILL BE REQUIRED FOR SHORT LINE STRIPING, i.e. SYMBOLS/LEGENDS.
- 6. ALL TRAFFIC CONTROL DEVICES SHALL BE IN NEW OR REFURBISHED CONDITION, SHALL COMPLY WITH THE 2011 DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION), AND SHALL BE NCHRP - 350 APPROVED AND SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. TRAFFIC CONTROL DEVICES SHALL BE MAINTAINED IN GOOD CONDITION FOR DURATION OF USE.
- BREAKAWAY POSTS SHALL BE USED WHEN INSTALLING ALL SIGNS. DETAIL CAN BE FOUND IN DELDOT'S STANDARD CONSTRUCTION DETAILS.
- 8. PLAN LOCATION AND DIMENSIONS SHALL BE STRICTLY ADHERED TO UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- 9. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT PAVING IS INSTALLED TO THE ELEVATIONS SHOWN AND THAT NO PONDING OF WATER EXISTS 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.
- 10. SUPERPAVE HOT-MIX SHALL BE USED IN ACCORDANCE WITH DeIDOT SPECIAL PROVISIONS.
- 11. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH DeIDOT STANDARD SPECIFICATIONS.

DRAINAGE GENERAL NOTES

- 1. ALL STORM DRAIN PIPING, INLET, MANHOLE, AND END SECTION INSTALLATION SHALL BE IN ACCORDANCE WITH SUSSEX COUNTY CONSTRUCTION STANDARDS.
- 2. ALL STORM DRAIN DESIGNATED AS RCP IS TO BE REINFORCED CONCRETE PIPE, MEETING AASHTO M 170 SPECIFICATIONS, STORM DRAIN SEE PIPE SCHEDULE FOR PIPE CLASSIFICATION.
- 3. PIPE SPAN LENGTHS ARE MEASURED FROM C/L OF STRUCTURE TO C/L OF STRUCTURE, WHERE APPLICABLE ARE ROUNDED TO THE NEAREST FOOT.
- 4. ALL SEALS MUST BE WATERTIGHT WITH NON SHRINK GROUT OR RUBBER GASKETS AND CONCRETE STRUCTURES MUST BE PRECAST OR POURED IN PLACE
- 5. CORRUGATED POLYETHYLENE PIPE SHALL BE INSTALLED IN ACCORDANCE WITH DeIDOT SPECIAL PROVISIONS 6125XX,

TRAVERSE POINT CONTOUR **ELEVATION SPOT SHOT** WETLAND DELINEATION LINE FLOOD PLAIN ZONE **TREELINE** IMPERVIOUS SURFACES: BITUMINOUS SURFACE MILL & OVERLAY CONCRETE SURFACE CENTERLINE SWALE CULVERT STEEL BOLLARD STEEL BOLLARD W/ SIGN LIGHT POLE **UTILITY POLE ELECTRIC METER** PAVEMENT MARKINGS CONCRETE BUMPER SOILS BOUNDARY SOILS DESIGNATION LIMIT OF DISTURBANCE SILT FENCE SOIL STOCKPILE SCE STABILIZED CONSTRUCTION ENTRANCE **CULVERT INLET PROTECTION**

LEGEND

EXISTING

PROPOSED

CERTIFICATION OF OWNERSHIP

PROPERTY OR RIGHT-OF-WAY LINE

BENCH MARK

I, CINDY A. TODD, HEREBY CERTIFY THAT THE STATE OF DELAWARE IS THE OWNER OF THE PROPERTY WHICH IS SUBJECT OF THIS PLAN AND THAT THE LAND USE ACTION PROPOSED BY THIS PLAN IS MADE AT MY DIRECTION.

CINDY A. TODD	
DEPARTMENT OF NATURAL RESOURCES	
AND ENVIRONMENTAL CONTROL	
DIVISION OF PARKS AND RECREATION	

OWNER'S CERTIFICATION

I, THE UNDERSIGNED, CERTIFY THAT ALL LAND CLEARING, CONSTRUCTION, AND DEVELOPMENT SHALL BE DONE PURSUANT TO THE APPROVED PLAN AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE LAND DISTURBANCE WILL HAVE A CERTIFICATION OF TRAINING AT A DEPARTMENTAL SPONSORED OR APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT CONTROL BEFORE INITIATION OF THE PROJECT. I ALSO HEREBY GIVE THE RIGHT OF THE DNREC OR DELEGATED INSPECTION AGENCY TO CONDUCT ON-SITE INSPECTIONS

DATE

CINDY A. TODD
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
DIVISION OF PARKS AND RECREATION
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

CERTIFICATION OF PLAN ACCURACY

I, JASON P. LOAR, P.E., HEREBY CERTIFY THAT I AM A PROFESSIONAL ENGINEER WITH A BACKGROUND IN CIVIL ENGINEERING IN THE STATE OF DELAWARE, AND THAT THE PLAN SHOWN AND DESCRIBED HEREON, IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY ACCEPTED SURVEYING STANDARDS AND PRACTICES.

