



State of Delaware
Department of Natural Resources and Environmental Control
Delaware Division of Parks and Recreation
89 Kings Highway
Dover, Delaware 19901

**CONTRACT DOCUMENTS & TECHNICAL
SPECIFICATIONS ADDENDUM NO. 3**

**Fork Branch
Nature
Preserves Trail
Contract No. 2017-FBNP-100**

ADDENDUM NO. 3

Project Name: Fork Branch Nature Preserves Trail

Contract No.: 2017-FBNP-100

Date of Issue: August 11, 2017

Notice No. : Attach this addendum to the Project Manual for this project. It modifies and becomes part of the Bidding Documents. Work or material not specifically mentioned herein is to be as described in the main body of the specifications and as shown on the drawings.

Bids Due: September 12, 2017, 1:00 PM

"DNREC CONTRACT NO. 2017-FBNP-100 SEALED BID – DO NOT OPEN"

Dept. of Natural Resources & Environmental Control
Division of Parks and Recreation
Office of Design and Development
89 Kings Highway, Dover DE 19901
Attn: Cindy A. Todd, RLA. Phone Number: 302-739-9210

QUESTIONS:

1. The DelDOT permit is expired, do you have an updated one?
 - *The contractor is required to submit the Entrance Safety Permit Application to DelDOT's Central District Office in order to obtain a new Safety Permit to overlay the existing entrance with asphalt. The required maintenance of traffic (MOT) to overlay the entrance must be included in the based bid.*

2. Since there is not a detail for each individual bridge, can you provide an actual number of helical anchors anticipated?
 - *Please refer to plansheet C-9 for the lengths of the proposed boardwalks, and the spacing between each row of helical pile is noted on the boardwalk elevation detail. Also, the contractor should install the center span for the boardwalks as noted in the Trail Boardwalk Detail on Sheet C-9 only at the stream crossing locations.*

3. On the drawing, page C-10, on the detail top center of the page 5/S1.2, the pier cap has attachment for lateral support option. Are these still required since the lateral supports were removed during Addendum 1?
 - *The lateral supports have been removed from the plans, and any details about the lateral support are no longer applicable.*

4. I want to clarify, are all trees removed for this project to be left on site?
 - *All removed trees with a diameter greater than 3-inches should be stacked neatly and left at the project site.*

5. I understand that is the contractor responsibly to get the building and the DELDOT entrance permits. Will DNREC supply any addition information if needed to obtain any of the permits?
 - *DNREC will provide any pertinent information to the contractor to facilitate the submittal of the permit application to the local agency.*

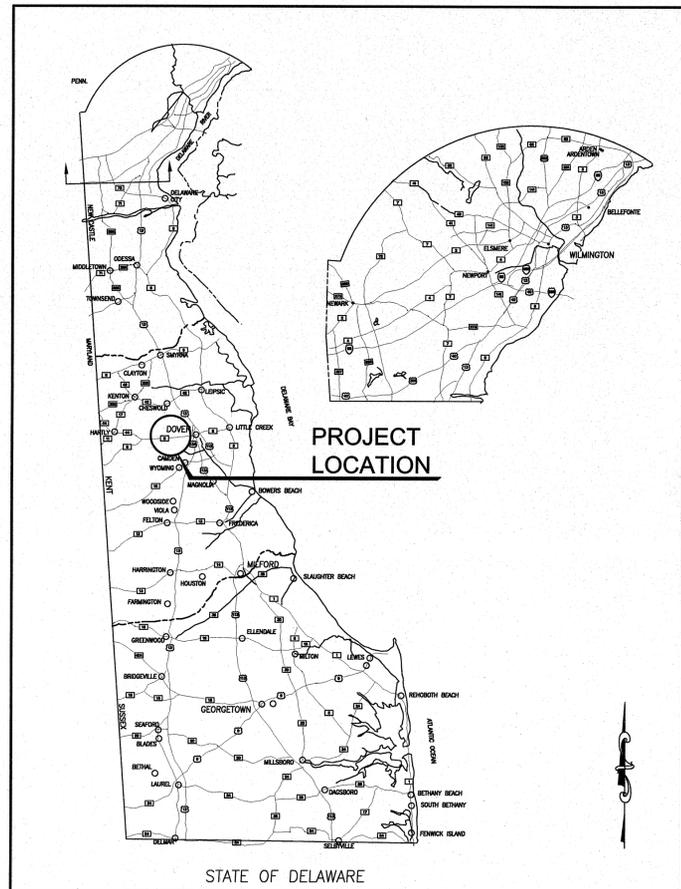
6. Will DNREC pay for the permits?
 - *There is no fee associated with the DelDOT Entrance Safety Permit, but the contractor should include the cost of any permits associated with the project to the base bid.*

