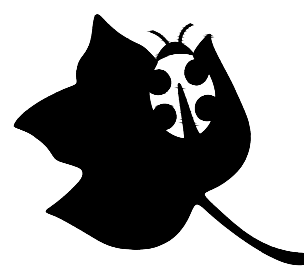
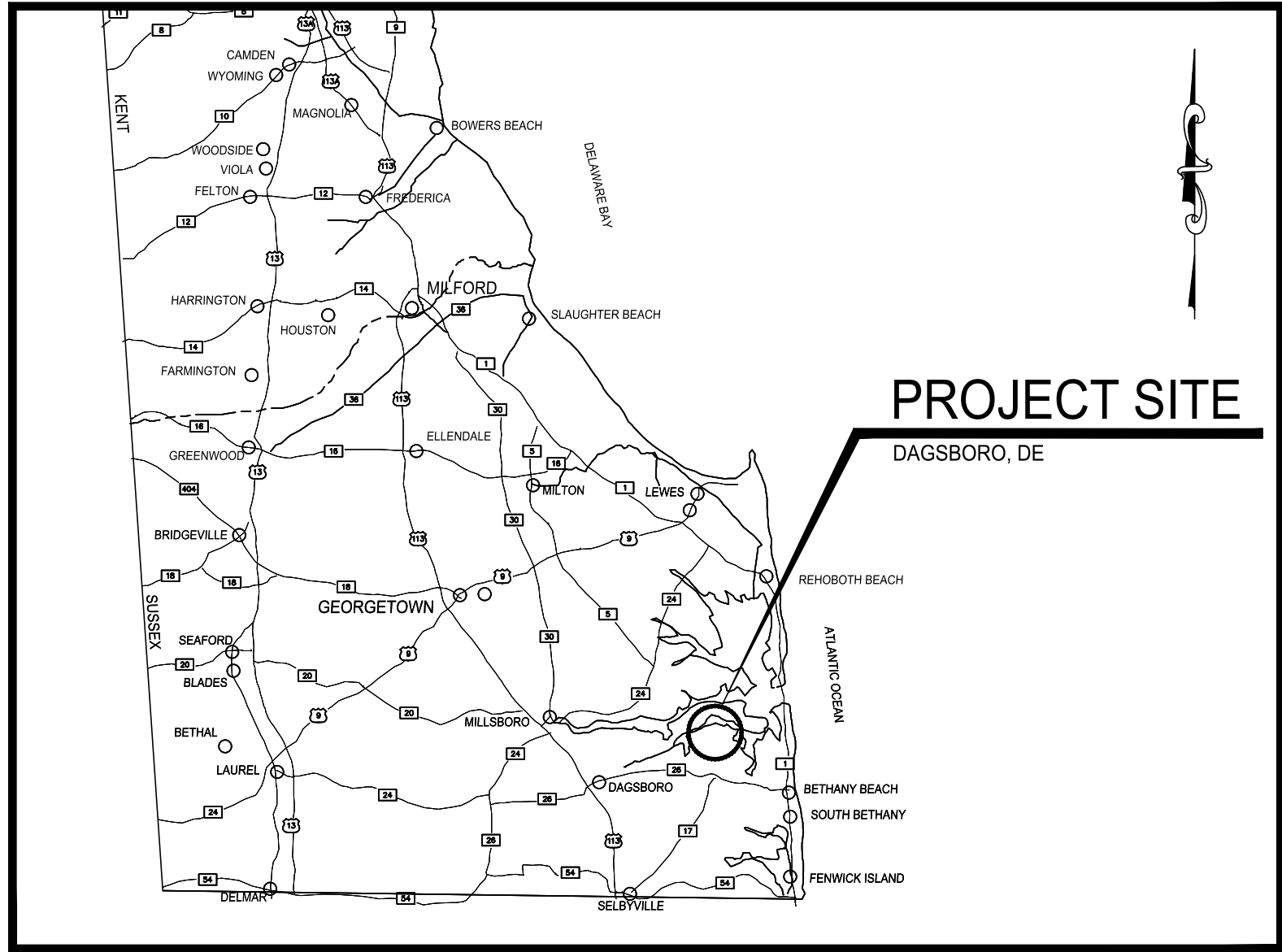


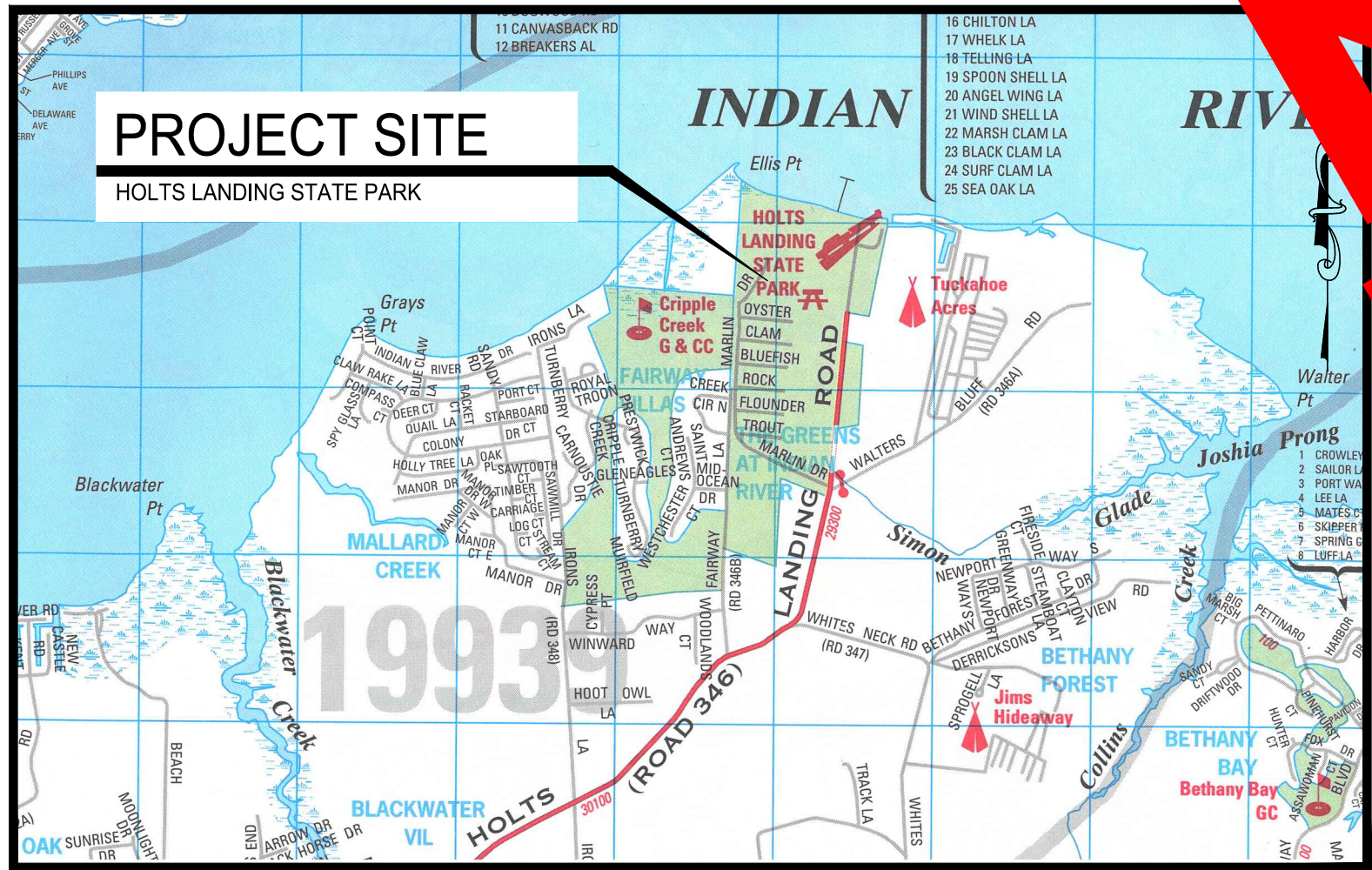
STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
DIVISION OF PARKS AND RECREATION



HOLTS LANDING BOARDWALK & TRAIL IMPROVEMENTS



LOCATION MAP



SITE MAP

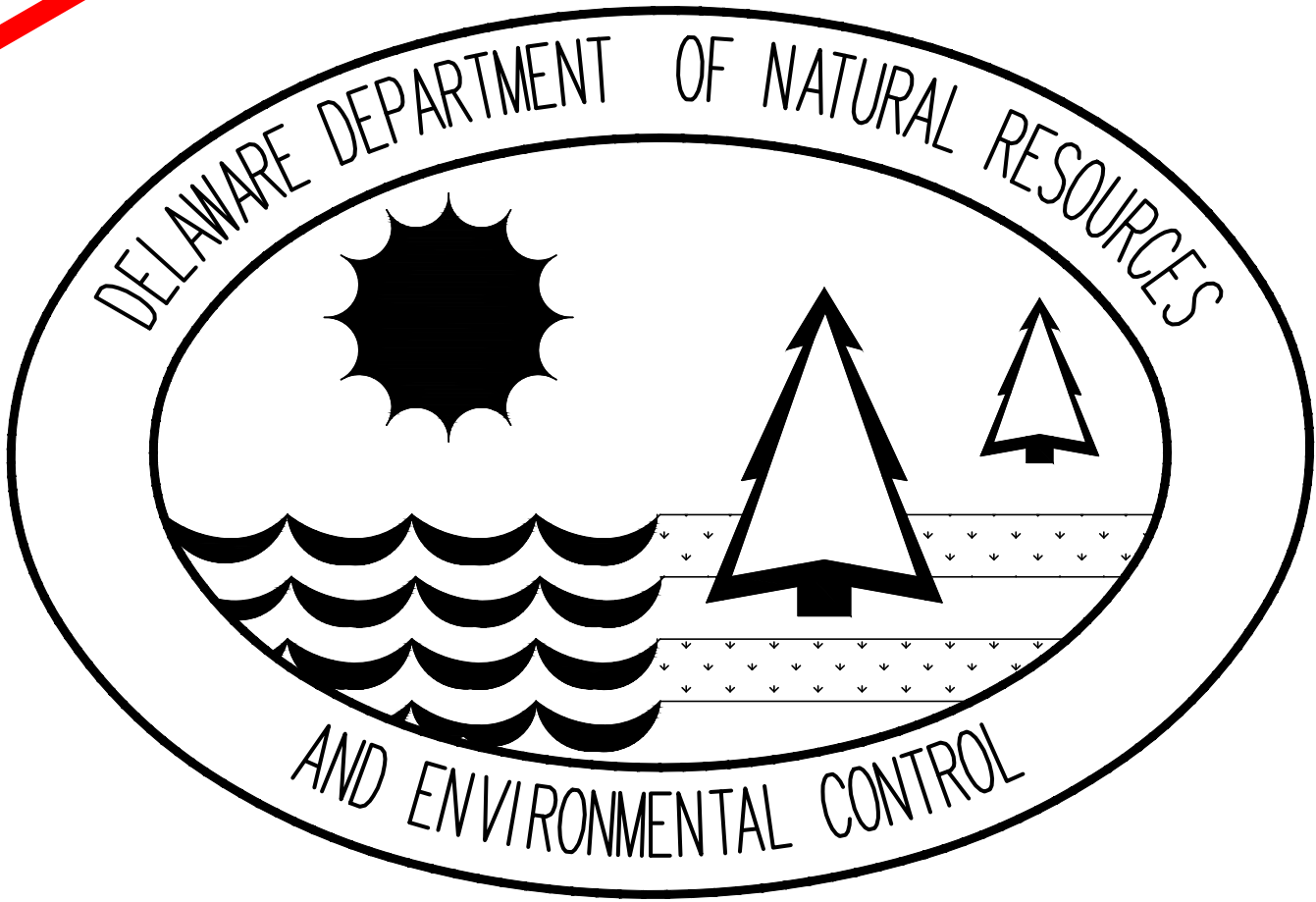
INDEX OF SHEETS:

NO. - TITLE
C300 - COVER SHEET
C301 - PROJECT NOTES & LEGEND
C302 - OVERALL SITE LAYOUT
C303 - TRAIL ALIGNMENTS #1, #2, #3
C304 - TRAIL ALIGNMENTS #4, #5
C305 - PARKING LOT SITE PLAN
C306 - SIGNING & STRIPING PLAN
C307 - BOARDWALK PROFILES
C308 - STRUCTURAL DETAILS
C309 - CONSTRUCTION DETAILS
SSMP500 - SEDIMENT & STORMWATER MANAGEMENT PLAN
SSMP501 - EROSION & SEDIMENT CONTROL DETAILS
SSMP502 - EROSION & SEDIMENT CONTROL DETAILS

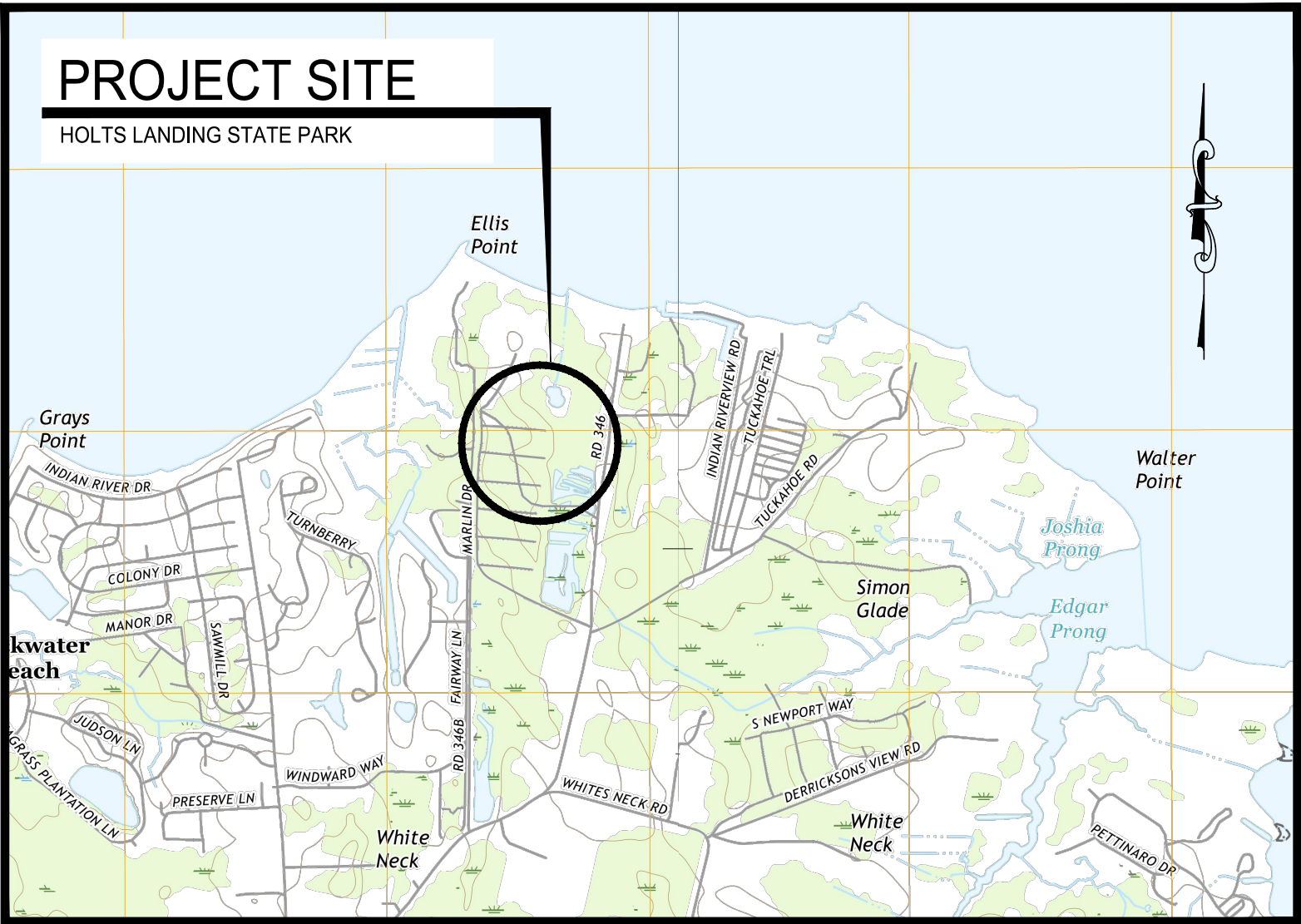
DNREC STATE CONTRACT NO.: 2018-HL-200

PROJECT NO. HL-10C

SEPTEMBER 2018



BID DOCUMENTS



USGS QUADRANGLE MAP

CIVIL ENGINEER

PREPARED BY:

CENTURY
ENGINEERING

CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY. DOVER, DELAWARE 19901 (302) 734-9188