h	9.22.17
SON P. LOAR, P.E. #14959	DATE

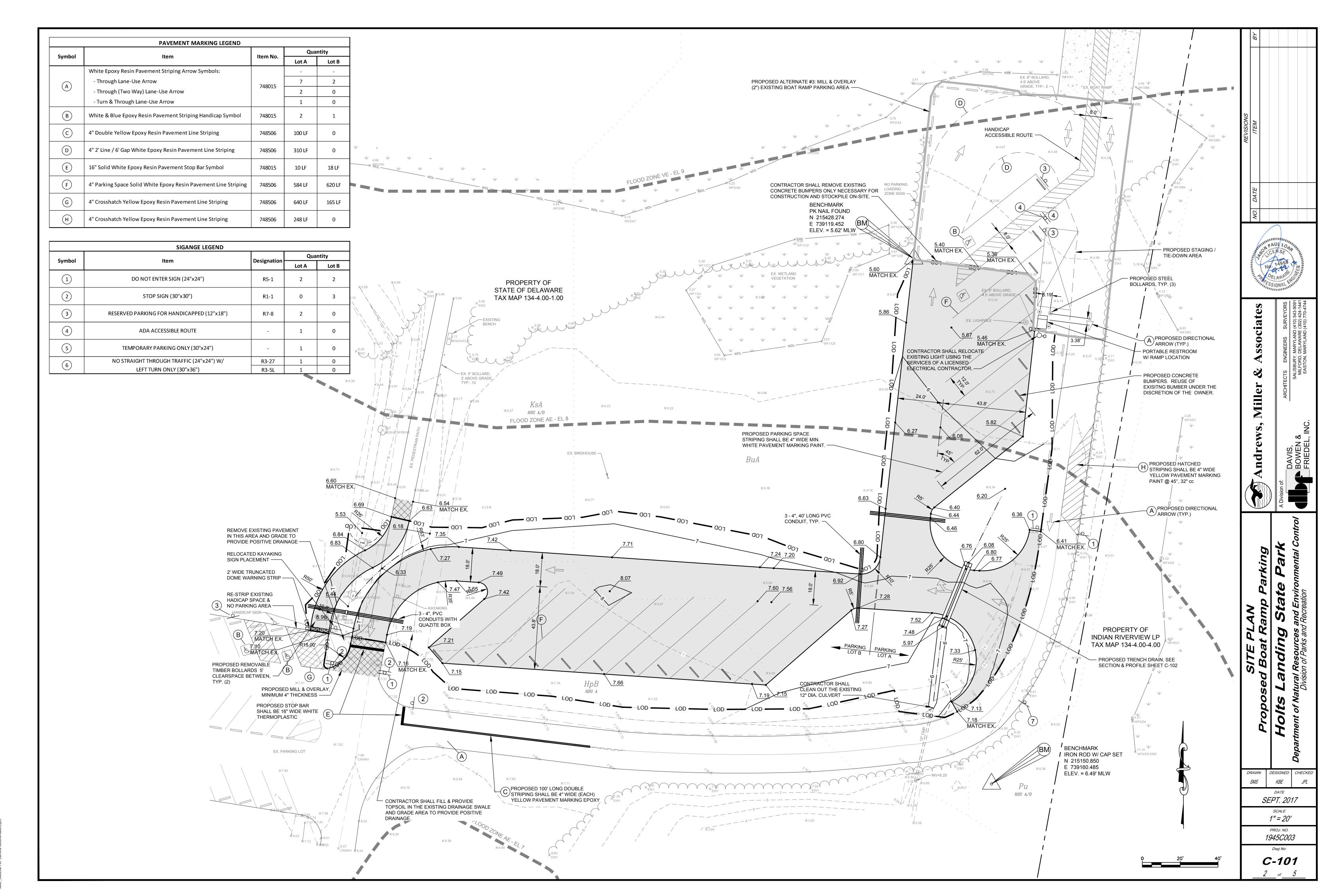
DESIGNER CERTIFICATION

I HEREBY CERTIEY THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THIS PLAN HAS BEEN DESIGNED IN ACCORDANGE WITH THE CURRENT DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK AND THE DELAWARE SEDIMENT AND STORING AT REGULATIONS.

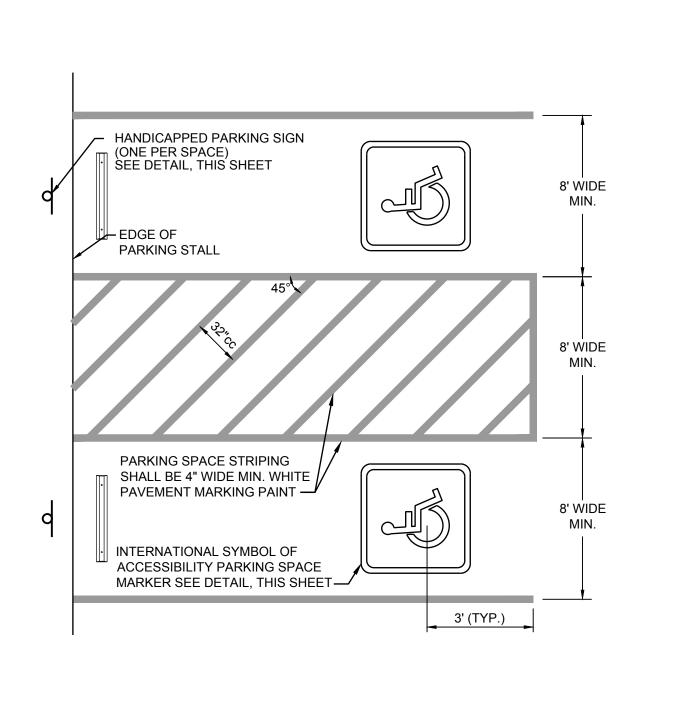


DELAWARE REG. NO.