7. Will DNREC supply the bidders with a signed and sealed set of plans?
 - *A signed and sealed plans set is enclosed for your use.*

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

FORK BRANCH NATURE PRESERVE PROPOSED TRAIL SYSTEM

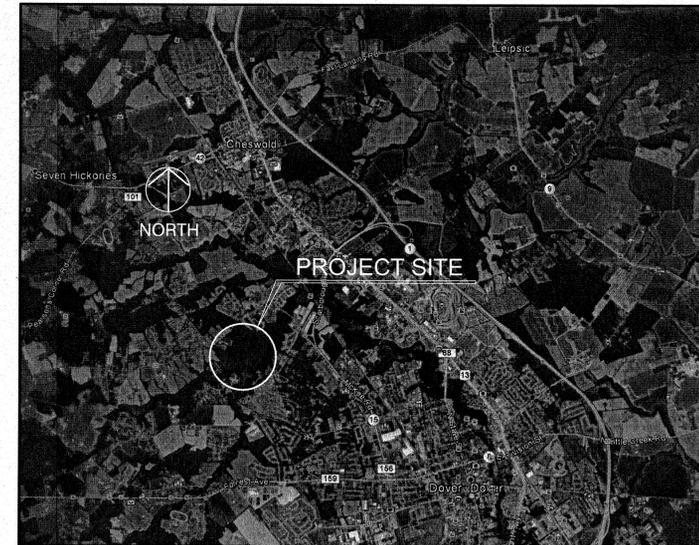
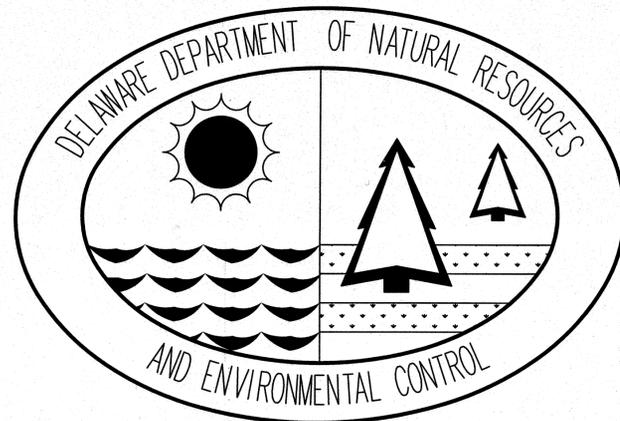
KENTON ROAD, DOVER, DE 19904



LOCATION MAP

CONTRACT NO.: 2017-FBNP-100

AUGUST 8, 2017
 ISSUED FOR BID



SITE MAP

INDEX OF SHEETS FOR CONTRACT NO.
 2017-FBNP-100

SHEET NO.	TITLE
G-01	COVER SHEET
G-02	GENERAL NOTES, ABBREVIATIONS & SYMBOLS
C-01	PROPOSED TRAIL SYSTEM
C-02	SITE PLAN
C-03	TRAIL & PARKING LOT SECTIONS AND DETAILS
C-04	SITE ALIGNMENT & GRADING
C-05	SITE ALIGNMENT & GRADING
C-06	SITE ALIGNMENT & GRADING
C-07	SITE ALIGNMENT & GRADING
C-08	SITE ALIGNMENT & GRADING
C-09	BOARDWALK PLAN
C-10	BOARDWALK PLAN