SIGNATURE

DATE

Seal

CLIENT

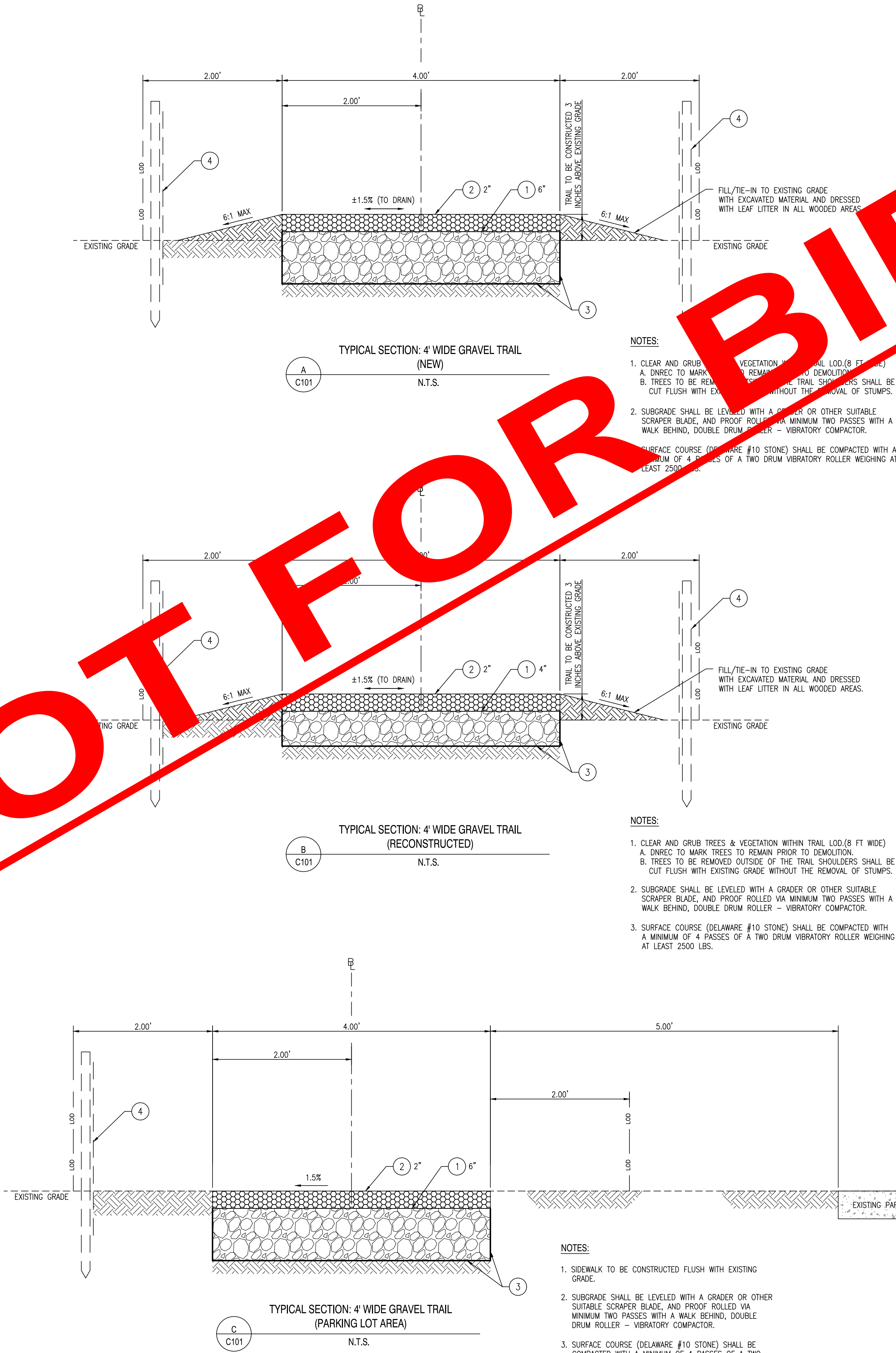
OFFICE OF DESIGN & DEVELOPMENT
DELAWARE DIVISION OF PARKS & RECREATION
89 KINGS HIGHWAY
DOVER, DELAWARE 19901
(302) 739-9231
(302) 739-7026 (FAX)

PROJECT NOTES

- THE INTENT OF THIS PROJECT IS TO PROVIDE THE FOLLOWING IMPROVEMENTS AT THE HOLTS LANDING STATE PARK:
 - CONSTRUCTION OF 4,416 L.F. OF GRAVEL TRAIL IN PLACE OF THE EXISTING SEA HAWK TRAIL ALIGNMENT.
 - CONSTRUCTION OF 1,304 L.F. OF NEW GRAVEL TRAIL TO RELOCATE PORTIONS OF THE EXISTING SEA HAWK TRAIL.
 - CONSTRUCTION OF 629 L.F. OF NEW GRAVEL TRAIL ALONG THE SOUTHERN EDGE OF THE EXISTING PARKING LOT.
 - CONSTRUCTION OF ONE (1) 600' LONG BOARDWALK.
 - CONSTRUCTION OF ONE (1) 60' LONG BOARDWALK.
- THESE PLANS HAVE BEEN DEVELOPED IN ACCORDANCE WITH THE CURRENT EDITION OF THE "ACCESSIBILITY STANDARDS FOR FEDERAL OUTDOOR DEVELOPED AREAS".
- PARCEL AND BOUNDARY LINES REFERENCED FROM GIS INFORMATION. NO BOUNDARY SURVEY WAS REQUESTED OR PERFORMED FOR THIS PROJECT.
- THESE PLANS UTILIZE 2-FOOT LIDAR TOPOGRAPHY REFERENCED FROM THE STATE OF DELAWARE. CONVENTIONAL FIELD SURVEY WAS PROVIDED BY CENTURY ENGINEERING USING THE STATE PLANE COORDINATE SYSTEM FOR THE AREA OF THE PROPOSED 600' BOARDWALK ON THE NORTH END OF THE SITE LABELED AS NEW TRAIL ALIGNMENT #5. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL ADDITIONAL PHYSICAL CONTROL AS REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
- EXISTING UTILITIES SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME THIS PLAN WAS DEVELOPED. COMPLETENESS OR CORRECTNESS OF THE UTILITIES SHOWN THEREOF IS NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR EMPLOYING AN UNDERGROUND UTILITY LOCATOR TO LOCATE AND MARK EXISTING UTILITIES WITHIN THE LIMIT OF DISTURBANCE PRIOR TO BEGINNING CONSTRUCTION.
- THE CONTRACTOR SHALL STAKE OUT THE ALIGNMENT FOR REVIEW AND APPROVAL BY THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION. MINOR ADJUSTMENT IN THE ALIGNMENT AND/OR PROFILE MAY BE REQUIRED BY THE ENGINEER IN THE FIELD TO AVOID EXISTING FEATURES TO REMAIN, INCLUDING TREES, PLANS, OR TO PROVIDE OPTIMUM ALIGNMENT. INDIVIDUAL TREES WERE NOT SURVEY LOCATED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY RELOCATION OR SUPPORT OF ANY ELECTRICAL AND/OR COMMUNICATION LINES, AND ELECTRICAL/COMMUNICATION PEDESTALS THAT INTERFERE WITH THE PROPOSED WORK AT NO ADDITIONAL COST TO THE PROJECT, AS DIRECTED BY THE ENGINEER. WORK SHALL INCLUDE, BUT IS NOT LIMITED TO, EXCAVATION/TRENCHING, MATERIALS, AND ALL LABOR.
- PORTIONS OF THIS CONTRACT ARE TO BE CONSTRUCTED IN ACCORDANCE WITH DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (STANDARD SPECIFICATIONS) DATED AUGUST 2016 INCLUDING ALL REVISIONS UP TO ADVERTISEMENT OF THIS PROJECT, UNLESS NOTED OTHERWISE IN THESE PLANS OR THE SPECIFICATIONS. ITEMS INCLUDING, BUT NOT LIMITED TO, ASPHALT PAVEMENT, AND EXCAVATION AND EMBANKMENT, ARE TO REFER TO THE "STANDARD SPECIFICATIONS" FOR MATERIALS AND METHOD OF CONSTRUCTION.
- LEAF LITTER SHALL BE PULLED BACK AND STOCKPILED AT THE EDGE OF THE LOD TO BE USED TO STABILIZE AND DRESS-UP EDGES/SHOULDERS FOLLOWING GRADING OF SHOULDERS.
- TOPSOIL SHALL BE STRIPPED, STOCKPILED, AND STABILIZED FOR FUTURE USE ON THIS PROJECT IN ACCORDANCE WITH THE DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK, CURRENT EDITION. STOCKPILE AREAS TO BE WITHIN HOLTS LANDING CREEK STATE PARK AT LOCATIONS SHOWN ON THESE PLANS, OR AT AREAS DETERMINED BY THE ENGINEER IN THE FIELD.
- EXCAVATED TOPSOIL SHALL BE USED AS SHOULDER MATERIAL ALONG ENTIRE LENGTH OF TRAIL. ADDITIONALLY, EXCAVATED MATERIAL AT NEW TRAIL CONSTRUCTION SHALL BE SPREAD ON PORTIONS OF THE EXISTING TRAIL(S) TO BE ABANDONED, EXCEPT IN LOCATIONS WHERE THE EXISTING TRAIL IS LOCATED WITHIN WETLANDS. EXCESS EXCAVATED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE LEGALLY DISPOSED OF OFF SITE.
- CLEARING AND GRUBBING IS ASSUMED TO EXTEND A MINIMUM OF EIGHTEEN (18) INCHES BELOW EXISTING GRADE FOR FOR ALL NEW PAVED AREAS. CLEARING AND GRUBBING WITHIN THE LIMITS OF DISTURBANCE (LOD) SHALL CONSIST OF CLEARING, GRUBBING, REMOVING AND DISPOSING OF ALL TREES, ROOTS, VEGETATION AND DEBRIS OFF SITE, UNLESS OTHERWISE INDICATED AND/OR EXCEPT SUCH OBJECT(S) THAT ARE DESIGNATED TO REMAIN.
- ALL TREE REMOVAL AND TREE TRIMMING WITHIN THE LIMITS OF DISTURBANCE, REGARDLESS OF SIZE, SHALL BE INCIDENTAL TO THE CONTRACT. INDIVIDUAL TREES ARE NOT SHOWN ON THE DRAWINGS BUT MAY BE REMOVED BY THE CONTRACTOR AS NECESSARY AND WITH APPROVAL OF THE ENGINEER WITHIN THE LIMITS OF DISTURBANCE. TREES GREATER THAN 6" IN DIAMETER SHALL BE FLAGGED BY THE CONTRACTOR FOR REVIEW AND APPROVAL BY THE ENGINEER PRIOR TO REMOVAL. THE ENGINEER WILL NOT ACCEPT REMOVAL OF TREES INTENDED TO BE PROTECTED.
- TREES NOT DESIGNATED TO BE REMOVED SHALL BE PROTECTED FROM CONSTRUCTION EQUIPMENT AND COMPACTION OF SOIL WITHIN THE DRIP LINE BY MEANS OF 3'-0" HIGH SENSITIVE AREA PROTECTION (SAP) FENCE, AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS.
- CROSS SLOPE OF ALL NEW WALKWAYS AND TRAILS SHALL NOT EXCEED A SLOPE OF 1:50. LONGITUDINAL SLOPES OF ALL NEW WALKWAYS AND TRAILS SHALL NOT EXCEED 1:20, UNLESS AS SHOWN ON THE CONTRACT PLANS.
- THE CONTRACTOR MAY STORE AND/OR STOCKPILE EQUIPMENT AND MATERIALS WITHIN THE PROJECT SITE LIMIT OF DISTURBANCE (LOD) SHOWN ON PLAN.
- THE CONTRACTOR IS ADVISED THAT CONTRACTOR EMPLOYEE PARKING SHALL BE LIMITED TO THE EXISTING PAVED PARK PARKING AREAS, UNLESS APPROVED BY THE ENGINEER. VEHICLE PARKING SHALL NOT BE ALLOWED ON UNPAVED AREAS.
- FEATURES NOT SPECIFICALLY DESIGNATED FOR DEMOLITION OR REMOVAL THAT ARE DAMAGED BY THE CONTRACTOR OR THE CONTRACTOR'S SUBCONTRACTORS SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE STATE. THE COST FOR REPAIRS OR REPLACEMENT SHALL BE ESTABLISHED BY THE STATE INSURANCE PROVIDER.
- NO CONSTRUCTION, EQUIPMENT, WORK, OR TEMPORARY FILLS SHALL BE ALLOWED WITHIN THE WETLANDS EXCEPT WITHIN THE LOD.
- TEMPORARY CONSTRUCTION MATING SHALL BE USED FOR ALL EQUIPMENT AND WORKER ACCESS WITHIN THE WETLANDS.
- THE LOC SHALL BE NO WIDER THAN 18'-0" WITHIN THE WETLANDS. THIS INCLUDES: THE PROPOSED 8' WIDE BOARDWALK, A 2' GAP, AND 8' WIDE TEMPORARY CONSTRUCTION MATING.
- WETLANDS DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO MATCH ADJACENT AREA. WETLAND PLANTS SHALL BE PLANTED AS NOTED ON THE EROSION & SEDIMENT CONTROL PLANS.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL TEMPORARY BARRICADES ON TRAILS AND AROUND EQUIPMENT TO DISCOURAGE ACCESS BY PARK PATRONS TO WORK AREAS. ADVANCE WARNING SIGNS SHALL BE PLACED AT TRAIL HEADS TO WARN PEDESTRIANS OF ANY TRAIL CLOSURES.
- SEGMENTS OF THE TRAIL ARE LOCATED WITHIN THE PREHISTORIC ARCHAEOLOGICAL SENSITIVITY-AREA AND SHALL BE MONITORED BY DNREC PERSONNEL DURING THE EXCAVATION AT THOSE LOCATIONS FOR THE PURPOSE OF COLLECTING DISPLACED ARTIFACTS AND TO LOOK FOR SUBSURFACE FEATURES, SO THAT THEY MAY BE EVALUATED AND DOCUMENTED AS APPROPRIATE. POTENTIAL FOR WORK STOPPAGE, IN THE EVENT THAT THE CONTRACTOR UNCOVERS ANYTHING REQUIRING FURTHER REVIEW FOR PRESERVATION, MAY OCCUR.
- TEMPORARY LAYDOWN, TURNAROUND AREAS, AND HAUL ROADS ARE TO BE VERIFIED IN FIELD BY DNREC PARKS STAFFS.

GENERAL NOTES

- THE TERM "ENGINEER," "STATE," AND/OR "ARCHITECT" NOTED THROUGHOUT THE CONTRACT PLANS AND SPECIFICATIONS SHALL REFER TO DNREC / STATE PARKS, OR THEIR APPOINTED REPRESENTATIVE. THE TERM "SITE" AND "PARK" MAY BE USED INTERCHANGEABLY THROUGHOUT THESE DOCUMENTS AS A MEANS OF IDENTIFYING HOLTS LANDING STATE PARK.
- THE CONTRACTOR SHALL RESTORE ALL AREAS AFFECTED BY THE CONSTRUCTION SHOWN HEREON AS SHOWN ON THESE PLANS AND SPECIFICATIONS, TO A CONDITION COMPARABLE TO THAT EXISTING PRIOR TO CONSTRUCTION, AND TO THE SATISFACTION OF DNREC.
- THE CONTRACTOR SHALL PROVIDE NECESSARY FACILITIES, INCLUDING BUT NOT LIMITED TO RESTROOMS, DURING CONSTRUCTION. PARK FACILITIES SHALL NOT BE USED.
- THE CONTRACTOR SHALL NOTE THAT IN CASE OF DISCREPANCY BETWEEN THE SCALED AND THE FIGURED DIMENSIONS SHOWN ON THE PLANS, THE FIGURED DIMENSIONS SHALL GOVERN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING ALL DIMENSIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BRINGING ANY DIMENSIONAL DISCREPANCIES TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION.
- BEFORE EXCAVATION IS STARTED, THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES. ALL EXISTING UTILITIES SHALL BE PROTECTED AND TEMPORARILY SUPPORTED OR RELOCATED AS NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH THE PERTINENT OWNER/UTILITY COMPANY REQUIREMENTS. ANY UTILITIES DAMAGED BY THE CONTRACTOR SHALL BE PROMPTLY AND FULLY RESTORED TO THE SATISFACTION OF THE OWNER.
- THE CONTRACTOR SHALL DESIGNATE A PERSON WHO SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING THE EROSION AND SEDIMENT CONTROL PLANS, A PERSON WHO SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING THE TRAFFIC CONTROL, AND A PERSON WHO SHALL BE RESPONSIBLE FOR WORKER SAFETY. THE PERSON RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING THE EROSION AND SEDIMENT CONTROL PLANS SHALL BE CERTIFIED BY DNREC FOR EROSION AND SEDIMENT CONTROL RESPONSIBILITY (CERTIFIED CONSTRUCTION REVIEWER).
- THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE AREA WITHIN THE LIMITS OF CONSTRUCTION TO PROHIBIT PUBLIC ACCESS UNTIL COMPLETION OF THE PROJECT. THE CONTRACTOR'S PROCEDURE/METHOD FOR LIMITING ACCESS SHALL BE REVIEWED BY, AND COORDINATED WITH DNREC PRIOR TO THE START OF WORK. THE COST TO INSTALL, RELOCATE, AND MAINTAIN SITE SECURITY SHALL BE INCIDENTAL TO THE CONTRACT.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR OBTAINING OFF-SITE SPOIL AREAS FOR LEGAL DISPOSAL OF EXCESS MATERIAL NOT ACCEPTED BY THE PARK AND/OR UNSUITABLE MATERIALS AS NECESSARY IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS. ALL COST FOR RECYCLING, TRANSPORTING TO, PROCURING AND UTILIZING THE OFF-SITE SPOIL AREAS ARE TO BE INCIDENTAL TO THE CONTRACT.
- IN CASE OF CONFLICT BETWEEN THE "MANUFACTURER'S RECOMMENDATIONS" FOR AN APPROVED MATERIAL AND THE GOVERNING "CONTRACT SPECIFICATIONS" FOR THE MATERIAL, THE MORE RESTRICTIVE OF THE TWO SHALL PREVAIL, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- THE CONSTRUCTION PLANS PRESENT A CONCEPT OF THE RELATIONSHIP BETWEEN TRAFFIC CONTROL, EROSION CONTROL, ETC., ANY REVISION TO THE DETAILS OR SEQUENCE SHOWN ON THE CONSTRUCTION PLANS SHALL BE PREPARED BY THE CONTRACTOR ON STANDARD DNREC PLAN SHEETS AND SUBMITTED FOR REVIEW AND APPROVAL BY THE ENGINEER. THE PLANS SHALL BE PREPARED IN ACCORDANCE WITH CURRENT DELDOT AND DNREC STANDARDS FOR TRAFFIC CONTROL, EROSION AND SEDIMENT CONTROL (PREPARED BY A CERTIFIED CONSTRUCTION REVIEWER), STORM WATER MANAGEMENT, ETC. AND SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF DELAWARE. ALL REQUIRED CALCULATIONS, REPORTS, ETC. SHALL ALSO ACCOMPANY THE SUBMISSION. THE NUMBER OF COPIES REQUIRED TO BE SUBMITTED FOR REVIEW SHALL BE DETERMINED BY DNREC, DEPENDING ON THE NATURE OF THE PROPOSED REVISION. THE CONTRACTOR SHALL NOTE THAT THE REVISIONS TO THE CONSTRUCTION PLANS, AS WELL AS REVIEW TIME BY DNREC, WILL NOT JUSTIFY A DELAY IN THE CONSTRUCTION SCHEDULE. REVISIONS INVOLVING UTILITIES WILL REQUIRE THE COMPLETION OF A UTILITY STATEMENT APPROVED BY THE RESPECTIVE UTILITIES AS PART OF THE PLAN DOCUMENTS. ALL COSTS INVOLVED IN PREPARING THE PLAN REVISIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THESE DRAWINGS DO NOT INCLUDE NECESSARY ELEMENTS OF CONSTRUCTION SAFETY. ALL CONSTRUCTION, INCLUDING EXCAVATION, MUST BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT, CFR §1926.652(b)(2), AND ALL FEDERAL, STATE AND LOCAL REQUIREMENTS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL WORK SITE SAFETY.
- NO DEBRIS SHALL BE BURIED OR BURNED ON THE SITE UNLESS SPECIFICALLY NOTED WITHIN THESE PLANS OR SPECIFICATIONS.
- THE CONTRACTOR SHALL CONTACT MISS UTILITY TWO (2) CONSECUTIVE WORKING DAYS PRIOR TO EXCAVATION, OR AS REQUIRED BY LAW, AT 1-800-282-8555.