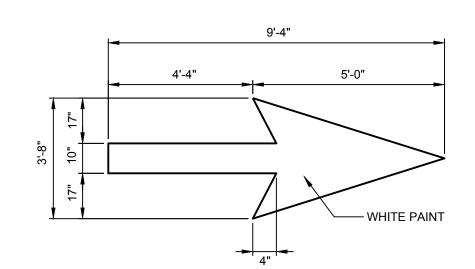
95% CD SUBMITTAL



P:_DBR1945C003 Holts Pking Lot\DWG\C101 SitePlan.dwg, C-101, 10/5/2017 3:4

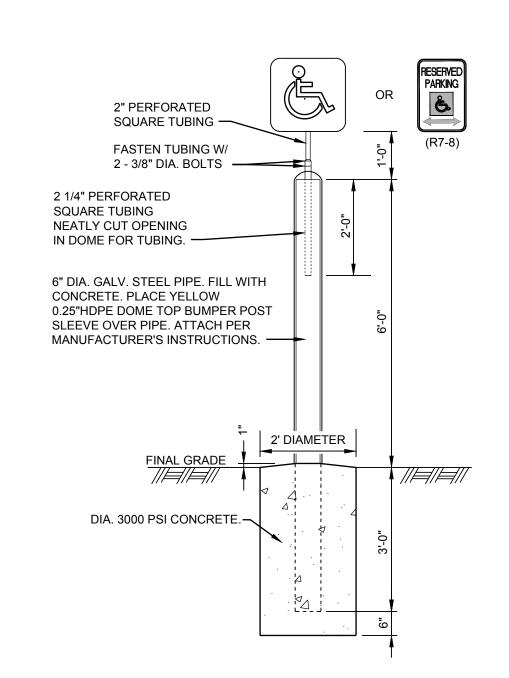


TYPICAL HANDICAPPED CAR PARKING STALL PLAN SCALE: NONE

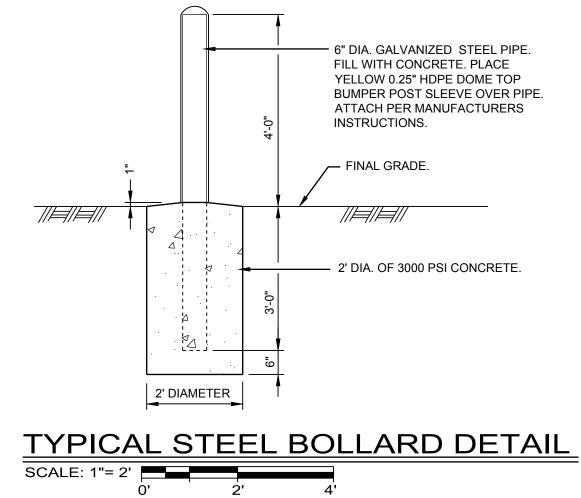


TRAFFIC FLOW DIRECTION ARROW

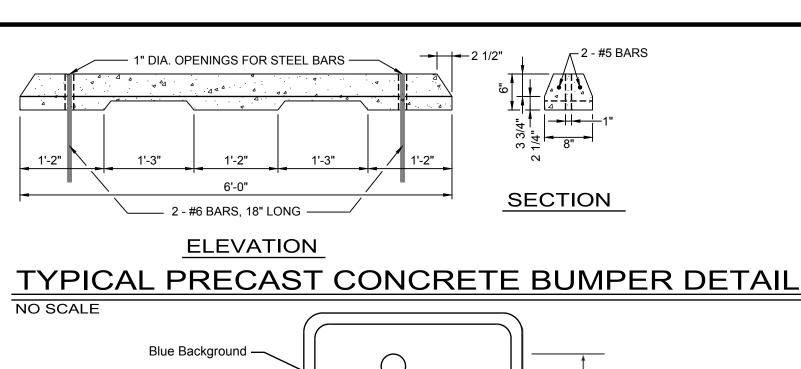
SCALE : NONE



TYPICAL STEEL BOLLARD W/ SIGN DETAIL



NOTCH OUT AND INSTALL 1" CHAMFER -2½" DIA. REFLECTOR (TYP). COUNTER SINK S.S. NUT & WASHER. (TACK WELD NUT TO BOLT) -4" GALVANIZED STEEL OR ALUMINUM HAND HOLDS BOLTED THROUGH BOLLARD W/ 1/4" S.S. BOLTS. -IVES S.S. NUT EYE BOLT 3/8"x 8" (LOCK NOT INCLUDED) -½" DIA. GALVANIZED CHAIN (TACK WELD TO STEEL SLEEVE) -SLOPED FINISHED GRADE MOUND AT BOLLARD TO BE 6"x6" SURFACE. (DRESSED DIM.= 5.5"x 5.5") TIMBER BOLLARD. (TREATED GRADE No. 2 SOUTHERN YELLOW PINE) -3,000 PSI 2'-9" CONCRETE. 1/4" THICK STEEL SLEEVE TO ACCOMMODATE BOLLARD -CONTRACTOR SHALL PERFORATE GRAVEL



INTERNATIONAL SYMBOL OF

Height of symbol:

Width of symbol:

★Stroke width:

Minimum = 3 inches

white border are optional

Special = 4 inches

Note: Blue background and

Minimum = 24 inches

Special = 36 inches

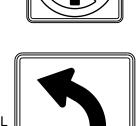
Minimum = 28 inches Special = 41 inches

TEMPORARY PARKING

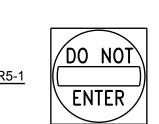
30"x24" BLACK ON REFLECTORIZED WHITE BACKGROUND



24"x24" BLACK SYMBOL & BORDER WITH REFLECTORIZED RED CIRCLE & DIAGONAL AND WHITE BACKGROUND



30"x36" BLACK ON REFLECTORIZED BLACK BACKGROUND



24"x24" RED WITH REFLECTORIZED WHITE LEGEND & BACKGROUND

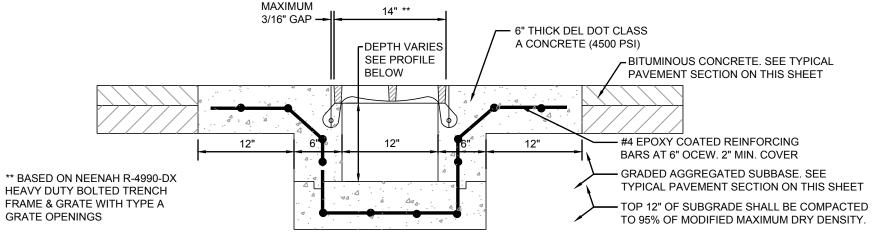


R1-1: 30"x 30" OCTAGONAL REFLECTORIZED WHITE LEGEND ON RED BACKGROUND

ACCESSIBILITY PARKING SPACE MARKING SIGNAGE DETAIL

SCALE: NONE

NOTE: ALL ROAD SIGNS SHALL SHALL BE IN ACCORDANCE WITH THE MUTCD AND MARYLAND SHA STANDARDS, LATEST EDITION THEREOF.



(MANUAL UNIFIED TRAFFIC CONTROL DEVICES (MUTCD)

SIGN R7-8)

7'-0" TO GRADE

TYPICAL TRENCH DRAIN SECTION

← 2" HIGH LETTERING

(GREEN)

PARKING

1. BOTTOM EDGE OF SIGN SHALL BE A MINIMUM OF 7' ABOVE FINISHED GRADE

. CONTRACTOR SHALL INSTALL ONE SIGN PER HANDICAP PARKING SPACE.

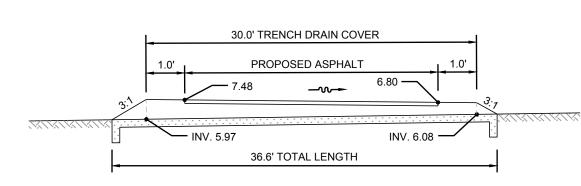
WITH THE MUTCD AND DELDOT STANDARDS, LATEST EDITION THEREOF.