PARKS PROJECT NO. FBNP-1



DATE:	DESCRIPTION:	BY:
DATE:	DESCRIPTION:	BY:
FORK BRANCH NATURE PRESERVE		
COVER SHEET		
DESIGNED BY:	O.D.D.	
DRAWN BY:	O.D.D.	
BUILDING NO.:	N/A	
DATE:	08\08\2017	
SCALE:	N.T.S.	
SHEET NO.:	G-01	
PARKS PROJECT #:	FBNP-1	
CONTRACT #:	2017-FBNP-100	

General Notes

- The boundary lines portrayed hereon have been established based solely on physical evidence discovered in the field in conjunction with determinations derived from source of title and adjacent deed record information.
- Delaware regulations prohibit the burial of construction demolition debris, including trees and stumps on construction sites. Any solid waste found during excavation must be removed and properly discarded.
- All handicapped parking demarcation, stalls, and building accessible routes shall comply with the "Americans with Disabilities Act".
- This drawing does not include necessary component for construction safety. All construction must be done in compliance with the occupational safety and health act of 1970 and all rules and regulations thereto appurtenant.
- All materials and workmanship within the State of Delaware right-of-way shall be in accordance with current State of Delaware department of transportation standard specifications for road and bridge construction, Supplemental specifications, standard construction details, special provisions and design guidance memorandums.
- The limit of disturbance shall be as shown on the plans. The contractor shall not work or trespass outside of the limit of disturbance as shown on the plans unless otherwise approved by the owner.
- Approved covers to prevent material from leaving the trucks must be installed over all loaded trucks hauling borrow, excavated materials, and/or fine aggregates to or from the project site over state maintained roads the trucks shall be fully covered and the covers shall be tied on the rear and both sides to prevent material from leaving the truck during hauling.
- 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 owner.
- All construction access shall use the stabilized construction entrances. Construction, maintenance, cleaning, re-compacting, removal and replacement of the base course materials for the stabilized, construction entrance shall be in accordance with the approved sediment and stormwater management plan as directed by the certified construction reviewer and the owner. The contractor is responsible for cleaning the road at the construction entrance at the end of each working day.

10. Staging areas:
Proper erosion and sediment control measures as determined by the owner shall be installed in all staging areas. All areas used by the contractor for staging operations shall be fully restored by the contractor upon completion of the project. If the staging area is paved, it shall be restored to its original condition. If the staging area is unpaved, it shall be re-graded, topsoiled, seeded and mulched in accordance with the Delaware erosion and sediment control handbook, current version (hereafter known as the handbook), to the satisfaction of the owner. The seed shall adhere to

the specifications of permanent seed mix #5 as noted in the handbook. All costs associated with restoration of the staging area shall be at the contractor's expense if the owner determines that a satisfactory stand of grass does not exist at the time of final inspection, all costs associated with reestablishing a satisfactory stand of grass shall be at the contractor's expense.

- The contractor shall provide necessary restroom facilities for workers during construction.
- All existing drainage systems shown are to remain operational unless denoted for abandonment.
- The slopes of the trail and pedestrian bridge shall be constructed in accordance with the plans; however in no case shall the maximum slope in the direction of travel exceed 5% at any location.
- All work in and directly adjacent to wetlands shall be performed in accordance with permit conditions.
- Stone shall be placed on the appropriate geogrid or geosynthetic and compacted accordingly. A vibratory plate compactor in both directions is best for compaction of the final layer of GABC that will be in direct contact with the bottom of the block units. There should be no visible movement of the material once compacted and the base shall be smooth when completed.
- Open graded base materials must be free of fines. Contractor shall take care not to track soil onto the roadway.
- Temporary soil stockpile area; location to be determined during the pre-construction meeting. Knowledgeable