LEGEND		
EXISTING		PROPOSED
---	PARCEL LINE	N/A
---	FLOODPLAIN	N/A
---	CONTOUR	N/A
---	TREELINE	N/A
---	WETLAND BOUNDARY	N/A
---	DITCH	N/A
---	POND	N/A
---	SIGN	N/A
---	BUILDING/PAVILION	N/A
---	GRAVEL TRAIL	N/A
---	TRAIL TO BE REMOVED	---
---	BOARDWALK	---
---	LIMIT OF DISTURBANCE	LOD
---	LIMIT OF CONSTRUCTION	LOC
---	SILT FENCE	SF

DATA COLUMN													
1.	COUNTY TAX MAP:	134-3.00-6.00 134-4.00-1.00											
2.	DNREC PROJECT NUMBER:	-----											
3.	ADDRESS OF SITE:	HOLTS LANDING STATE PARK, HOLTS LANDING ROAD DAGSBORO, DE 19939											
4.	SITE COORDINATES AT CENTER OF PROJECT SITE:	LATITUDE: 38.5899 N LONGITUDE: -75.1302 W											
5.	ZONING:	EXISTING: ST PROPOSED: ST											
LOT AREA:	TAX PARCEL NO.	EXISTING	PROPOSED										
	134-3.00-6.00	111.86 AC	111.86 AC										
	134-4.00-1.00	59.44 AC	59.44 AC										
SOURCE OF TITLE:	TAX PARCEL NO.	DEED RECORD/INSTRUMENT NUMBER											
	134-3.00-6.00	-----											
	134-4.00-1.00	-----											
6.	EXISTING USE:	STATE PARK											
7.	PROPOSED USE:	STATE PARK											
8.	DATUM:	EXISTING VERTICAL - NAVD 88 HORIZONTAL - NAD 83											
9.	SITE CONDITIONS WITHIN LIMITS OF DISTURBANCE (ACRES)												
	<table><tr><th>EXISTING CONDITIONS</th><th>PROPOSED CONDITIONS</th></tr><tr><td>TRAIL 0.41 ACRES</td><td>TRAIL 0.59 ACRES</td></tr><tr><td>FOREST 0.57 ACRES</td><td>FOREST 0.44 ACRES</td></tr><tr><td>OPEN SPACE 0.20 ACRES</td><td>OPEN SPACE 0.15 ACRES</td></tr><tr><td>TOTAL 1.18 ACRES</td><td>TOTAL 1.18 ACRES</td></tr></table>			EXISTING CONDITIONS	PROPOSED CONDITIONS	TRAIL 0.41 ACRES	TRAIL 0.59 ACRES	FOREST 0.57 ACRES	FOREST 0.44 ACRES	OPEN SPACE 0.20 ACRES	OPEN SPACE 0.15 ACRES	TOTAL 1.18 ACRES	TOTAL 1.18 ACRES
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FOREST 0.57 ACRES	FOREST 0.44 ACRES												
OPEN SPACE 0.20 ACRES	OPEN SPACE 0.15 ACRES												
TOTAL 1.18 ACRES	TOTAL 1.18 ACRES												
	IMPERVIOUS CONDITIONS												
	EXISTING 35%		PROPOSED 50%										
10.	FLOOD PLAIN MAP												
	PER FIRM MAP NUMBER 10005C0484K, DATED MARCH 16, 2015, THIS SITE LIES WITHIN ZONE AE.												
	A 100 YEAR FLOODPLAIN HAS BEEN CALCULATED AND THE BASE FLOOD ELEVATION (BFE) VARIES FROM 6 TO 8.												
11.	WATER RESOURCE PROTECTION												

12.	TOTAL LAND DISTURBANCE												
	THE TOTAL LAND DISTURBANCE PROPOSED BY THIS PLAN IS 1.18± ACRES (50,792± S.F.)												
13.	LIMITS OF CONSTRUCTION												
	THE TOTAL LIMITS OF CONSTRUCTION FOR THE SITE IS 1.32± ACRES (57,392± S.F.)												
14.	LENGTH OF PROPOSED TRAIL: 6,349 FT. (1.20 MILES).												
15.	LENGTH OF PROPOSED BOARDWALK: 660 FT. (0.125 MILES)												
16.	WETLANDS												
	THE TOTAL WETLANDS EXISTING WITHIN THE LIMITS OF DISTURBANCE IS 0± ACRES (0± S.F.)												
17.	OWNER/DEVELOPER:	STATE OF DELAWARE DNREC, DIVISION OF PARKS & RECREATION 89 KINGS HIGHWAY, DOVER, DE 19901 PHONE: 302-739-9210 FAX: 302-739-3817											
18.	CIVIL ENGINEER:	CENTURY ENGINEERING, INC. 4134 NORTH DUPONT HIGHWAY, DOVER, DE 19901 WALTER J. HOEY, III, P.E. PHONE: (302) 734-9188 FAX: (302) 734-4589											

ITEMS LEGEND	
①	ITEM 301001 - GRADED AGGREGATE BASE COURSE, TYPE B DEPTH: 4" - EXISTING TRAILS, 6" - RELOCATED/NEW TRAILS
②	ITEM 302004 - DELAWARE NO. 10 STONE
③	ITEM 708002 - SEPARATION GEOTEXTILE [TO BE NON-WOVEN SEPARATION FABRIC (ASHTO M 288, CLASS 2 - Minofil 140n, OR EQUIVALENT) BETWEEN PREPARED SUBGRADE AND GABC BASE COURSE.]
④	ITEM 905001 - SILT FENCE OR COMPOST FILTER LOG(MIN. 18") [REFER TO SHEET SSMP500 FOR INSTALLATION REQUIREMENTS AND ADDITIONAL EROSION AND SEDIMENT CONTROL NOTES.]
ITEM NUMBERS UTILIZE THE CURRENT 2016 DELDOT STANDARD SPECIFICATIONS. ITEM NUMBERS THAT HAVE A "0" FOR THE FOURTH DIGIT, REFER TO DELDOT "STANDARD SPECIFICATIONS". IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE DELDOT STANDARD SPECIFICATIONS EITHER ONLINE OR HARD COPY FROM DELDOT TO REFERENCE THESE ITEMS.	

REVISIONS:		BY:							
DATE:	DESCRIPTION:								

HOLTS LANDING BOARDWALK & TRAIL IMPROVEMENTS

PROJECT NOTES & LEGEND

SEAL:

WALTER J. HOEY, III
REGISTERED
NO. 11204
DELAWARE
PROFESSIONAL ENGINEER

CIVIL ENGINEER:

CENTURY
ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901

CEI CONTRACT NO.: 125002.25

DELAWARE DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

DESIGNED BY:	WJH
DRAWN BY:	DFS
CHECKED BY:	AES
DATE:	SEPTEMBER 2018
SCALE:	NONE
SHEET NO.:	C301
CONTRACT NO.:	2018-HL-200

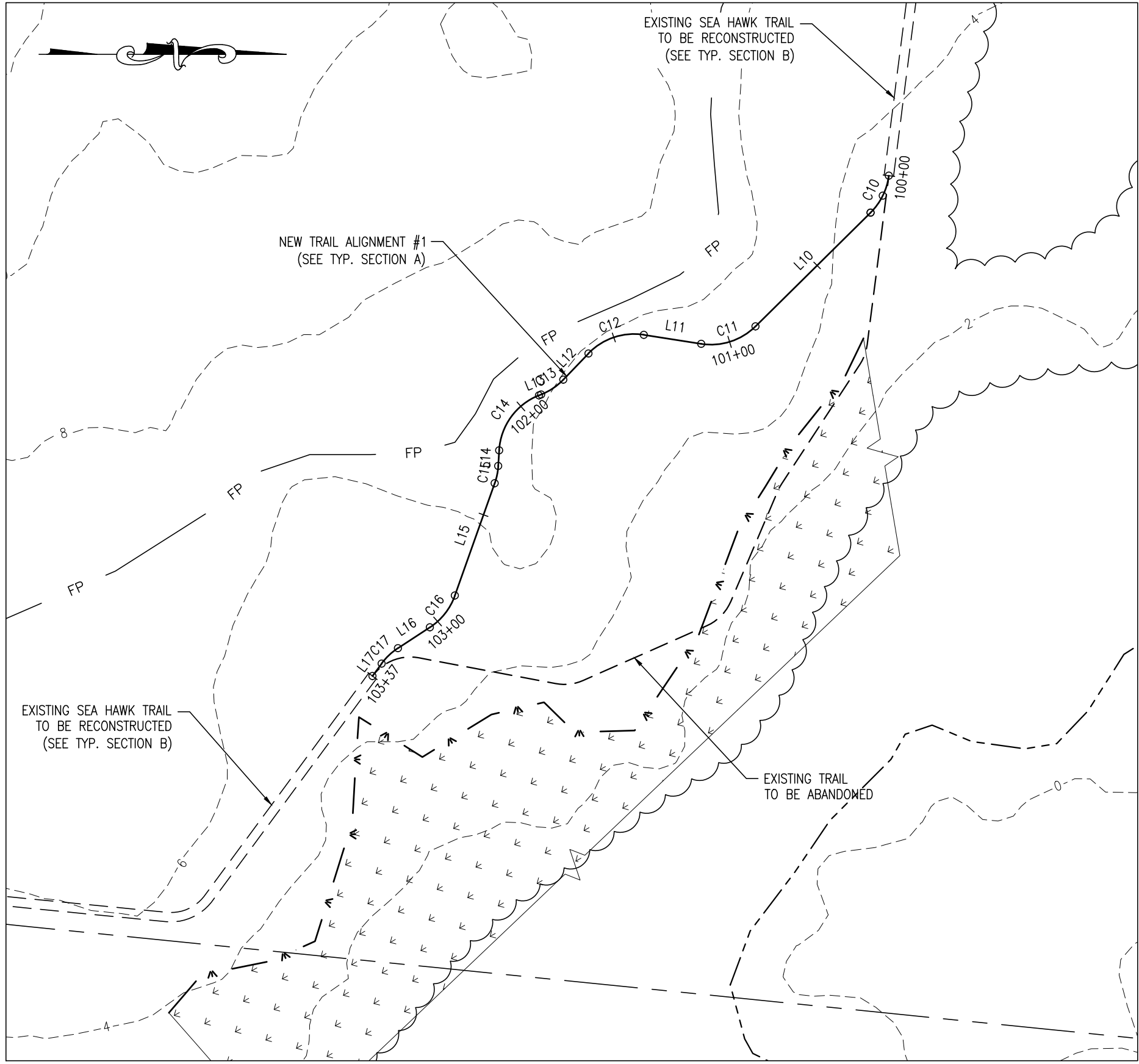
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- CONSTRUCTION NOTES:**
- ENTIRE EXISTING SEA HAWK TRAIL TO BE RECONSTRUCTED PER TYPICAL SECTION B ON SHEET C301.
- GENERAL NOTES:**
- PARCEL LINES REFERENCED FROM STATE OF DELAWARE (FIRSTMAP.DELAWARE.GOV).
 - 2' LIDAR CONTOURS REFERENCED FROM STATE OF DELAWARE (FIRSTMAP.DELAWARE.GOV).
 - WETLANDS SHOWN ARE ONLY THOSE IDENTIFIED WITHIN THE LIMITS OF INVESTIGATION AND SHOULD NOT BE CONSIDERED AS ALL INCLUSIVE.
 - ALIGNMENT #1, AND GRAVEL TRAIL PORTION OF ALIGNMENT #5 TO BE MONITORED BY THE STATE PARK ARCHAEOLOGIST DURING CONSTRUCTION.
- 0' 100' 200' 300'
SCALE: 1" = 100'

REVISIONS:	DATE:	DESCRIPTION:	BY:
HOLTS LANDING BOARDWALK & TRAIL IMPROVEMENTS			
OVERALL SITE LAYOUT			
SEAL:			
CIVIL ENGINEER:			
CEI CONTRACT NO.: 125002.25			
DESIGNED BY:			
WJH			
DRAWN BY:			
DFS			
CHECKED BY:			
AES			
DATE:			
SEPTEMBER 2018			
SCALE:			
1"=100'			
SHEET NO.:			
C302			
CONTRACT NO.:			
2018-HL-200			

C:\PROJECTS\175013.00 [DWG: 2017 Engineering, CE] (175013.00) (State Landing Wetland Definition & Permitting) (CAD FILES) (Sheet) (C303) - Trail Alignments #1, #2, #3.dwg, 9/14/2018 11:48 AM



1
C303

TRAIL ALIGNMENT #1
SCALE: 1" = 50'

NOTE:
ALIGNMENT #1 TO BE MONITORED BY THE STATE
PARK ARCHAEOLOGIST DURING CONSTRUCTION.

HORIZONTAL ALIGNMENT #1 (LINE & CURVE TABLE)					
ID	LENGTH/ARC	CHORD LENGTH	RADIUS	LINE/CORD BEARING	START NORTHING
C10	17.91	17.59	27.00	S63° 40' 39"E	214387.0919
L10	69.06			S44° 40' 11"E	214379.2931
C11	25.25	24.34	27.00	S17° 52' 52"E	214330.1764
L11	24.79			S8° 54' 27"W	214307.0143
C12	25.91	24.93	27.00	S18° 34' 59"E	214282.5209
L12	15.49			S46° 04' 25"E	214258.8940
C13	11.50	11.41	27.00	S33° 52' 33"E	214248.1512
L13	1.01			S21° 40' 40"E	214238.6784
C14	30.55	28.94	27.00	S54° 05' 20"E	214237.7437
L14	6.68			S86° 29' 59"E	214220.7675
C15	7.55	7.53	27.00	S78° 29' 21"E	214220.3600
L15	50.86			S70° 28' 42"E	214218.8583
C16	17.59	17.28	27.00	S51° 48' 47"E	214201.8632
L16	16.27			S33° 08' 52"E	214191.1789
C17	9.62	9.57	27.00	S43° 21' 21"E	214177.5530
L17	6.60			S53° 33' 51"E	214170.5944
END					214166.6768



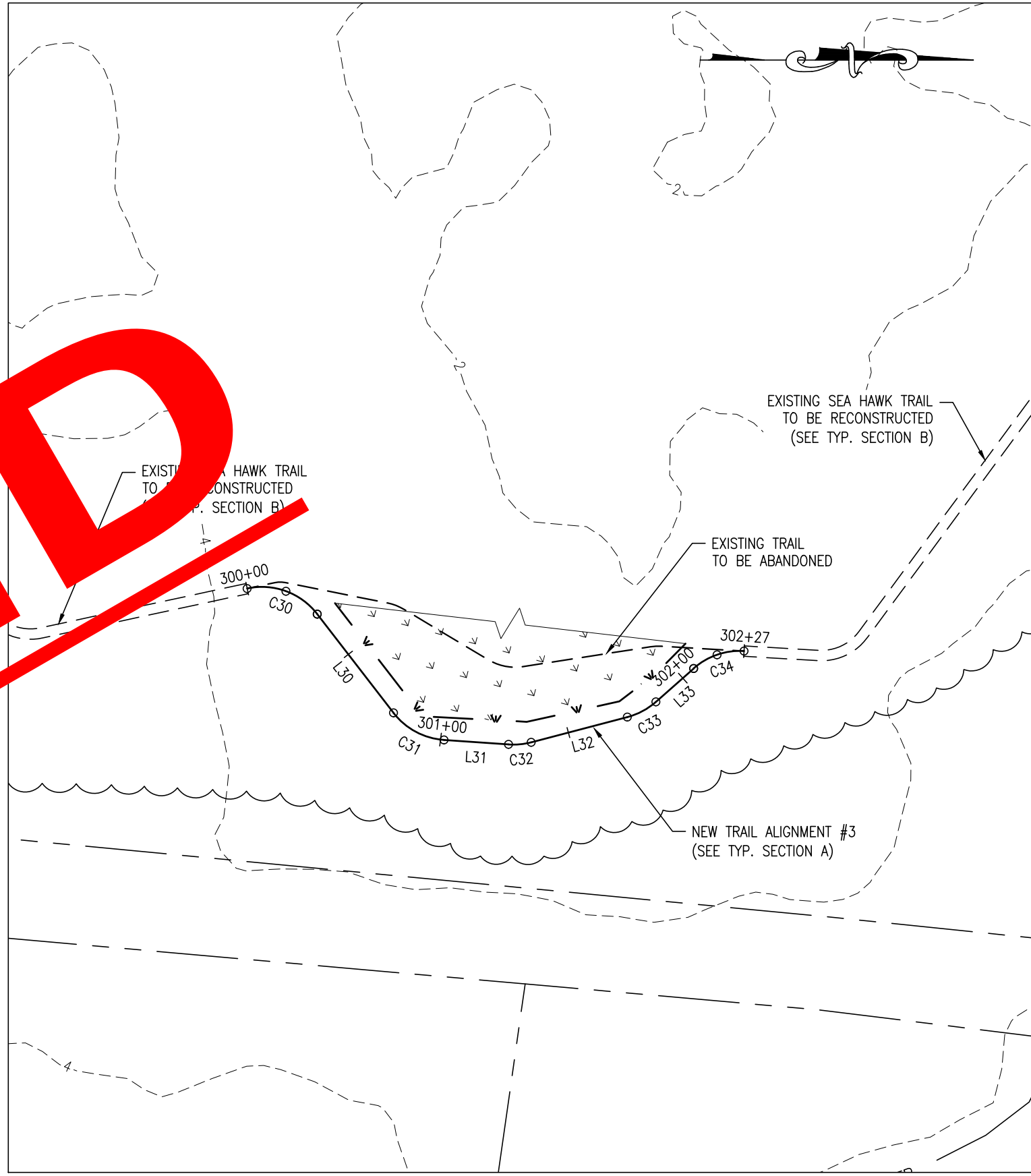
2
C303

TRAIL ALIGNMENT #2
SCALE: 1" = 50'

HORIZONTAL ALIGNMENT #2 (LINE & CURVE TABLE)						
ID	LENGTH/ARC	CHORD LENGTH	RADIUS	LINE/CORD BEARING	START NORTHING	START EASTING
C20	15.72	15.50	27.00	N15° 33' 15"E	213597.2845	738508.5850
L20	74.34			N32° 14' 16"E	213612.2194	738512.7420
C21	70.14	68.71	100.00	N12° 08' 37"E	213675.0979	738552.3965
L21	40.80			N7° 57' 01"W	213742.2724	738566.8511
C22	17.33	17.03	27.00	N26° 20' 09"W	213782.6810	738561.2078
L22	15.21			N44° 43' 18"W	213797.9455	738553.6517
C23	26.20	25.18	27.00	N16° 55' 20"W	213808.7523	738542.9495
L23	95.62			N10° 52' 37"E	213832.8461	738535.6190
C24	10.46	10.39	27.00	N21° 58' 29"E	213926.7447	738553.6620
END					213936.3836	738557.5514

CONSTRUCTION NOTES:

- NEW TRAIL SHALL BE PLACED SO THAT TRAIL GRADES MATCH EXISTING GROUND ELEVATION +3".
- EXCAVATED MATERIAL SHALL BE RE-SPREAD ON PORTIONS OF THE TRAIL TO BE ABANDONED, EXCEPT IN LOCATIONS WHERE THE EXISTING TRAIL IS LOCATED WITHIN WETLANDS.
- NO MATERIAL SHALL BE PLACED WITHIN WETLANDS OR AREAS OUTSIDE THE PROJECT LOC.