4. ALL SIGNS SHALL HAVE A WHITE BACKGROUND WITH GREEN LETTERING IN ACCORDANCE

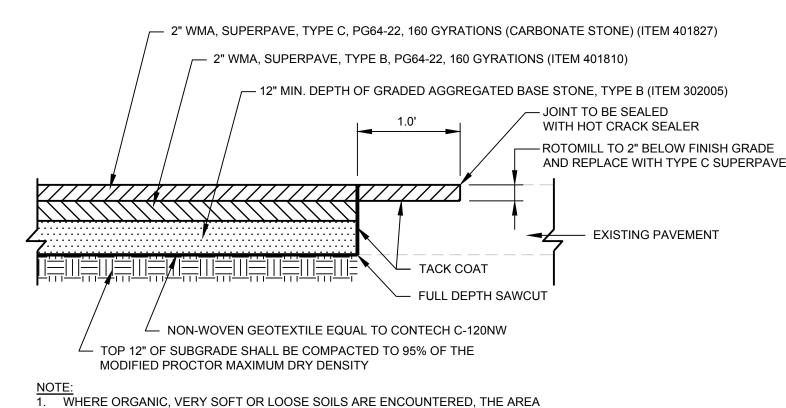
HANDICAPPED PARKING SIGN DETAIL

3. SIGNS ARE TO BE CENTERED ON STALL WIDTH, FACING PARKING.

NO SCALE

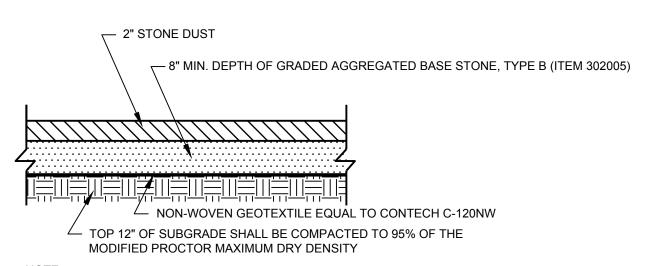


TYPICAL TRENCH DRAIN PROFILE



SHALL BE OVEREXCAVATED AN ADDITIONAL 5" MINIMUM AND BACKFILLED WITH DELAWARE "CRUSHER RUN TYPE B or CR-1".

TYPICAL PAVEMENT SECTION AND TIE-IN DETAIL



WHERE ORGANIC, VERY SOFT OR LOOSE SOILS ARE ENCOUNTERED, THE AREA SHALL BE OVEREXCAVATED AN ADDITIONAL 5" MINIMUM AND BACKFILLED WITH DELAWARE "CRUSHER RUN TYPE B or CR-1".