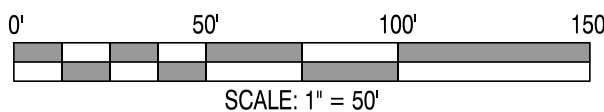
3
C303

TRAIL ALIGNMENT #3
SCALE: 1" = 50'

HORIZONTAL ALIGNMENT #3 (LINE & CURVE TABLE)						
ID	LENGTH/ARC	CHORD LENGTH	RADIUS	LINE/CORD BEARING	START NORTHING	START EASTING
C20	15.72	15.50	27.00	N15° 33' 15"E	213597.2845	738508.5850
L20	74.34			N32° 14' 16"E	213612.2194	738512.7420
C21	70.14	68.71	100.00	N12° 08' 37"E	213675.0979	738552.3965
L21	40.80			N7° 57' 01"W	213742.2724	738566.8511
C22	17.33	17.03	27.00	N26° 20' 09"W	213782.6810	738561.2078
L22	15.21			N44° 43' 18"W	213797.9455	738553.6517
C23	26.20	25.18	27.00	N16° 55' 20"W	213808.7523	738542.9495
L23	95.62			N10° 52' 37"E	213832.8461	738535.6190
C24	10.46	10.39	27.00	N21° 58' 29"E	213926.7447	738553.6620
END					213936.3836	738557.5514

NOTE:

- PARCEL LINES REFERENCED FROM STATE OF DELAWARE (FIRSTMAP.DELAWARE.GOV).
- 2' LIDAR CONTOURS REFERENCED FROM STATE OF DELAWARE (FIRSTMAP.DELAWARE.GOV).
- WETLANDS SHOWN ARE ONLY THOSE IDENTIFIED WITHIN THE LIMITS OF INVESTIGATION AND SHOULD NOT BE CONSIDERED AS ALL INCLUSIVE.



REFERENCES:

- SEE SHEET C301 FOR TYPICAL SECTIONS.

REVISIONS:

DATE: DESCRIPTION:

BY:

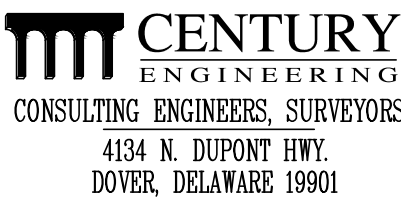
HOLTS LANDING BOARDWALK & TRAIL IMPROVEMENTS

TRAIL ALIGNMENTS #1, #2, #3

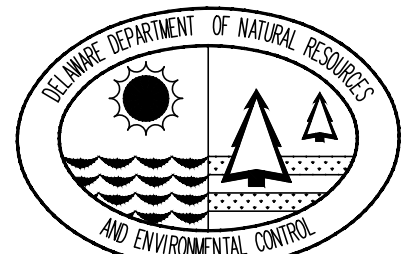
SEAL:



CIVIL ENGINEER:



CEI CONTRACT NO.: 125002.25



DESIGNED BY:

WJH

DRAWN BY:

DFS

CHECKED BY:

AES

DATE:

SEPTEMBER 2018

SCALE:

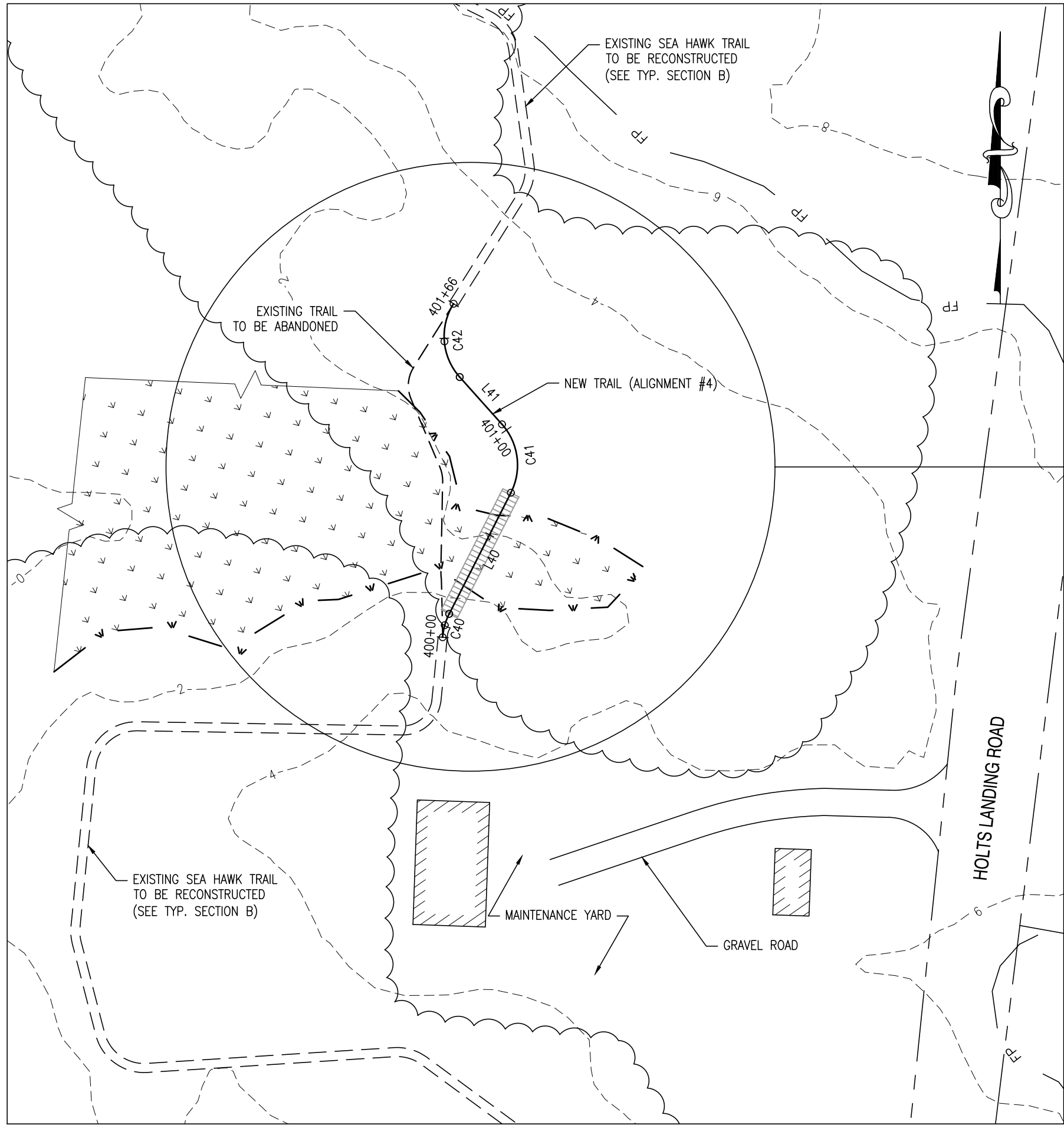
1"=50'

SHEET NO.:

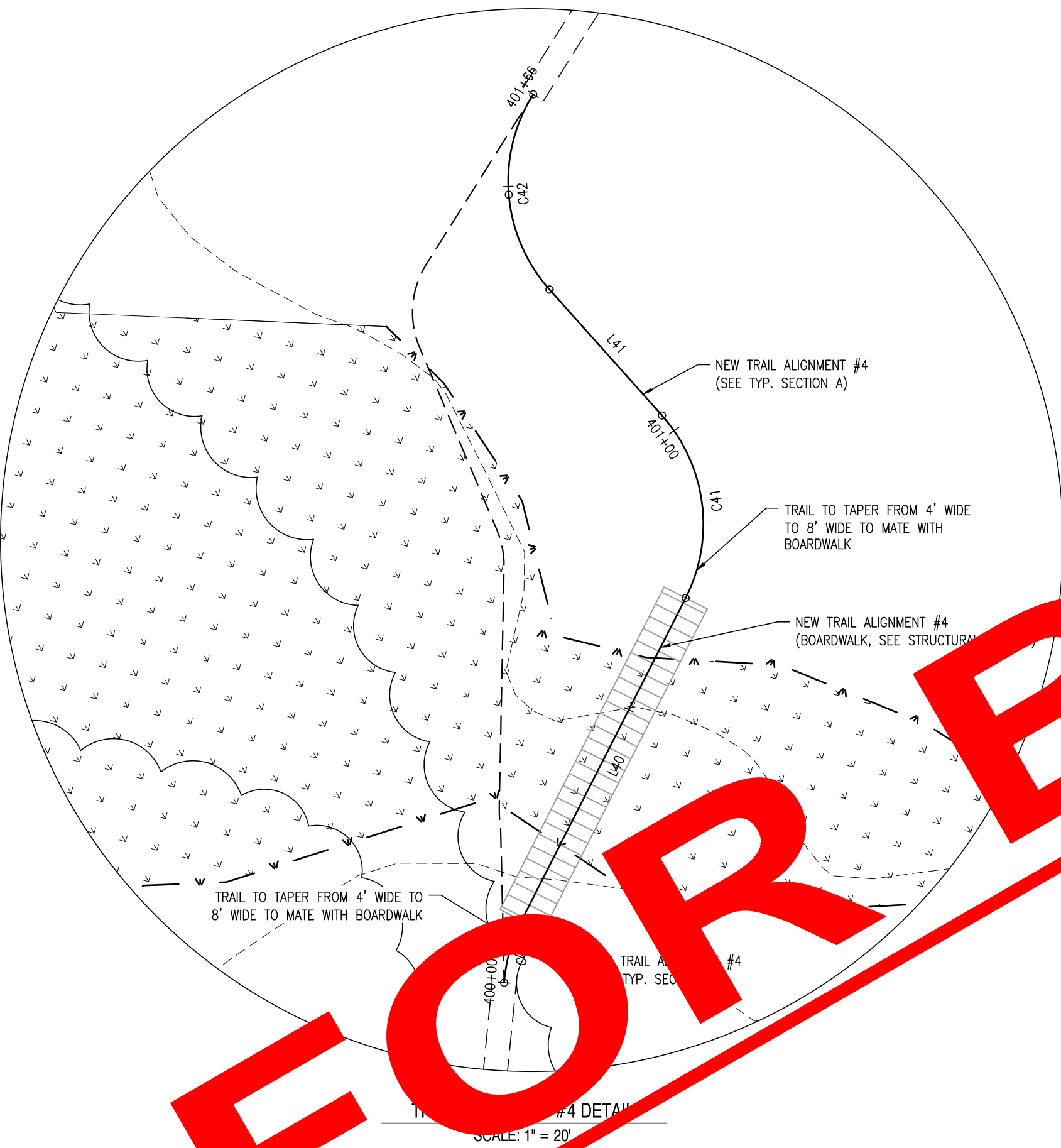
C303

CONTRACT NO.:

2018-HL-200



1
C304
TRAIL ALIGNMENT #4
SCALE: 1" = 50'

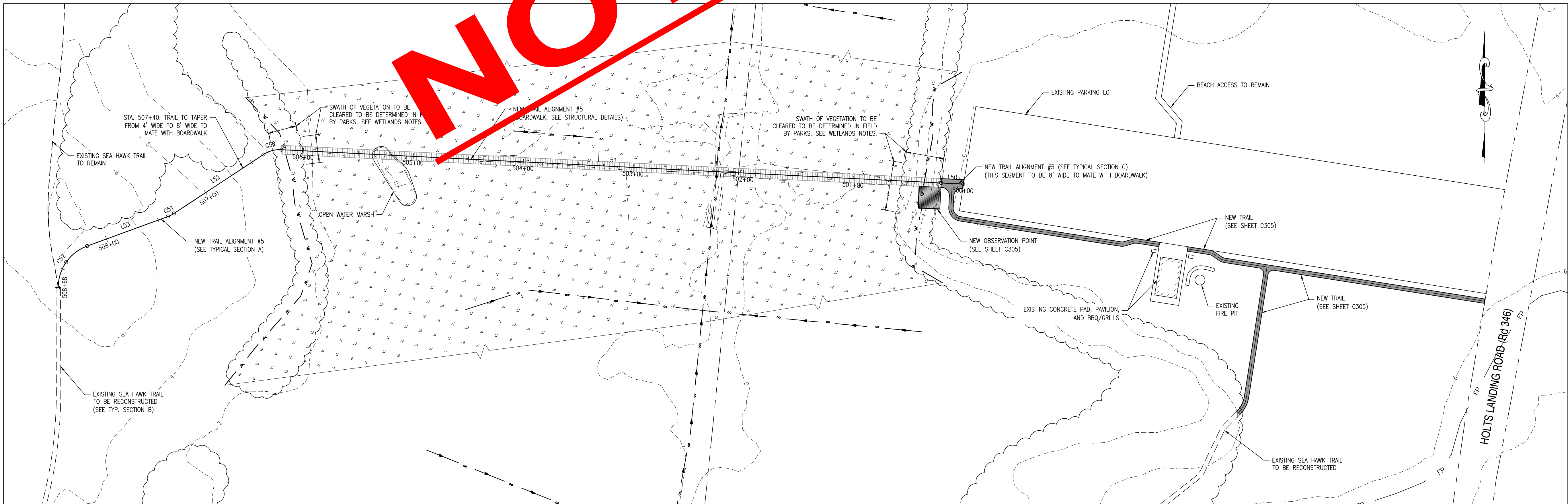


HORIZONTAL ALIGNMENT # 4 (LINE & CURVE TABLE)						
ID	LENGTH/ARC	CHORD LENGTH	RADIUS	LINE/CORD BEARING	START NORTHING	START EASTING
C40	10.79	10.72	27.00	N15° 32' 16"E	214555.1125	738486.3660
L40	60.00			N26° 59' 20"E	214565.4414	738489.2378
C41	32.41	30.50	27.00	N7° 23' 41"W	214618.9071	738516.4668
L41	27.99			N41° 46' 41"W	214649.1488	738512.5420
	34.86	32.49	27.00	N4° 47' 25"W	214670.0199	738493.8955
END					214702.3953	738491.1823

BOARDWALK: LENGTH 55', STATIONING: 400+10.79(START) - 400+65.72(END)

HORIZONTAL ALIGNMENT # 5 (LINE & CURVE TABLE)						
ID	LENGTH/ARC	CHORD LENGTH	RADIUS	LINE/CORD BEARING	START NORTHING	START EASTING
L50	20.00			N87° 06' 42"W	215234.9787	738323.4167
L51	600.00			N87° 06' 42"W	215235.9864	738303.4421
C50	17.09	16.81	27.00	S74° 45' 03"W	215266.2189	737704.2043
L52	97.26			S56° 36' 49"W	215261.7976	737687.9862
C51	6.26	6.24	27.00	S63° 15' 12"W	215208.2766	737606.7753
L53	78.07			S69° 53' 36"W	215205.4665	737601.1995
C52	48.92	45.92	40.00	S34° 51' 36"W	215178.6268	737527.8836
END					215140.9438	737501.6346

BOARDWALK: LENGTH 600', STATIONING: 500+20(START) - 506+20(END)



2
C304
TRAIL ALIGNMENT #5
SCALE: 1" = 50'

NOTE:
GRAVEL TRAIL PORTION OF ALIGNMENT #5 TO BE MONITORED BY THE STATE PARK ARCHAEOLOGIST DURING CONSTRUCTION.

CONSTRUCTION NOTES:

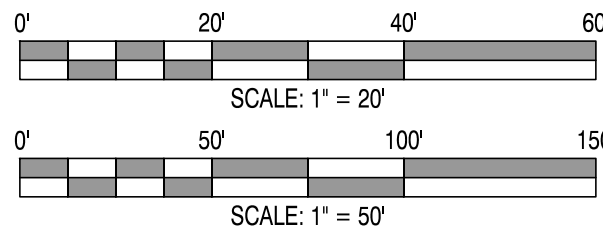
1. NEW TRAIL SHALL BE PLACED SO THAT TRAIL GRADES MATCH EXISTING GROUND ELEVATION +3".
2. EXCAVATED MATERIAL SHALL BE RE-SPREAD ON PORTIONS OF THE TRAIL TO BE ABANDONED, EXCEPT IN LOCATIONS WHERE THE EXISTING TRAIL IS LOCATED WITHIN WETLANDS.
3. NO MATERIAL SHALL BE PLACED WITHIN WETLANDS OR AREAS OUTSIDE THE PROJECT LOC.