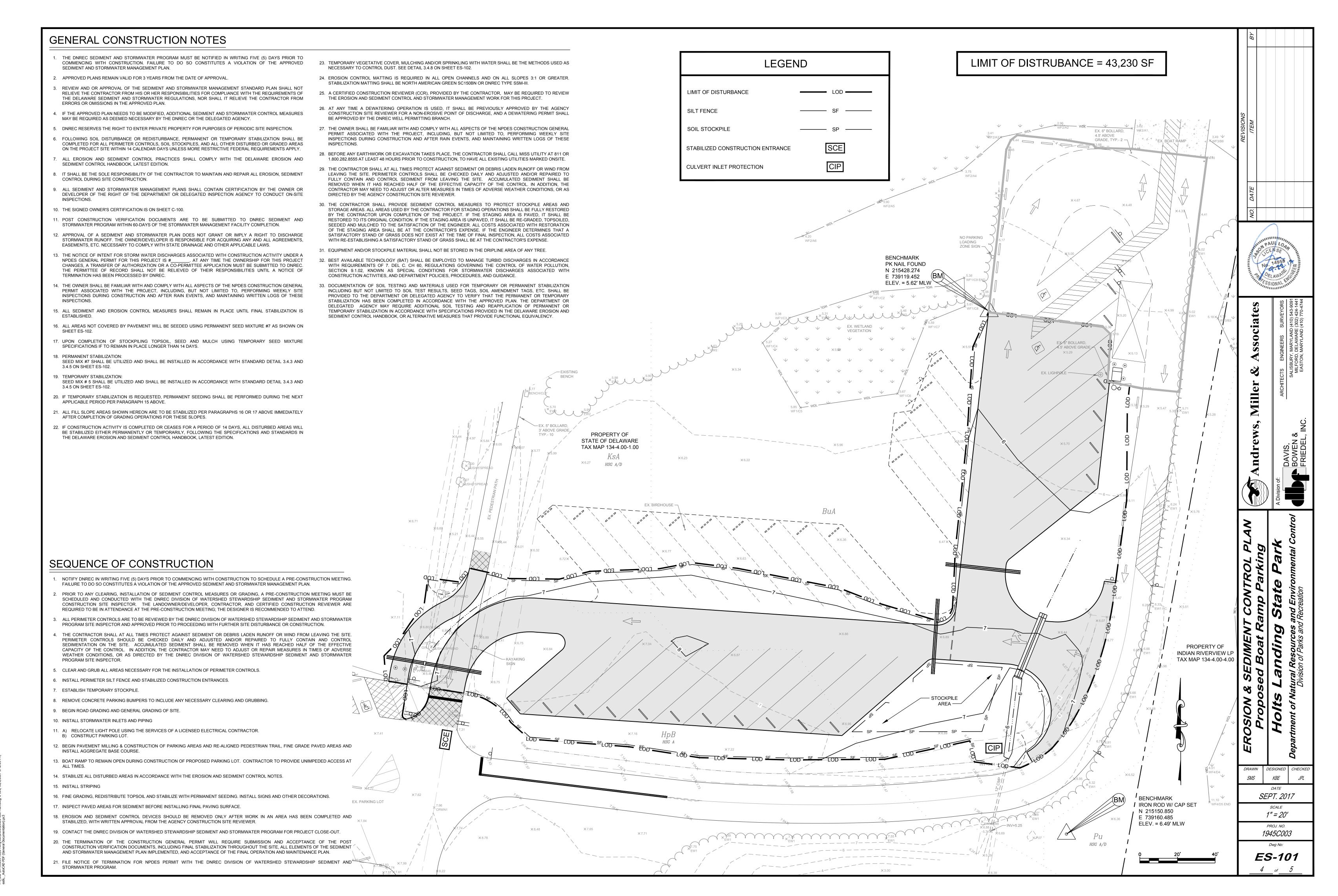
ADD ALTERNATE 2 TYPICAL PAVEMENT SECTION NO SCALE

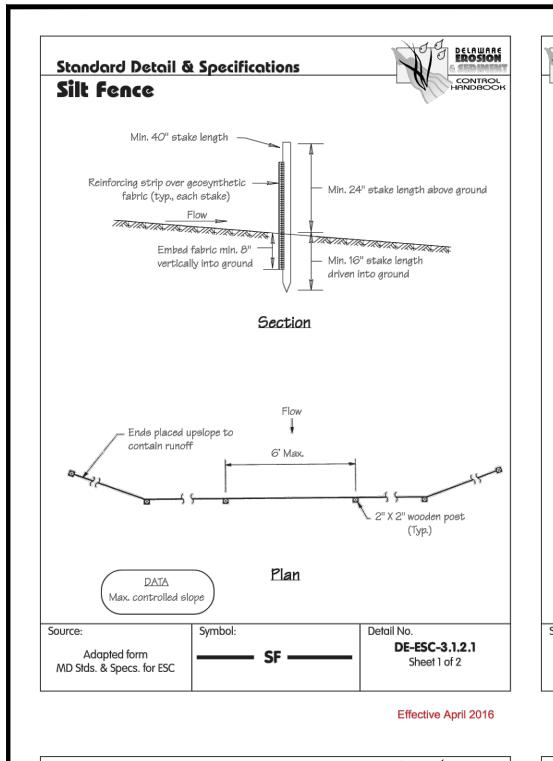
REMOVABLE TIMBER BOLLARD DETAIL

KBE SMS SEPT. 2017 SCALE AS SHOWN PROJ. NO. *1945C003*

C-102

Dwg No:





TEMPORARY SEEDING BY RATES, DEPTHS AND DATES

Optimum Seeding Dates

!-3" sandy soils

DE-ESC-3.4.3

Effective April 2016

Standard Detail & Specifications

Vegetative Stabilization

Seeding Rat

1. Winter seeding requires 3 tons per acre of straw mulch for proper stabilization

Standard Detail & Specifications

3. Applicable on slopes 3:1 or less.

Delaware ESC Handbook

Mulching

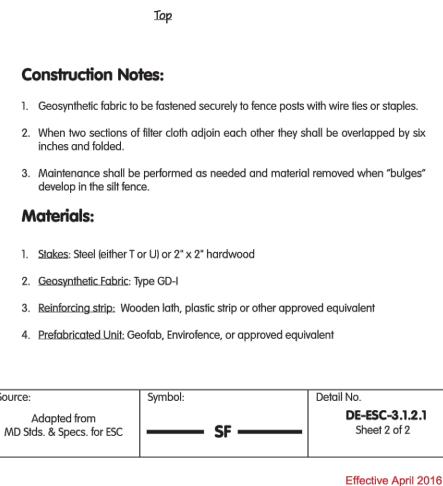
2. May be planted throughout summer if soil moisture is adequate or seeded area can be irrigated

4. Fifty pounds per acre of Annual Lespedeza may be added to 1/2 the seeding rate of any of the above species.

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.

5. Use varieties currently recommended for Delaware. Contact a County Extension Office for information.

per acre. Good on low fertility and acid areas. Seed after frost through summer at a depth of 0.5".