WETLAND NOTES:

1. REMOVAL OF VEGETATION WITHIN WETLANDS SHALL BE DONE BY HAND. VEGETATION SHALL BE REMOVED SUCH THAT STUMPS ARE FLUSH WITH THE EXISTING GROUND ELEVATION. NO GRUBBING OF STUMPS OR OTHER VEGETATION SHALL OCCUR WITHIN THE WETLAND LIMITS.

GENERAL NOTES:

1. PARCEL LINES REFERENCED FROM STATE OF DELAWARE (FIRSTMAP.DELAWARE.GOV).
2. 2' LIDAR CONTOURS REFERENCED FROM STATE OF DELAWARE (FIRSTMAP.DELAWARE.GOV).
3. WETLANDS SHOWN ARE ONLY THOSE IDENTIFIED WITHIN THE LIMITS OF INVESTIGATION AND SHOULD NOT BE CONSIDERED AS ALL INCLUSIVE.



REFERENCES:

1. SEE SHEET C301 FOR TYPICAL SECTIONS.
2. SEE SHEET C308 FOR STRUCTURAL DETAILS.

REVISIONS:

DATE: DESCRIPTION:

HOLTS LANDING BOARDWALK & TRAIL IMPROVEMENTS

TRAIL ALIGNMENTS #4, #5

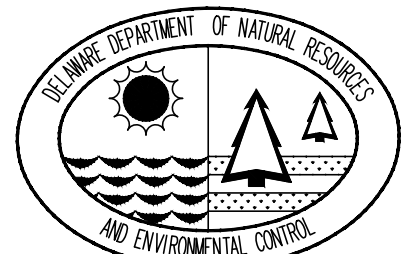
SEAL:



CIVIL ENGINEER:

CENTURY
ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901

CEI CONTRACT NO.: 125002.25



DESIGNED BY:

WJH

DRAWN BY:

DFS

CHECKED BY:

AES

DATE:

SEPTEMBER 2018

SCALE:

AS NOTED

SHEET NO.:

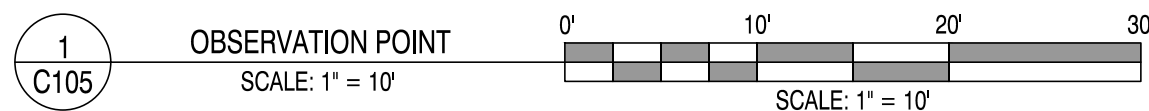
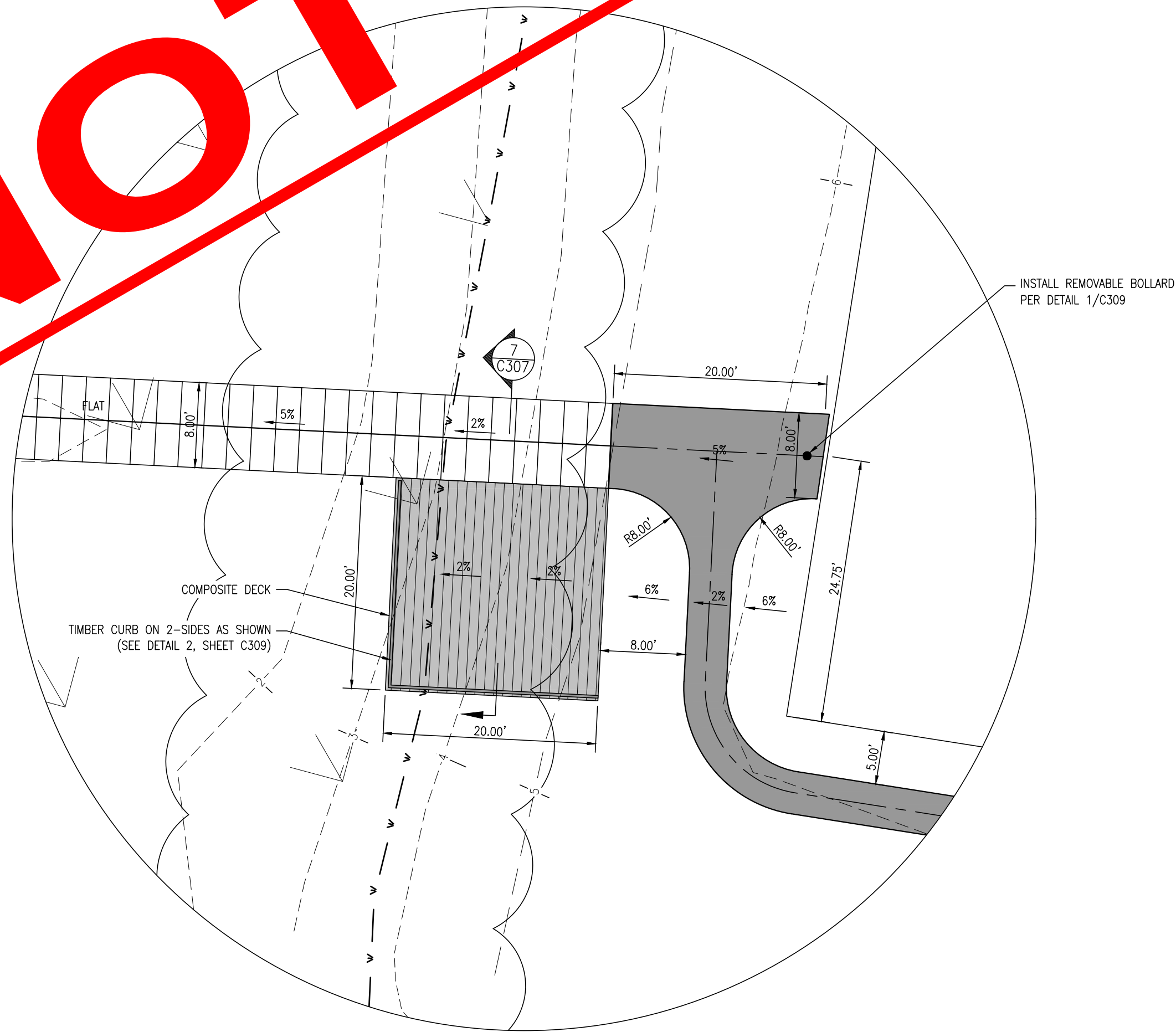
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CONTRACT NO.:

2018-HL-200

C:\PROJECTS\175013.00 [DWG] 2017 Engineering [SET] 175013.00 [Rst] Holts Landing Wetland Dedication & Permitting [CAD] FILES\Sheet\C305 - Parking Lot Site Plan.dwg, 9/14/2018 12:17 PM

NOT FOR BID



REFERENCES:

- SEE SHEET C301 FOR TYPICAL SECTIONS.

CONSTRUCTION NOTES:

- NEW PARKING LOT TRAIL SHALL BE PLACED SO THAT TRAIL GRADES MATCH EXISTING GROUND ELEVATION.
- EXCAVATED MATERIAL SHALL BE RE-SPREAD ON PORTIONS OF THE TRAIL TO BE ABANDONED, EXCEPT IN LOCATIONS WHERE THE EXISTING TRAIL IS LOCATED WITHIN WETLANDS.
- NO MATERIAL SHALL BE PLACED WITHIN WETLANDS OR AREAS OUTSIDE THE PROJECT LOC.

NOTE:

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REVISIONS:

DATE: DESCRIPTION:

BY:

HOLTS LANDING BOARDWALK & TRAIL IMPROVEMENTS

PARKING LOT SITE PLAN

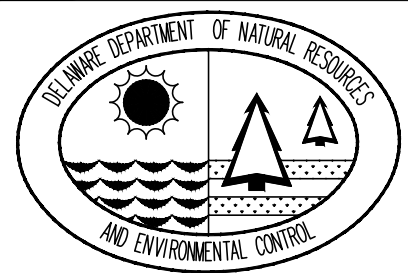
SEAL:



CIVIL ENGINEER:

CENTURY
ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901

CEI CONTRACT NO.: 125002.25



DESIGNED BY:

WJH

DRAWN BY:

DFS

CHECKED BY:

AES

DATE:

SEPTEMBER 2018

SCALE:

AS NOTED



SHEET NO.:

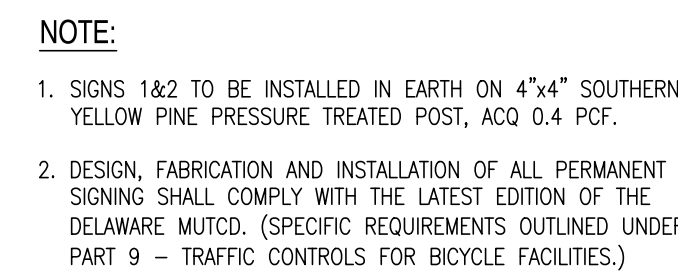
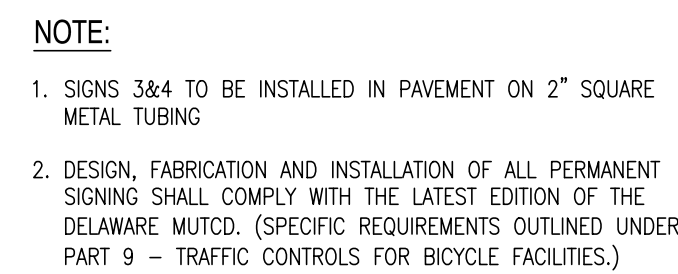
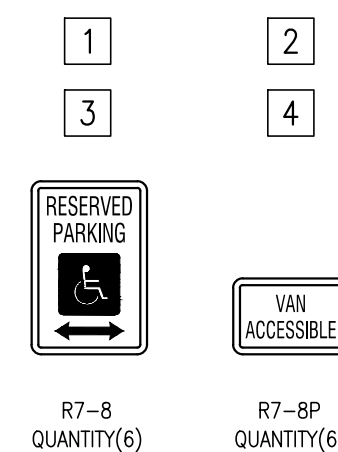
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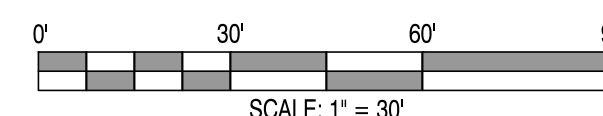
2018-HL-200






- | PAVEMENT MARKINGS LEGEND | |
|---|--|
| SYMBOL | ITEM |
|  | BLUE LATEX HANDICAP SYMBOL |
|  | REMOVE EXISTING SYMBOL PAINT, OR MASK/PAINT OVER WITH GRAY PAINT |

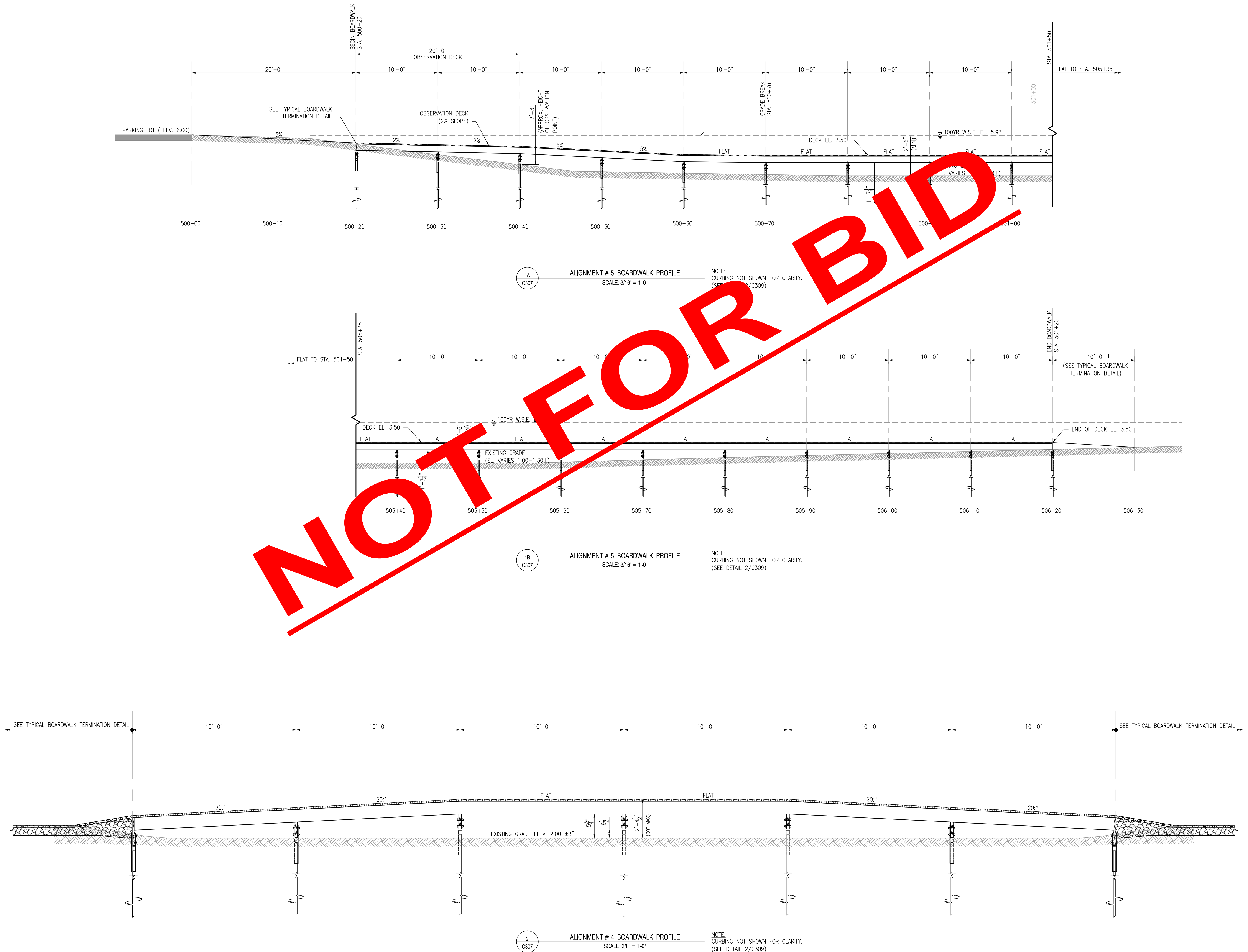


#	SHEET NO.	PLAN INDICATOR	CODE	QTY.	DESCRIPTION	SIGN WIDTH (IN)	SIGN HEIGHT (IN)	SIGN AREA (SF)	ITEM 819018 SINGLE POST (EACH)			ITEM 819019 MULTI POST (SF)			POST INSTALLATION TYPE
									SIGN DISPOSITION	REMOVE	INSTALL	SIGN DISPOSITION	REMOVE	INSTALL	
428	C308	1	R7-8	4	RESERVED PARKING (Disabilities - symbols)	12"	18"	1.5	NEW						SOIL
428	C308	2	R7-8P	4	VAN ACCESSIBLE (plaque)	12"	6"	0.5	NEW						SOIL
428	C308	3	R7-8	2	RESERVED PARKING (Disabilities - symbols)	12"	18"	1.5	NEW						HOTMIX
429	C308	4	R7-8	2	VAN ACCESSIBLE (plaque)	12"	6"	0.5	NEW						HOTMIX



		REVISIONS:	DATE:	DESCRIPTION:	BY:
HOLTS LANDING BOARDWALK & TRAIL IMPROVEMENTS	SIGNING & STRIPING PLAN				
SEAL: 					
CIVIL ENGINEER:  CENTURY ENGINEERING CONSULTING ENGINEERS, SURVEYORS 4134 N. DUPONT HWY. DOVER, DELAWARE 19901 CEI CONTRACT NO.: 125002.25					
 DESIGNED BY: WJH DRAWN BY: DFS CHECKED BY: AES DATE: SEPTEMBER 2018 SCALE: 1" = 30' SHEET NO.: C306 CONTRACT NO.: 2018-HL-200					

C:\PROJECTS\175013.00 [DWG: 2017 Engineering, CEI\175013.00] (Rdn: Landing Material Definition & Permitting)\CAD FILES\Sheet\C307 - Boardwalk Profiles.dwg, 9/14/2018 11:50 AM



REVISIONS:

DATE: DESCRIPTION:

HOLTS LANDING BOARDWALK & TRAIL IMPROVEMENTS

BOARDWALK PROFILES

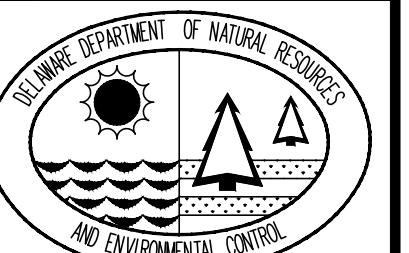
SEAL:



CIVIL ENGINEER:

CENTURY
ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901

CEI CONTRACT NO.: 125002.25



DESIGNED BY:

WJH

DRAWN BY:

DFS

CHECKED BY:

AES

DATE:

SEPTEMBER 2018

SCALE:

AS SHOWN

SHEET NO.:

C307

CONTRACT NO.:

2018-HL-200

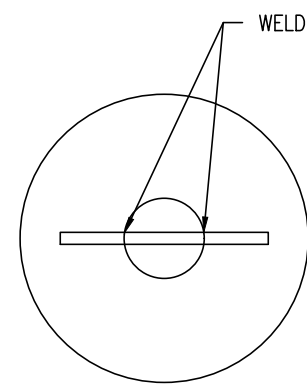
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C:\PROJECTS\17501.00 [DNREC 2017 Engineering SET] 17501.07 (State Landing Material Definition & Permitting) CAD FILES\Sheet\C309 - Construction Details.dwg, 9/14/2018 11:56 AM

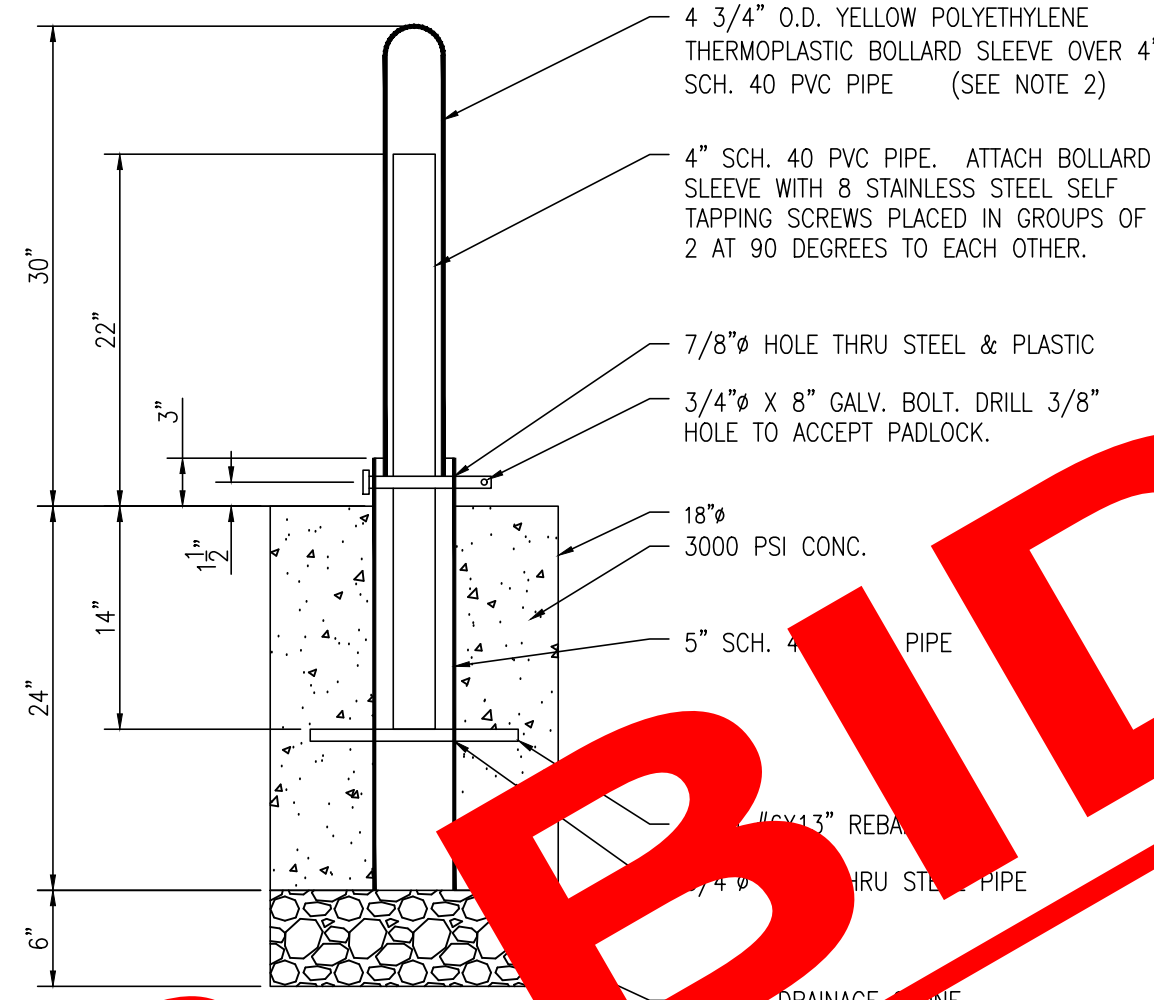
NOT FOR BID

NOTES:

1. ALL STEEL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
2. REMOVABLE BOLLARD SLEEVE IS MODEL #BPD-YL-3 1/2-66-S DISTRIBUTED BY BOLLARDS AND SLEEVES, LLC (1-800-914-4771).
3. BOLLARD TO BE PROVIDED BY THE CONTRACTOR PER DNREC PARKS SPECIFICATIONS.

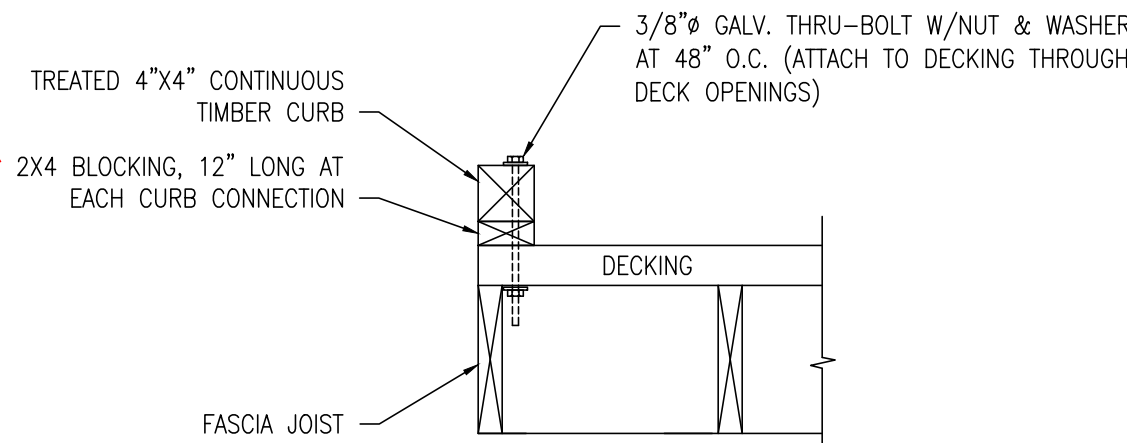


PLAN VIEW

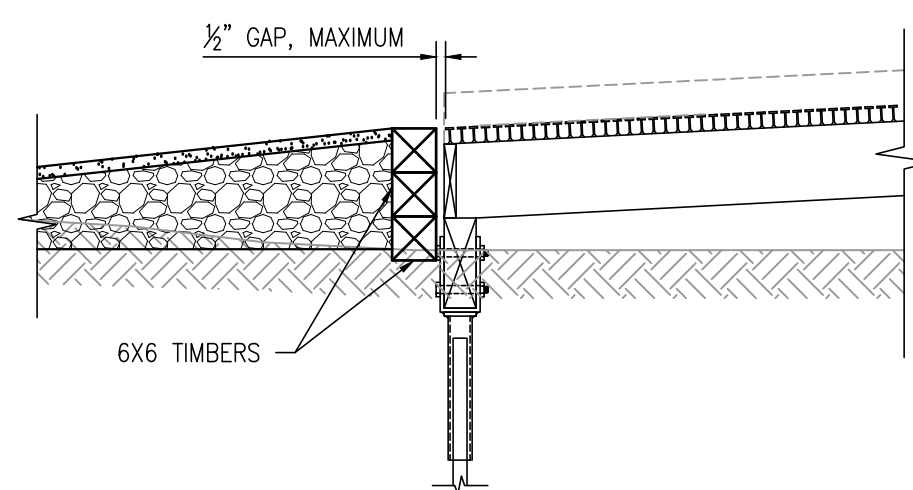


SECTION

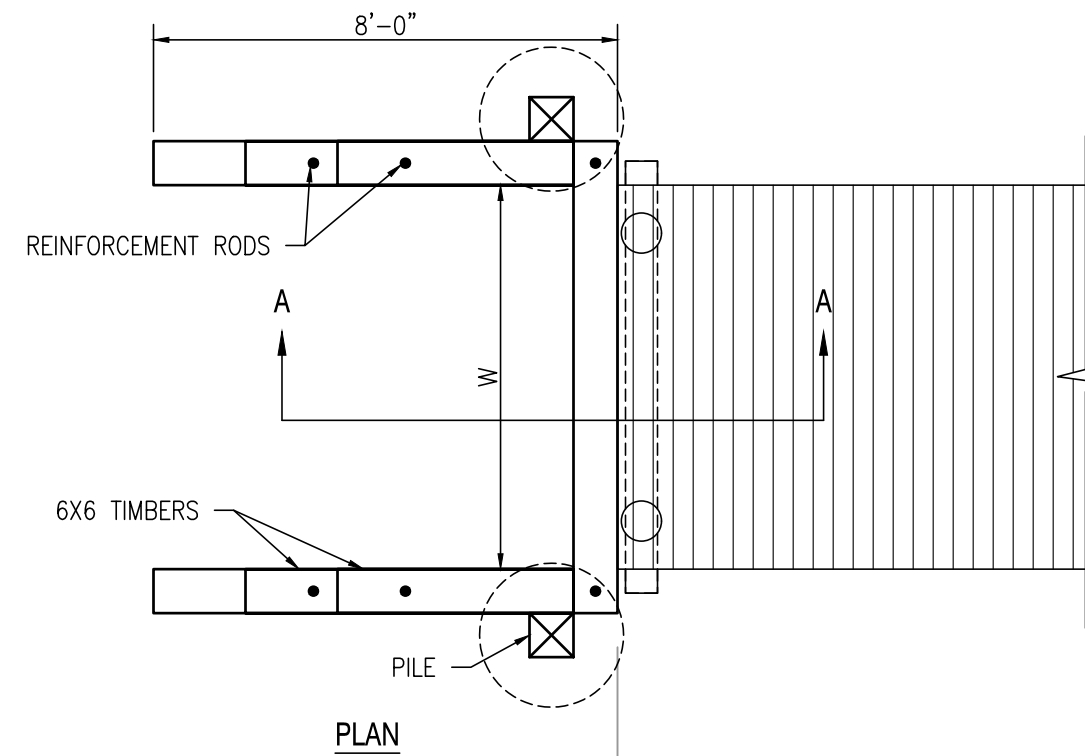
REMOVABLE BOLLARD DETAIL
SCALE: 1" = 1'-0"



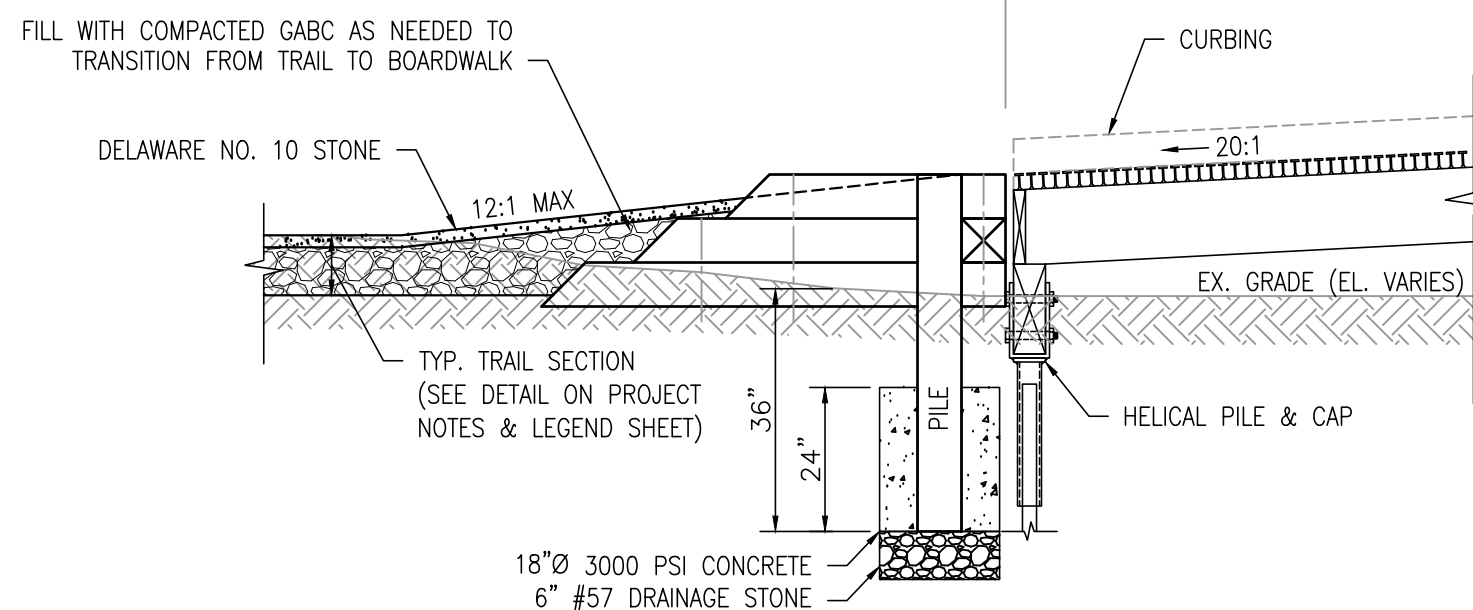
CURBING ATTACHMENT DETAIL
SCALE: 1" = 1'-0"



SECTION A-A



PLAN



ELEVATION

MATERIALS:

- TIMBERS/PILES: 6X6 TREATED SYP.
- REINFORCEMENT RODS: #5

3
C309

TYPICAL BOARDWALK TERMINATION DETAIL
SCALE: NONE

REVISIONS:

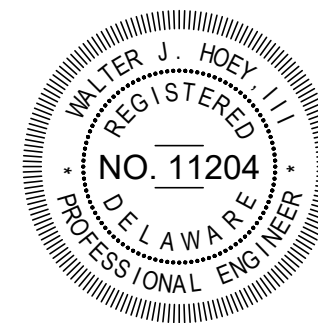
DATE: BY:

DESCRIPTION:

HOLTS LANDING BOARDWALK & TRAIL IMPROVEMENTS

CONSTRUCTION DETAILS

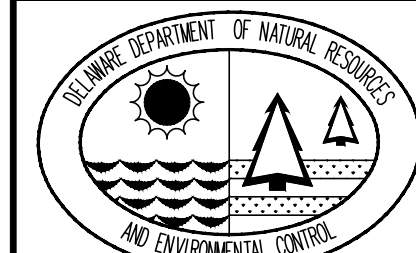
SEAL:



CIVIL ENGINEER:

CENTURY
ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901

CEI CONTRACT NO.: 125002.25



DESIGNED BY:

WJH

DRAWN BY:

DFS

CHECKED BY:

AES

DATE:

SEPTEMBER 2018

SCALE:

AS SHOWN

SHEET NO.:

C309

CONTRACT NO.:

2018-HL-200

Standard Detail & Specifications

Construction Site Waste Mgt & Spill Control

DATA TO BE PROVIDED

Volume of Potential Pollution
Height of containment
Area of containment
Volume of containment

Fuel Tank

Double layer plastic sheeting, or approved equal

Min. 8" compost log or DE # 5

Stone berm

Stake as required per compost log manufacturer guidelines

Double layer plastic sheeting

Fuel Tank

Spill containment Area

Source:

Delaware ESC Handbook

Symbol:

Detail No.

DE-ESC-3.6.1

Sheet 1 of 5

Effective April 2016

Standard Detail & Specifications

Construction Site Waste Mgt & Spill Control

Pollution Prevention – Spill Prevention

1. Fueling should only take place in signed designated areas, away from downstream drainage facilities and watercourses.
2. Fueling must be with nozzles equipped with automatic shut-off to control drips. Do not top off.
3. Protect the areas where equipment or vehicles are being repaired, maintained, fueled or parked from storm water run-on and runoff.
4. Use barriers such as berms to prevent storm water run-on and runoff, and to contain spills.
5. Place a "Fueling Area" sign next to each fueling area.
6. Store hazardous materials such as fuel, solvents, oil and chemicals in secondary containment.
7. Inspect vehicles and equipment for leaks on each day of use. Repair fluid and oil leaks immediately.
8. Absorbent spill clean-up materials and spill kits must be available in fueling areas and on fuel trucks.
9. If fueling is to take place at night, make sure the fueling area is sufficiently illuminated.
10. Properly dispose of used oil, fluids, lubricants and spill clean-up materials.
CLEAN UP SPILLS
1. If it is safe to do so, immediately contain and clean up any chemical and/or hazardous material spills.
2. Properly dispose of used oil, fluids, lubricants and spill clean-up materials.
3. Do not bury spills or wash them down with water.
LEAKS AND DRIPS
1. Use drip pans or absorbent pads at all times. Place under and around leaky equipment.
2. Do not allow oil, grease, fuel or chemicals to drip onto the ground.
3. Have spill kits and clean up material on-site.
4. Repair leaky equipment promptly or remove problem vehicles and equipment from the site. Clean up contaminated soil immediately.
5. Store contaminated waste in sealed containers constructed of suitable material. Label these containers properly.
6. Clean up all spills and leaks. Promptly dispose of waste and spent clean up materials.

Source:

Delaware ESC Handbook

Symbol:

Detail No.

DE-ESC-3.6.1

Sheet 1 of 5

Effective April 2016

Standard Detail & Specifications

Construction Site Waste Mgt & Spill Control

Notes:

The Construction Site Pollution Prevention Plan should include the following elements:
1. Material Inventory
Document the storage and use of the following materials:
a. Concrete
b. Detergents
c. Paints (enamel and latex)
d. Cleaning solvents
e. Pesticides
f. Wood scraps
g. Fertilizers
h. Petroleum based products
2. Good housekeeping practices
a. Store only enough product required to do the job.
b. All materials shall be stored in a neat, orderly manner in original labeled containers and covered.
c. Substances shall not be mixed.
d. When possible, the container shall be used up prior to disposal of the container.
e. Manufacturer's instructions for disposal shall be strictly adhered to.
f. The site manager shall designate someone to inspect all BMS daily.
3. Waste management practices
a. All waste materials shall be collected and stored in securely lidded dumpsters in a location that does not lead to a waterbody.
b. All waste materials shall be salvaged and/or recycled whenever possible.
c. Dumpsters shall be emptied a minimum of twice per week, or more if necessary. The site manager shall be responsible for cleaning out dumpsters.

Source:

Adapted from USEPA Pub. 840-B-92-002

Symbol:

Detail No.

DE-ESC-3.6.1

Sheet 3 of 5

Effective April 2016

Standard Detail & Specifications

Construction Site Waste Mgt & Spill Control

Notes (cont.)

d. Trash shall be disposed of in accordance with all applicable Delaware laws.
e. Trash cans shall be placed at all lunch spots and littering is strictly prohibited. Recycle bins shall be placed near the construction trailer.
f. If fertilizer bags can not be stored in a weather-proof location, they shall be kept on a pallet and covered with plastic sheeting which is overlapped and anchored.
Equipment maintenance practices
a. If possible, equipment should be taken to off-site commercial facilities for washing and maintenance.
b. If performed on-site, vehicles shall be washed with high-pressure water spray without detergents in an area contained by an impervious berm.
c. Drip pans shall be used for all equipment maintenance.
d. Equipment shall be inspected for leaks on a daily basis.
e. Washout from concrete trucks shall be disposed of in a temporary pit for hardening and proper disposal.
f. Fuel nozzles shall be equipped with automatic shut-off valves.
g. All used products such as oil, antifreeze, solvents and tires shall be disposed of in accordance with manufacturers' recommendations and local, state and federal laws and regulations.
5. Spill prevention practices
a. Potential spill areas shall be identified and contained in covered areas with no connection to the storm drain system.
b. Warning signs shall be posted in hazardous material storage areas.
c. Preventive maintenance shall be performed on all tanks, valves, pumps, pipes and other equipment as necessary.
d. Low or non-toxic substances shall be prioritized for use.