PERMANENT SEEDING AND SEEDING DATES

Well Drained Soil

Delaware ESC Handbook

Construction Detail

Standard Detail & Specifications

Standard Detail & Specifications

Good wildlife cover and for

drought tolerance

nutrient uptake.
Three cultivars of Kentuck

Bluegrass. Traffic tolerant

an Grass and Bluestem

Creeping Red Fescue will

the warm season grasses

DE-ESC-3.4.3

Sheet 2 of 4

Effective April 2016

fluffy seeds. Plant with a

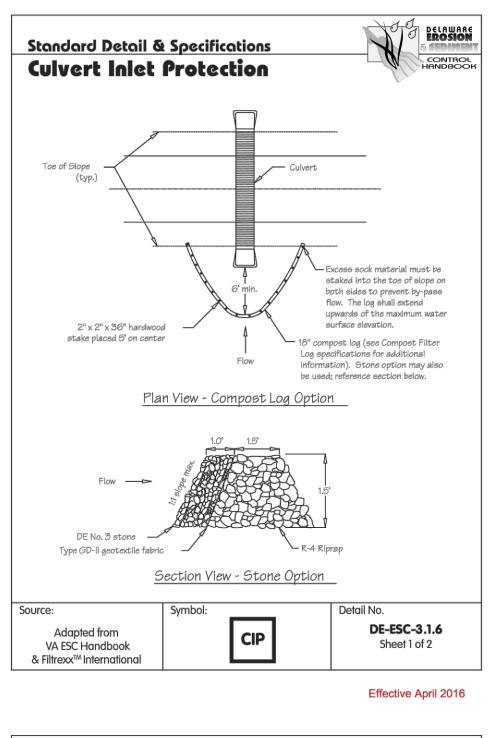
specialized native seed di

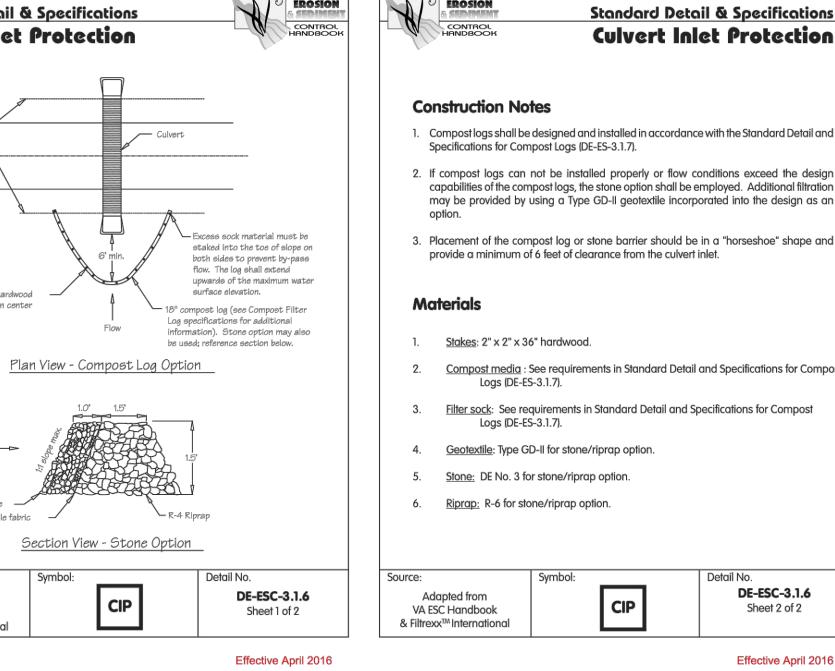
tive warm-season mixture

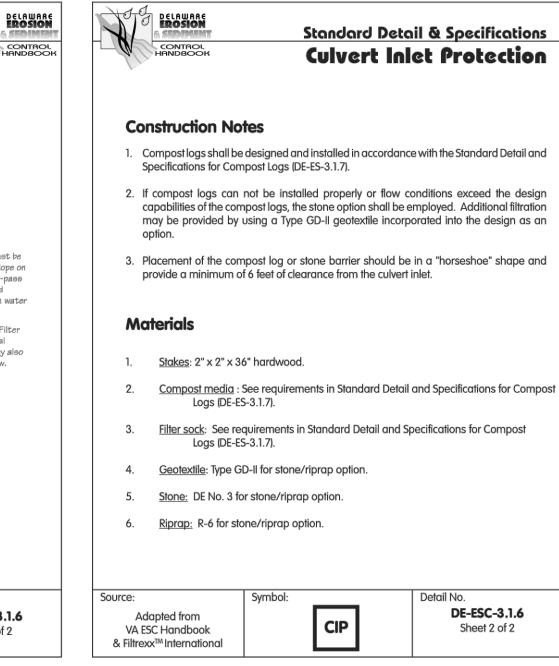
Silt Fence

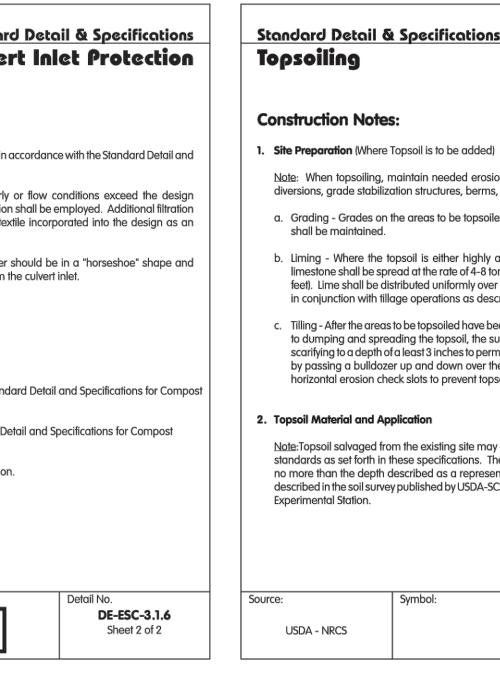
Method for joining

continuous sections









Standard Detail & Specifications

USDA - NRCS

Mulchina

Materials and Amounts

Definitions:

Standard Detail & Specifications

of 10-10-10 or 66 pounds of 30-0-0 per acre).

30% paper fiber and additives.

to enhance performance.

Standard Detail & Specifications

hydraulic mulch.

recommendations.

Delaware ESC Handbook

& Filtrexx™ International

Soil Stockpile

Max. Height, h

DATA TO BE PROVIDED

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

feet sections and place 70-90 pounds (two bales) of mulch in each section.

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 quackarass, Spread mulch uniformly by hand or

mechanically. For uniform distribution of hand spread mulch, divide area into approximately 1,000 square

o. 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

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

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

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. BFM

shall contain no paper (cellulose) mulch but may contain small percentages of synthetic fibers

d. Refer to Figure 3.4.5a for conditions and limitations of use for each of the above categories of

assure material performance. Field mixing of the mulch components is acceptable, but must be done

ii. All components of the hydraulically applied mulches shall be pre-packaged by the manufacturer to

iii. Hydraulic mulches shall be applied with a viable seed and at manufacturer's recommended rates

iv. Hydraulically applied mulches and additives shall be mixed according to manufacturers

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

Stockpile entrance to be located on

the upslope side, if needed

per manufacturers recommendations to ensure the proper results.

approval agency has been obtained in writing for a specific area.

Increased rates may be necessary based on site conditions.

chips are used, increase the application rate of nitrogen fertilizer by 20 pounds of N per acre (200 pounds

Hydraulically applied mulch-The following conditions apply to hydraulically applied mulch:

١.	Site Preparation (Where T	opsoil is to be added)			soil as approved by an agronomist or ng textured subsoil and contain no m	
		naintain needed erosion and sedim tion structures, berms, dikes, waten		of cinders, stones, slo materials larger than	ig, coarse fragment, gravel, sticks, ro I-1/2 inches in diameter. Topsoil must	ots, trash or other extraneous be free of plants or plant parts
2.	 a. Grading - Grades on the shall be maintained. b. Liming - Where the tolemestone shall be spreaded. Lime shall be distinconjunction with tillated. c. Tilling - After the areas to dumping and spreaded scarifying to a depth of by passing a bulldozen horizontal erosion chemotolemestory. Topsoil Material and Apple Note: Topsoil salvaged from standards as set forth in the more than the depth designed. 	the areas to be topsoiled which have appoil is either highly acid or completed at the rate of 4-8 tons/acre (200-tributed uniformly over designated age operations as described in the fato be topsoiled have been brought to ding the topsoil, the subgrade shall a least 3 inches to permit bonding of rup and down over the entire surfack slots to prevent topsoil from sliding	be been previously established osed of heavy clays, ground 400 pounds per 1,000 square areas and worked into the soil following procedures. grade, and immediately prior be loosened by discing or by the topsoil to the subsoil. Pack area of the slope to create ag down the slope. d but it should meet the same asoil to be salvaged shall be for that particular soil type as	of bermudagrass, quespecified. All topsoil seph and soluble salts. by weight is required. with the topsoil to adjust than 500 parts per many solution. No sod or seed she chemicals used for weed materials. b. Grading - The topsoil (4) inches. Spreading proceed with a minimal surface resulting from the formation of depresor muddy condition, otherwise be detrimed. Note:Topsoil substitutes scientist, may be used in percentage of organic many compost amendments that	ackgrass, Johnsongrass, nutsedge, pehall be tested by a reputable laborate A pH of 6.0 to 7.5 and an organic containing of the pH value is less than 6.0 lime shall ust the pH to 6.5 or higher. Topsoil could be placed on soil which has been control until sufficient time has elapsed shall be performed in such a manne um of additional soil preparation and topsoiling or other operations shall be essions or water pockets. Topsoil shall when the subgrade is excessively wantal to proper grading and seedbed or amendments as approved by a native shall be provided by a certified sare intended to meet specific post-constructions.	poison ivy, thistles, or others as cry for organic matter content, tent of not less than 1.5 percent les applied and incorporated ontaining soluble salts greater in treated with soil sterilants or act to permit dissipation of toxic impacted to a minimum of four rethat sodding or seeding can tillage. Any irregularities in the ecorrected in order to prevent not be placed while in a frozen et, or in a condition that may preparation. qualified agronomist or soil material used to improve the supplier.
					ne requirements of Appendix 3.06.2 I ards and Specifications, Section 14.0 So	
ur	rce:	Symbol:	Detail No.	Source:	Symbol:	Detail No.
			DE-ESC-3.4.1			DE-ESC-3.4.1
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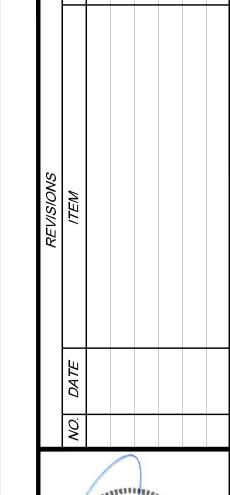
Sheet 1 of 2

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Sheet 2 of 2

Standard Detail & Specifications

a. Materials - Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam,

Construction Notes (cont.)

USDA - NRCS

Topsoiling

Mulching

Standard Detail & Specifications

a. Apply product to geotechnically stable slopes that have been designed and constructed to

c. During the spring (March 1 to May 31) and fall (September 1 to November 30) seasons, hydraulic

d. During the summer (June 1 to August 31) and winter (December 1 to February 28) seasons, the

e. Minimum curing temperature is 40° F (4° C). The best results and more rapid curing are

vi. Recommended application rates are for informational purposes only. Conformance with this standard

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

Anchoring mulch - Mulch must be anchored immediately to minimize loss by wind or water. This may be done

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

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

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

Paper fiber - The fiber binder shall be applied at a net dry weight of 750 lbs/ac. The wood cellulose fiber

and specification shall be performance-based and requires 100% soil coverage. Any areas with bare

achieved at temperatures exceeding 60°F (15°C). Curing times may be accelerated in high

nulches may be applied in a one-step process where all components are mixed together in

Step One- Mix and apply seed and soil amendments with a small amount of mulch for

Step Two - Mix and apply mulch at manufacturers recommended rates over freshly

seeded surfaces. Apply from opposing directions to achieve optimum soil coverage.

single-tank loads. It is recommended that the product be applied from opposing directions to

b. Do not apply to saturated soils, or if precipitation is anticipated within 24-48 hours.

divert runoff away from the face of the slope.

achieve optimum soil coverage.

than 2:1 and requires no mulch anchoring.

to the manufacturers recommendations.

Delaware ESC Handbook

& Filtrexx™ Internationa

following two-step process is required:

temperature, low humidity conditions on dry soils.

soil showing shall be top dressed until full coverage is achieved.

by one of the following methods, depending upon size of area, erosion hazard, and cost

done up and down the slope with cleat marks running across the slope.

and should be applied at the rates recommended by the manufacturer

OS:

Mill

shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per Nettings - Synthetic or organic nettings may be used to secure straw mulch. Install and secure according

Sheet 2 of 3

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DE-ESC-3.4.5

Soil Stockpile

Standard Detail & Specifications

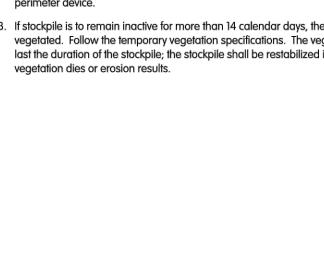
Construction Notes

Locate stockpiles so that they are 50 feet from any storm drain inlet, open channel, wetland

or waterbody. Redirect any concentrated flow around the stockpile using an approved erosion and sediment control measure.

2. Secure the perimeter of the stockpile with an approved erosion and sediment control

. If stockpile is to remain inactive for more than 14 calendar days, the stockpile must be vegetated. Follow the temporary vegetation specifications. The vegetation chosen shall last the duration of the stockpile; the stockpile shall be restabilized if the temporary



Adapted from DE-ESC-3.7.3 Sheet 2 of 2

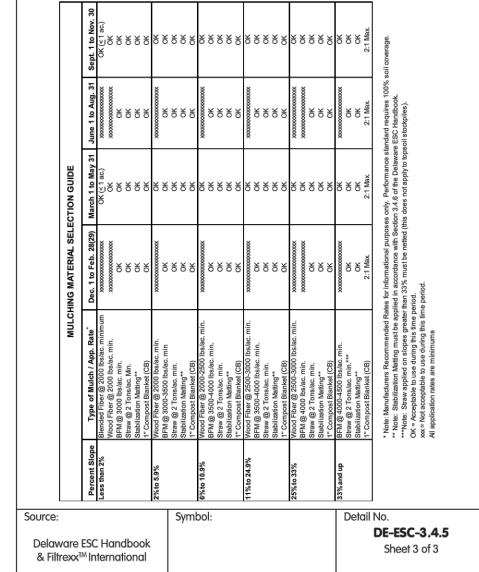
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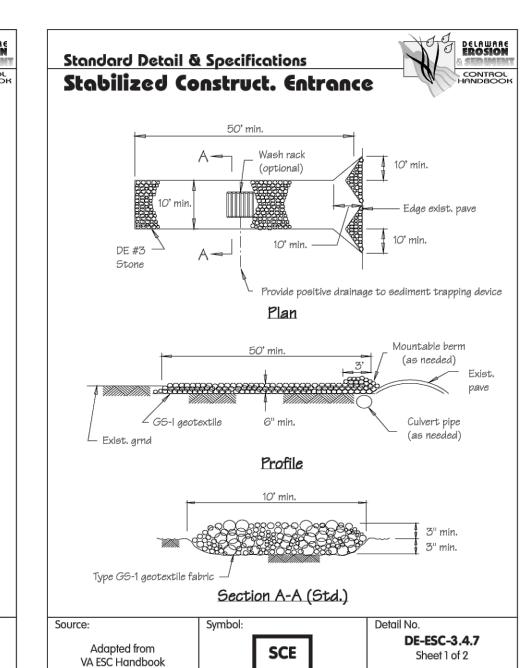
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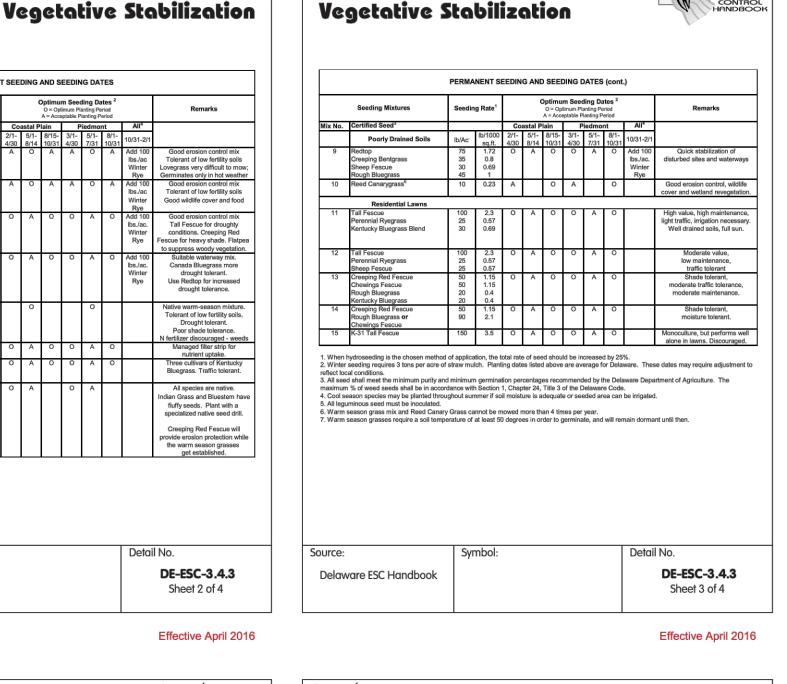
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Standard Detail & Specifications