Source:

Adapted from USEPA Pub. 840-B-92-002

Symbol:

Detail No.

DE-ESC-3.6.1

Sheet 4 of 5

Effective April 2016

Standard Detail & Specifications

Construction Site Waste Mgt & Spill Control

Notes (cont.)

e. Contact information for reporting spills through the DNREC 24-Hour Toll Free Number shall be prominently posted.
6. Education
a. Best management practices for construction site pollution control shall be a part of regular progress meetings.
b. Information regarding waste management, equipment maintenance and spill prevention shall be prominently posted in the construction trailer.

CONTACT INFORMATION

DNREC 24-Hour Toll Free Number

800-662-8802

DNREC Solid & Hazardous Waste Branch

302-739-9403

Source:

Adapted from USEPA Pub. 840-B-92-002

Symbol:

Detail No.

DE-ESC-3.6.1

Sheet 5 of 5

Effective April 2016

Standard Detail & Specifications

Sensitive Area Protection

Drip line

Protective fence

Limit of disturbance

Proposed grading

Min.

5'

Location of Sensitive Area Protection

Drip line

Snow fence

Board fence

Cord fence

Plastic fence

Methods of Sensitive Area Protection

Source:

Adapted from VA ESC Handbook

Symbol:

Detail No.

DE-ESC-3.7.2

Sheet 1 of 3

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Standard Detail & Specifications

Sensitive Area Protection

Construction Notes:

Fencing shall be installed at the extents of all sensitive areas. For trees, the fencing shall be installed outside the dripline (mature canopy) and at no time within 5 feet of the trunk. Personnel must be instructed to honor protective devices. The devices described are suggested only, and are not intended to exclude the use of other devices which will protect the trees to be retained. If silt fence is to be used for demarcation purposes, appropriate signage shall be provided a minimum of every 20 feet denoting the area as a sensitive area protection zone.
Materials:
1. Snow Fence - Standard 40-inch high snow fence shall be placed at the limits of clearing or construction on standard steel posts set 6 feet apart.
2. Board Fence - Board fencing consisting of 4-inch square posts set securely in the ground and protruding at least 4 feet above the ground shall be placed at the limits of clearing with a minimum of two horizontal boards between posts. For tree protection, if it is not practical to erect a fence at the drip line, construct a triangular fence nearer the trunk. The limits of clearing will still be located at the drip line, since the root zone within the drip line will still require protection.
3. Plastic Fencing - 40-inch high "international orange" plastic (polyethylene) web fencing secured to conventional metal "T" or "U" posts driven to a minimum depth of 18 inches on 6-foot minimum centers shall be installed at the limits of clearing. The fence should have the following minimum physical qualities:
a. Tensile yield: Average 2,000 lbs. per 4-foot width (ASTM D638)
b. Ultimate tensile yield: Average 2,900 lbs. per 4-foot width (ASTM D638)
c. Elongation at break (%): Greater than 1000% (ASTM D638)
d. Chemical resistance: Inert to most chemicals and acids

Source:

Adapted from VA ESC Handbook

Symbol:

Detail No.

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Standard Detail & Specifications

Sensitive Area Protection

4. Cord Fence - Posts with a minimum size of 2 inches square or 2 inches in diameter set securely in the ground and protruding at least 4 feet above the ground shall be placed at the limits of clearing with two rows of cord 1/4-inch or thicker at least 2 feet apart running between posts with strips of colored surveyor's flagging tied securely to the string at intervals no greater than 3 feet.
5. Earth Berms - Temporary earth berms shall be constructed according to specifications for a Temporary Earth Dike with the base of the berm on the sensitive area side located along the limits of clearing. Earth berms may not be used for this purpose if their presence will conflict with drainage patterns.
6. Trunk Armoring (Tree Protection Only) - As a last resort, a tree trunk can be armored with burlap wrapping and 2-inch studs wired vertically no more than 2 inches apart to a height of 5 feet encircling the trunk. If this alternative is used, the root zone within the drip line will still require protection. Nothing should ever be nailed to a tree.
Maintenance:
Fencing and armoring devices shall be in place before any excavation or grading is begun, shall be kept in good repair for the duration of construction activities, and shall be the last items removed during the final cleanup after the completion of the project.

Source:

Adapted from VA ESC Handbook

Symbol:

Detail No.

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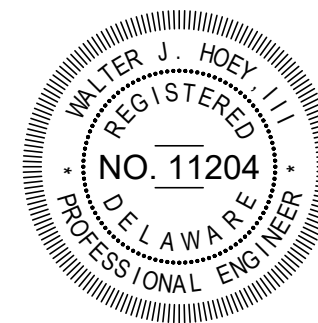
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REVISIONS:
DATE: DESCRIPTION:

HOLTS LANDING BOARDWALK & TRAIL IMPROVEMENTS

EROSION & SEDIMENT CONTROL DETAILS

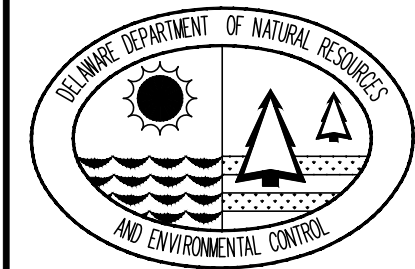
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CIVIL ENGINEER:

CENTURY
ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901

CEI CONTRACT NO.: 125002.25



DESIGNED BY:

WJH

DRAWN BY:

DFS

CHECKED BY:

AES

DATE:

SEPTEMBER 2018

SCALE:

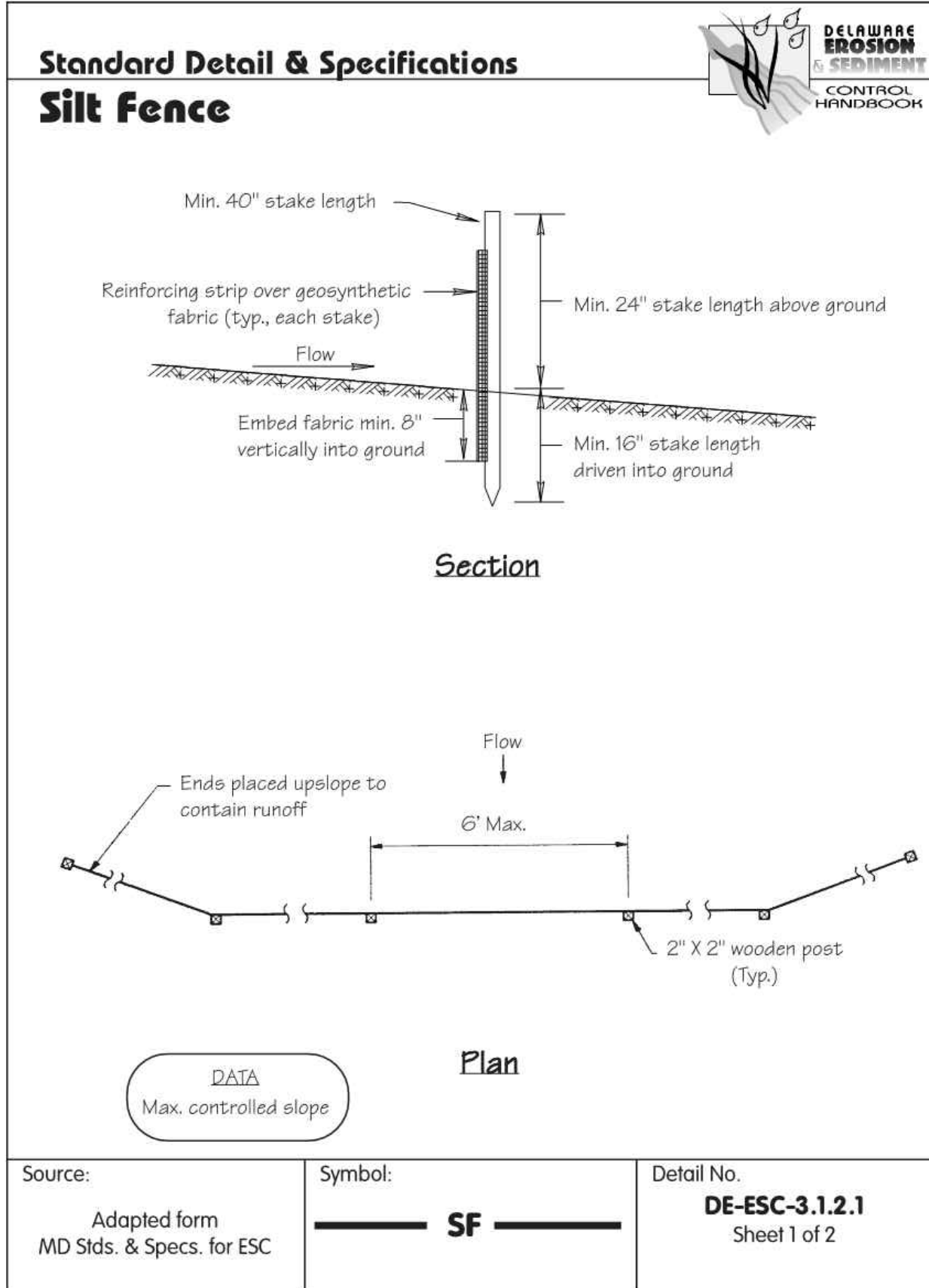
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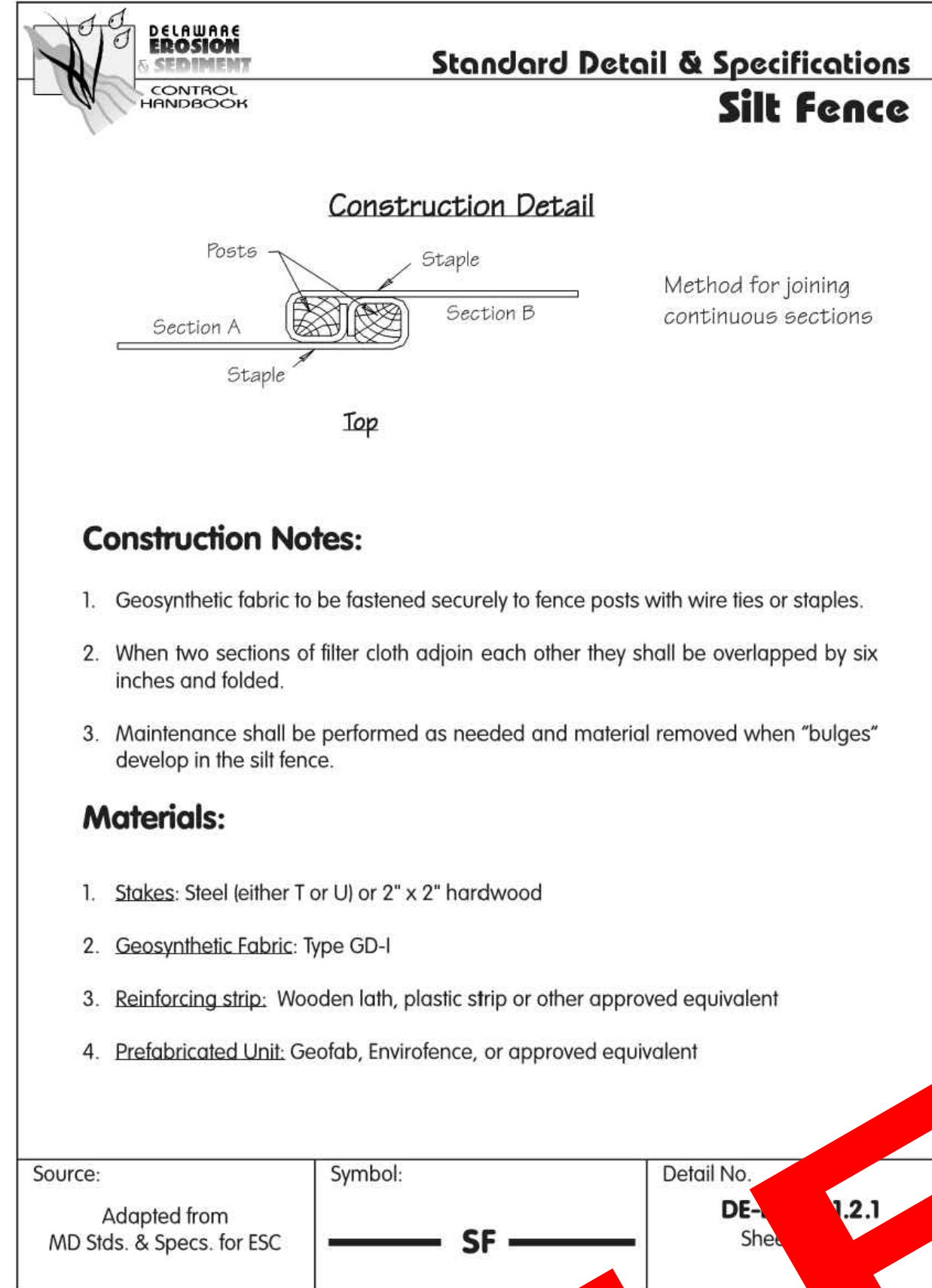
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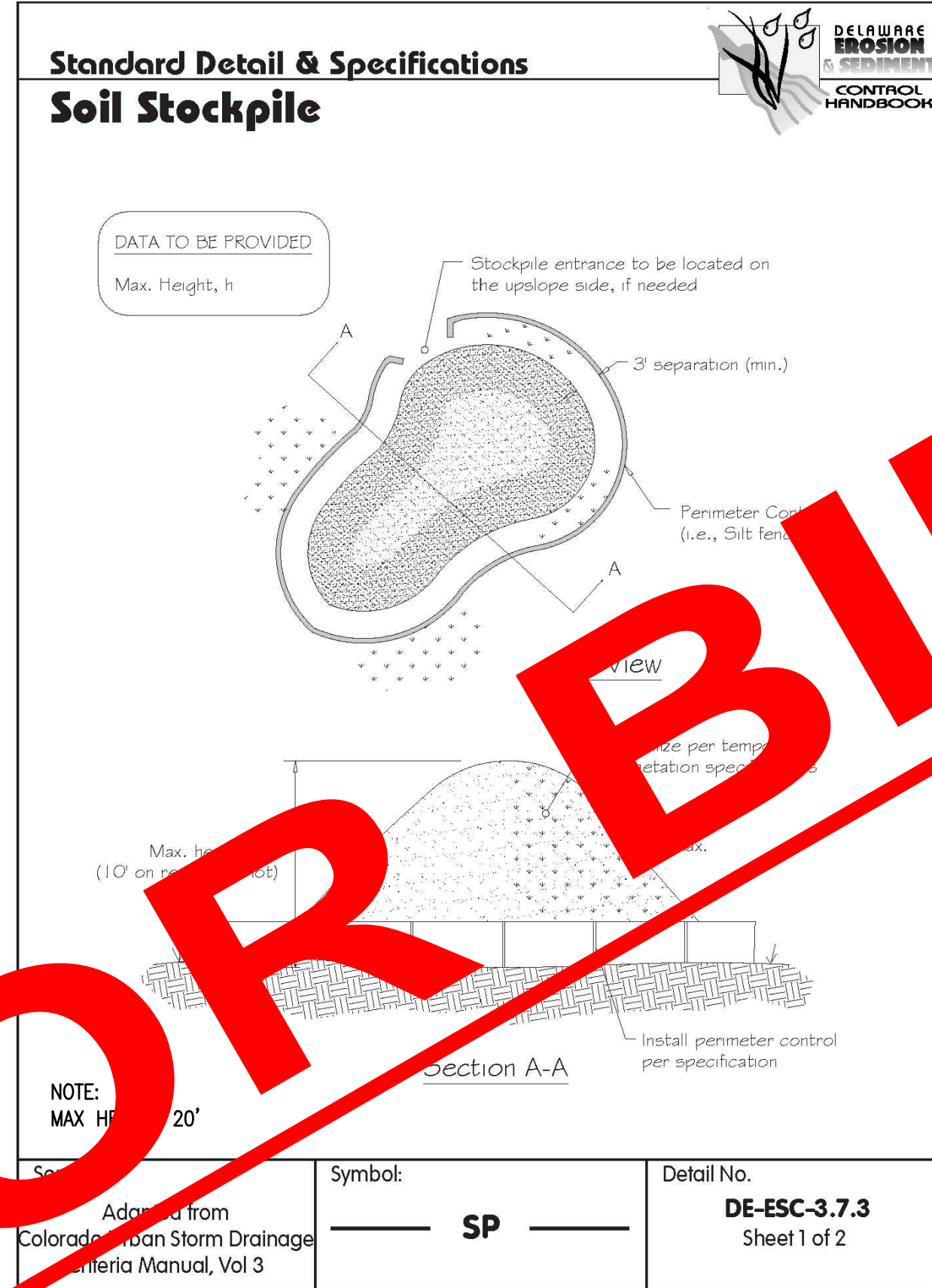
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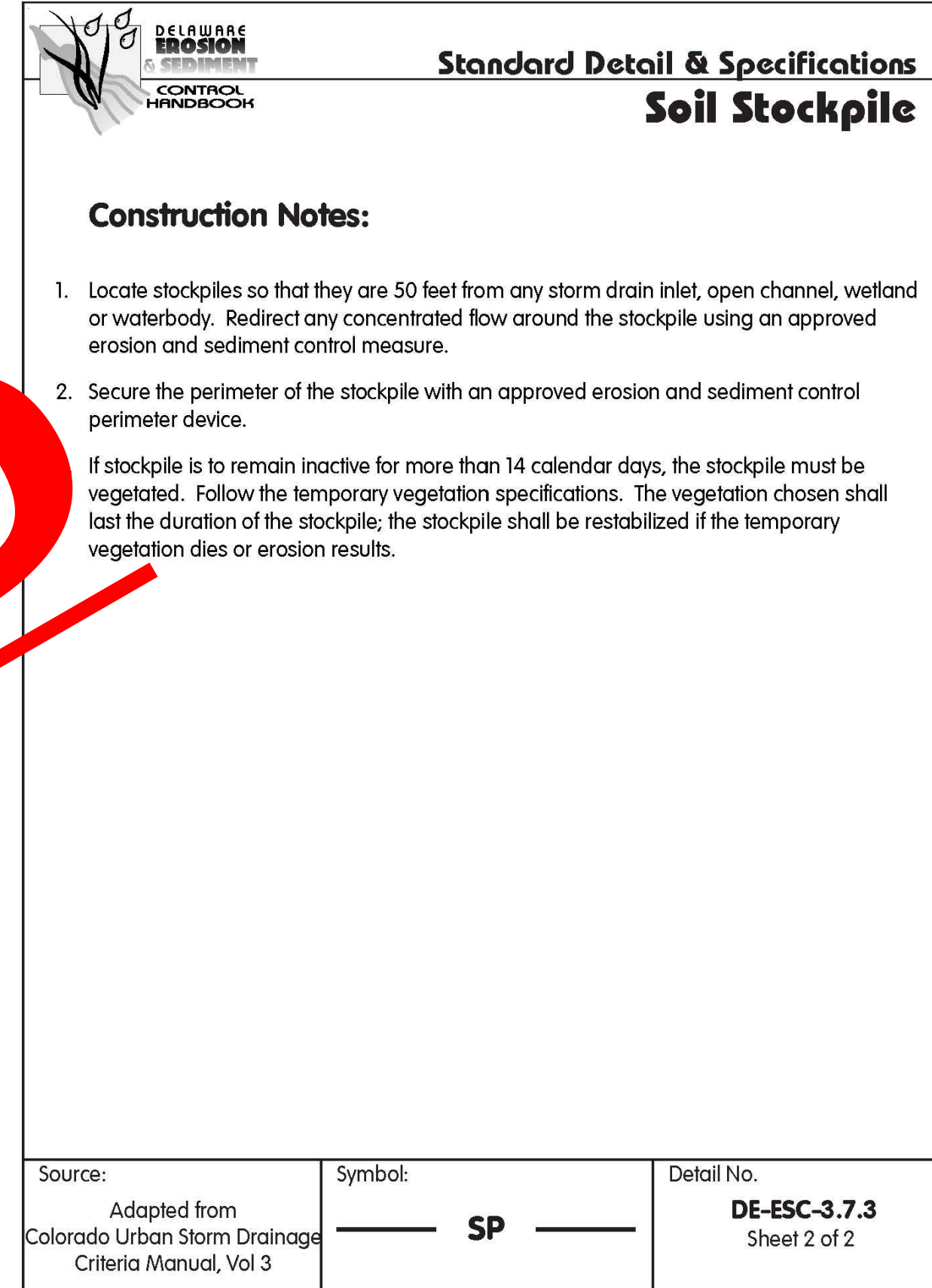
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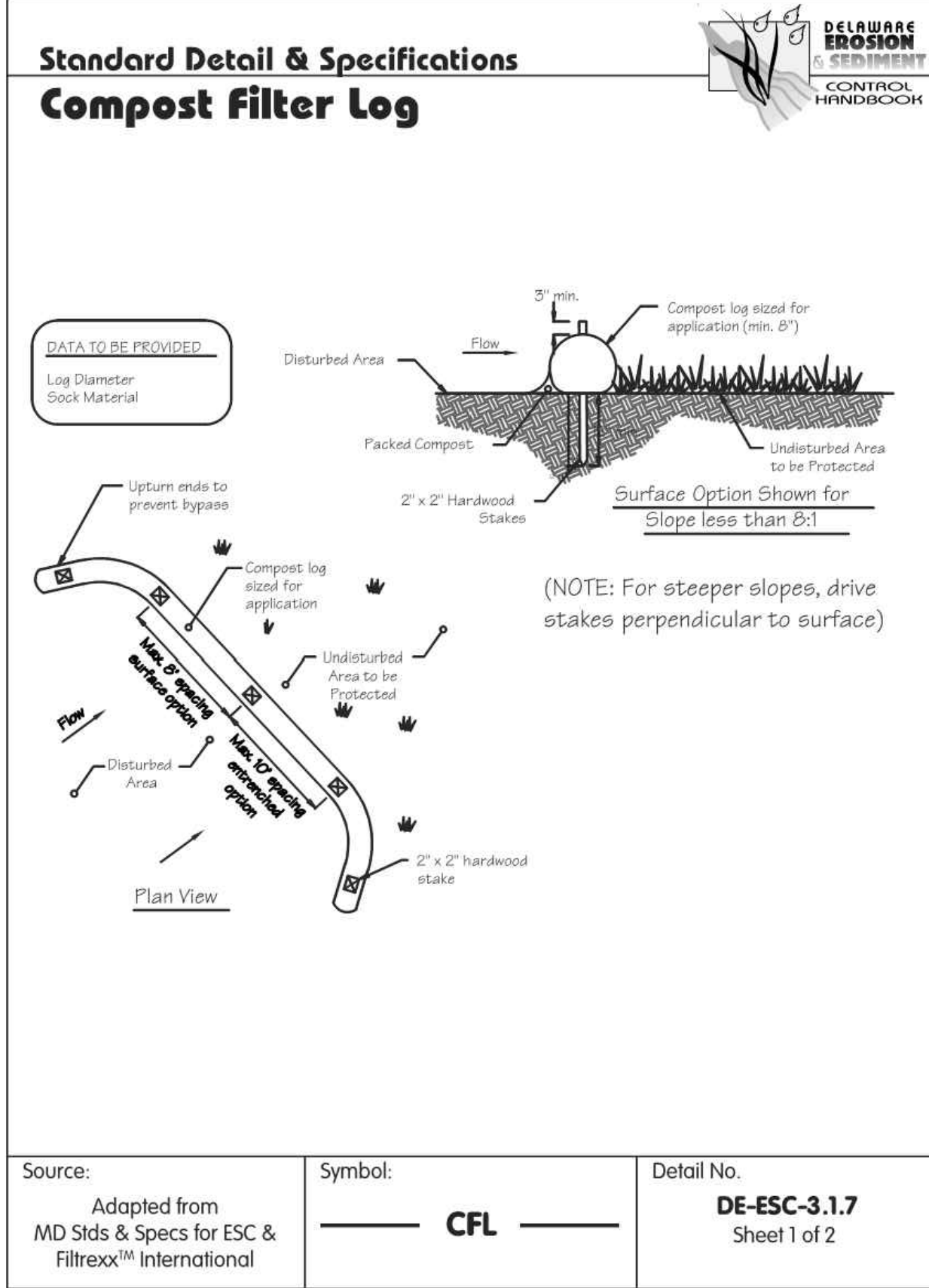
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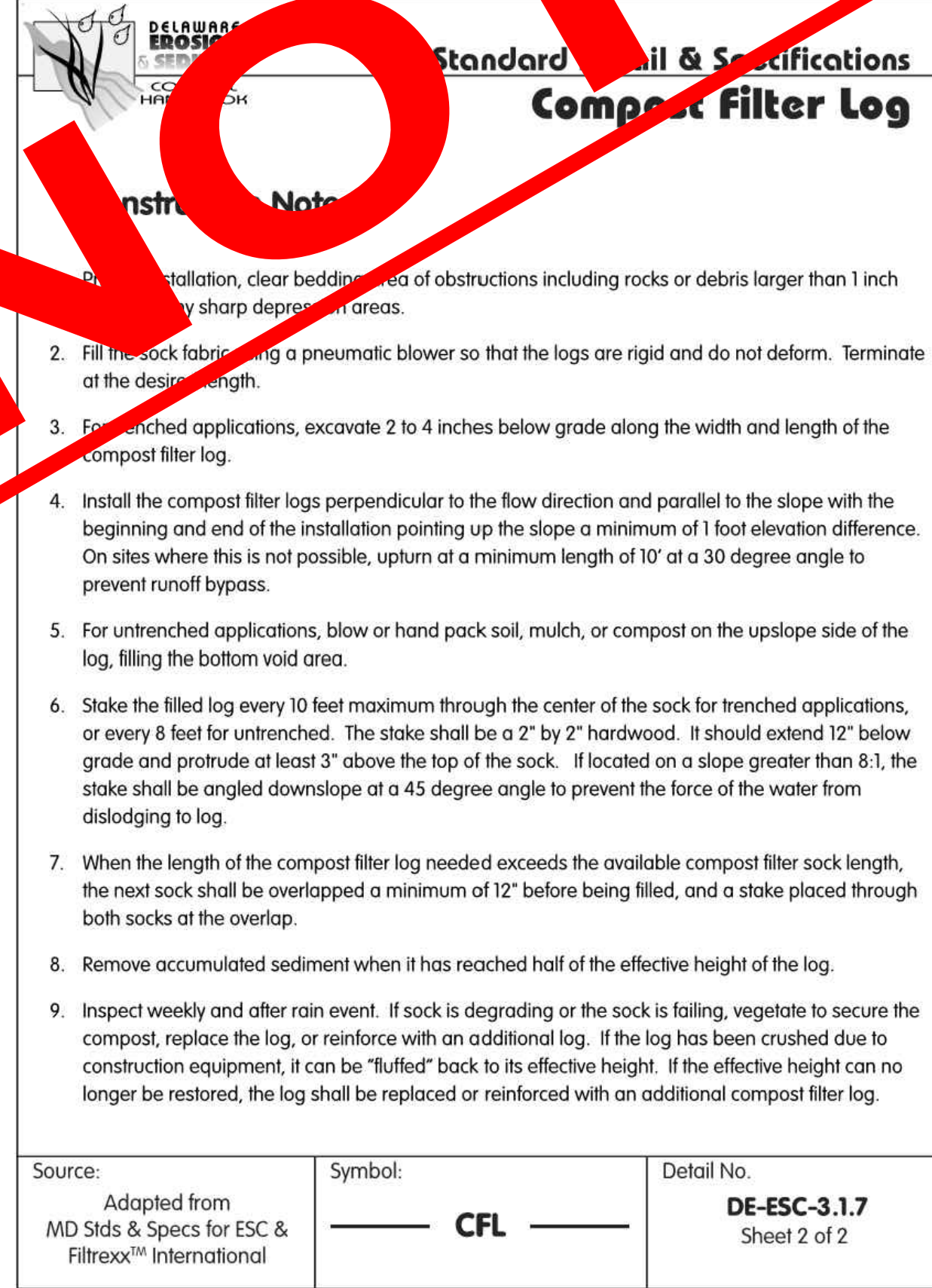
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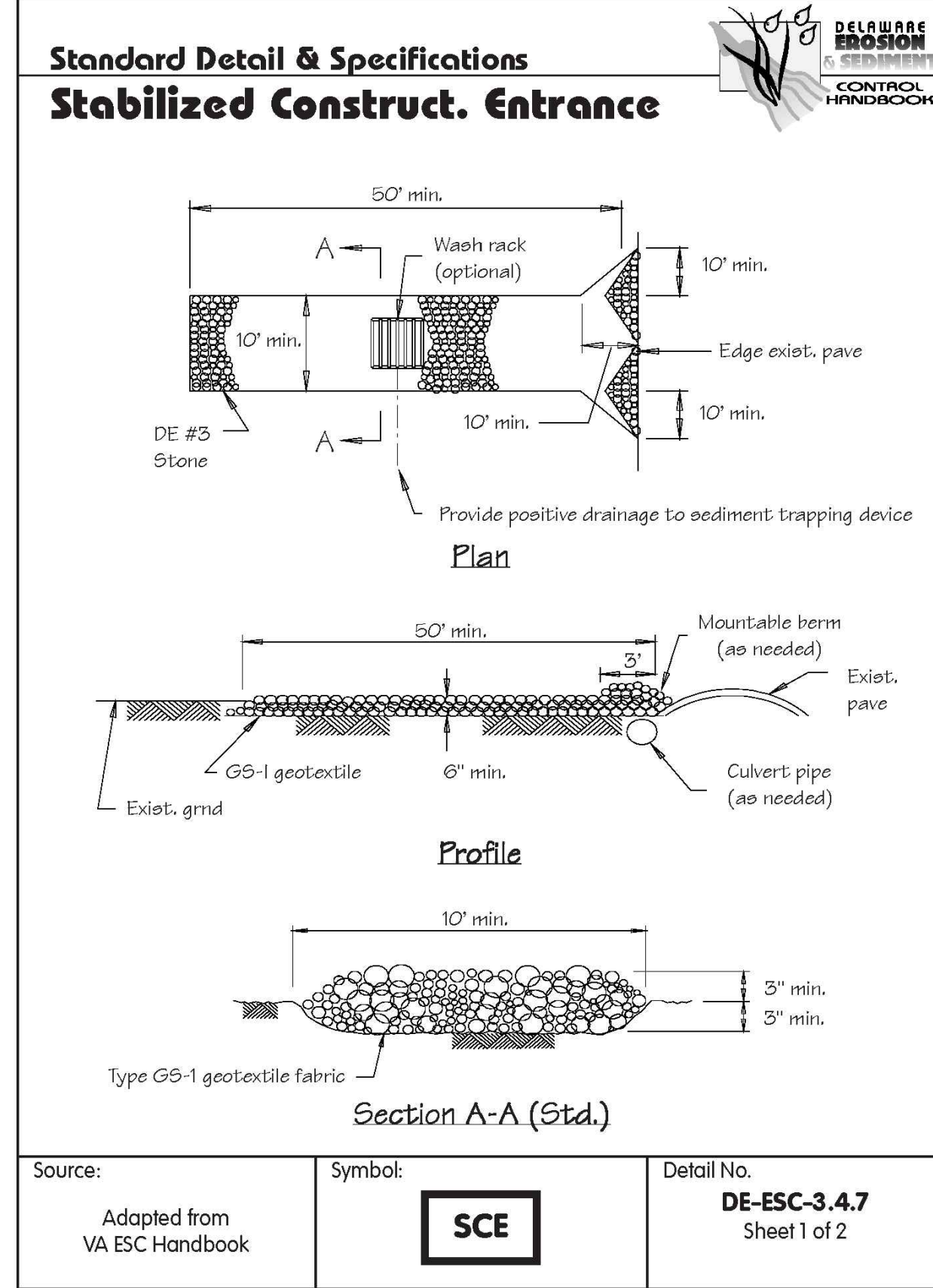
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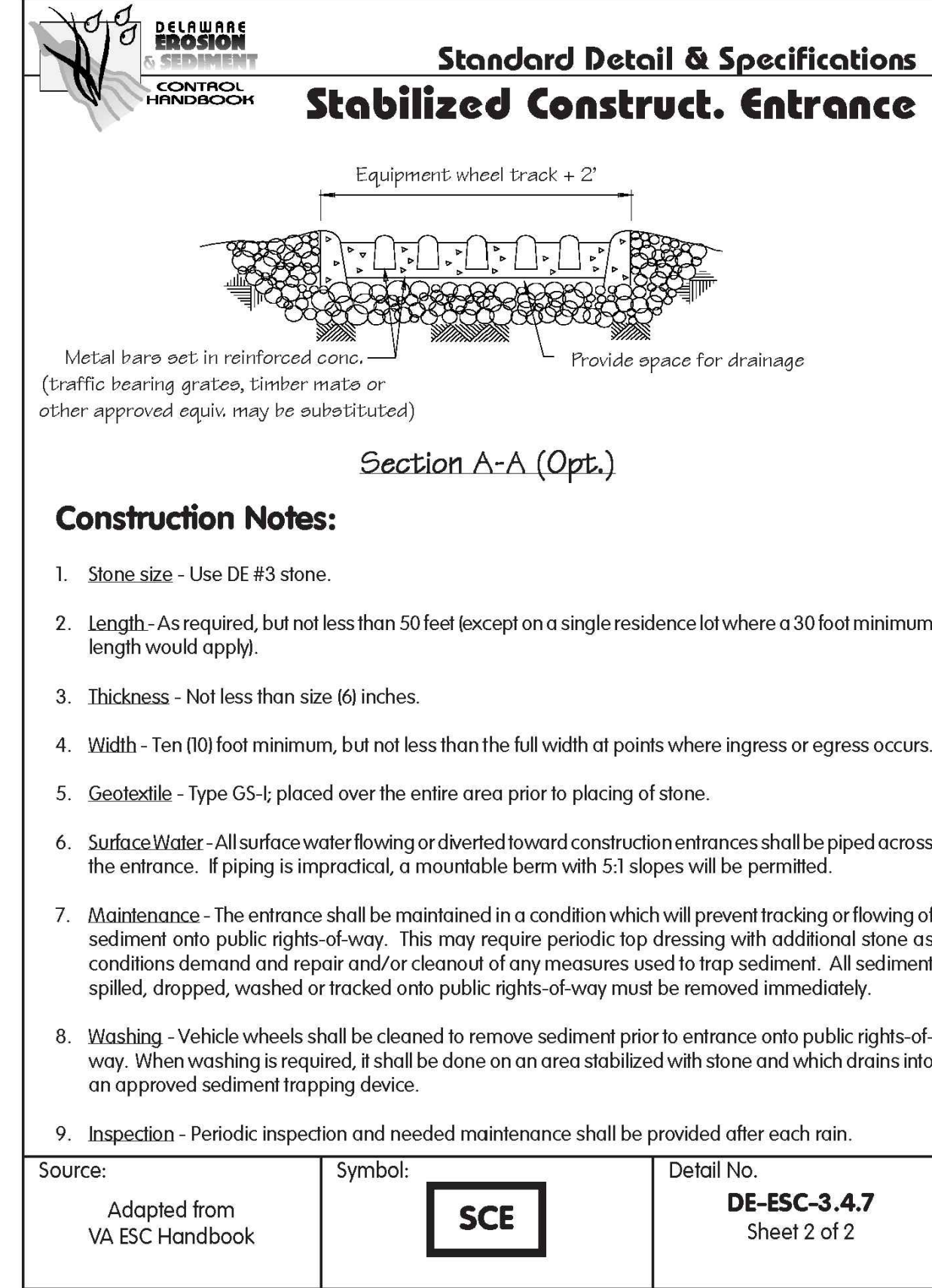
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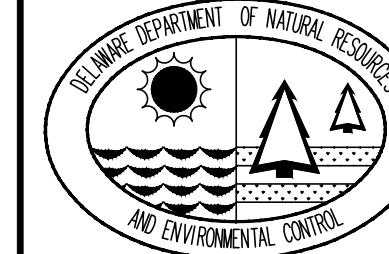
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