Provide space for drainage

DE-ESC-3.4.7

Sheet 2 of 2

Stabilized Construct. Entrance

Equipment wheel track + 2

Section A-A (Opt.)

Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum

4. <u>Width</u> - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.

. <u>Surface Water</u> - All surface water flowing or diverted toward construction entrances shall be piped across

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.

. Inspection - Periodic inspection and needed maintenance shall be provided after each rain.

SCE

. 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

the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.

Geotextile - Type GS-I; placed over the entire area prior to placing of stone.

Metal bars set in reinforced conc. -(traffic bearing grates, timber mats or

other approved equiv. may be substituted)

Construction Notes:

Stone size - Use DE #3 stone.

Thickness - Not less than size (6) inches.

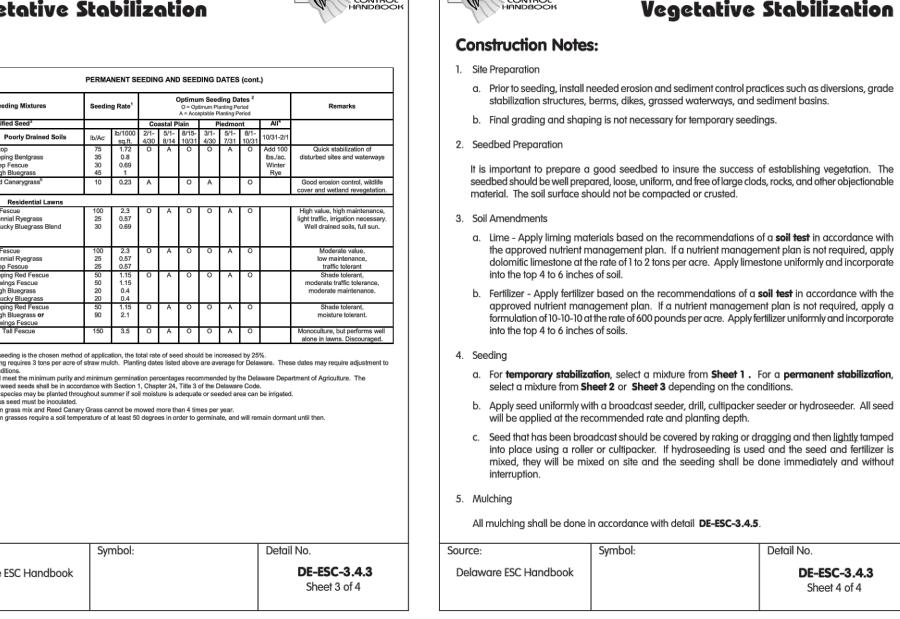
an approved sediment trapping device.

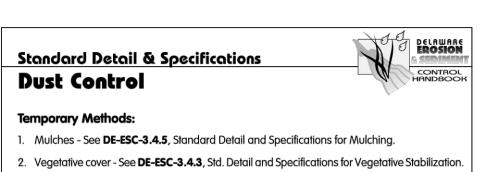
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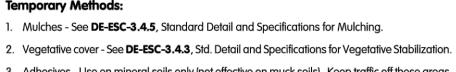
VA ESC Handbook

length would apply).

Standard Detail & Specifications







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-trafffic)	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.

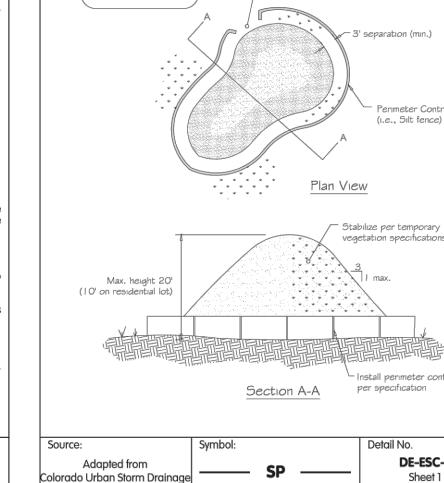
Calcium Chloride - Apply as flakes or granular material with a spreader at a rate that will keep the soil surface moist. Re-apply as necessary.

Barriers - Place barriers such as soild board fences, snow fences, hay bales, etc. at right angles to the prevailing air currents at intervals of approx. 10X their height. Permanent Methods:

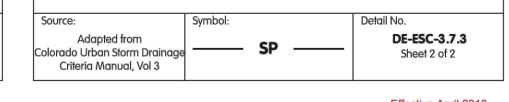
Vegetative cover - See **DE-ESC-3.4.3**, Std. Detail and Specifications for Vegetative Stabilization.

2. Stone - Apply layer of crushed stone or coarse gravel to protect soil surface.

DE-ESC-3.4.8 Adapted from Sheet 1 of 1 VA ESC Handbook



DE-ESC-3.7.3 Sheet 1 of 2 Criteria Manual, Vol 3



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