Clearing

- Clear all vegetation and trees with a DBH of less than 8" and areas of brush within the 5'-wide Stone Dust Trail alignment, the Temporary Laydown & Turnaround areas, Haul Road and all areas to be graded. These locations are to be verified in the field by DNREC Parks staffs. All removal efforts shall be in accordance with specifications and State standards.
- In no case shall clearing take place beyond the established width of the trail, or beyond those working limits or clearing limits shown on the plans, unless approved, in writing, by the Parks Staffs.
- The area within the footprint of the trail which is covered with tree leaves, pine cones, wild grass and other vegetation shall be cut to a maximum depth of 3 inches below original ground surface. The organic materials and the vegetation covering the ground shall be removed and re-installed on the both side slopes of the trail.
- The entire length of the project shall be cleared and grubbed to the limits and requirements specified. Clearing and grubbing shall include removal of all trees, stumps, roots and any objectionable matter resting on or protruding through the surface of the original ground, except for those items designated to remain.

Root Protection During Excavation & Grading

- Protect all tree roots within the tree's dripline. If tree roots are encountered during excavation for path, roots shall be cut with pruner or saw. Roots shall not be pulled out by excavator or other equipment. Do not disturb roots within 5 feet of tree trunk. Root disturbance shall be limited to 25% of the root zone. No construction materials or equipment shall be stored within the dripline of trees to remain.

Project Notes

- All work shall be in accordance with applicable state and local building codes and all other governing agencies and regulations.
- Contractor shall verify all conditions and dimensions in the field prior to commencement of the work. Verify layout in relation to property, benchmarks, and other fixed conditions. Report discrepancies to the Architect immediately upon discovery.
- Notify Engineer/Architect of discrepancies regarding the Contract Documents or design intent immediately upon discovery. Contractor shall be responsible for obtaining clarification prior to proceeding with the work or related work.
- Contractor shall obtain all required building licenses.
- Contractor shall remove all rubbish and debris from the site during course of project, and dispose of legally off-site.
- Contractor shall perform all cutting, patching and protection required to complete the work indicated on the Contract Documents.
- Contractor shall provide all inspections and tests required by state and local authorities including. Refer to individual drawings and specifications for additional testing requirements.
- Unless indicated otherwise in Specifications, products and manufacturers are noted to establish the type and quality of materials to be provided. Contractor may submit proposed substitutions to the Engineer/Architect for review, per Section 016000 Product Requirements. Contractor shall include costs associated with proposed substitution, including redesign, and alteration of adjacent work to accept substitution.
- Install all equipment and materials per manufacturer's instructions and recommendations unless specifically otherwise indicated, or where local codes and regulations take precedence.
- Contractor shall provide supervision while any subcontractors or workers are on the job site and shall supervise and direct all work.
- Contractor shall be solely responsible for all construction means, methods, techniques, sequences, procedures, site safety, and coordinating the work of all trades under the contract.
- No products containing asbestos or other hazardous materials shall be installed on this project or used during the construction of the project. It shall be the responsibility of the Contractor to certify to the Owner that this requirement has been met. Subcontractors shall verify to the Contractor that no asbestos or other hazardous products are used in their work.
- Delegated Design: When professional design services or certifications related to pre-manufactured structures, systems, materials, or equipment are required by these documents, the Architect/Engineer will specify performance and design criteria that such services must satisfy. The Contractor shall cause such services and certifications to be provided by properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, Shop Drawings, and other related submittals. The Owner and Architect/Engineer shall be entitled to rely upon the accuracy and completeness of those delegated services. The Architect/Engineer will review submittals only for the limited purpose of checking for

LEGEND OF LINES

- PROPOSED STONE DUST PARKING AREA
- EXISTING RIGHT-OF-WAY LINE
- GRADED AGGREGATE BASE COURSE
- WETLANDS
- LIMIT OF DISTURBANCE
- FILTER STRIP (SEE SHEET C-04)
- SILT FENCE (SEE SHEET C-03)
- EXISTING SPOT ELEVATION
- WOODS LINE (EXISTING)
- PROPOSED SPOT ELEVATION
- WOODS LINE (PROPOSED)

DATE:	DESCRIPTION:	BY:

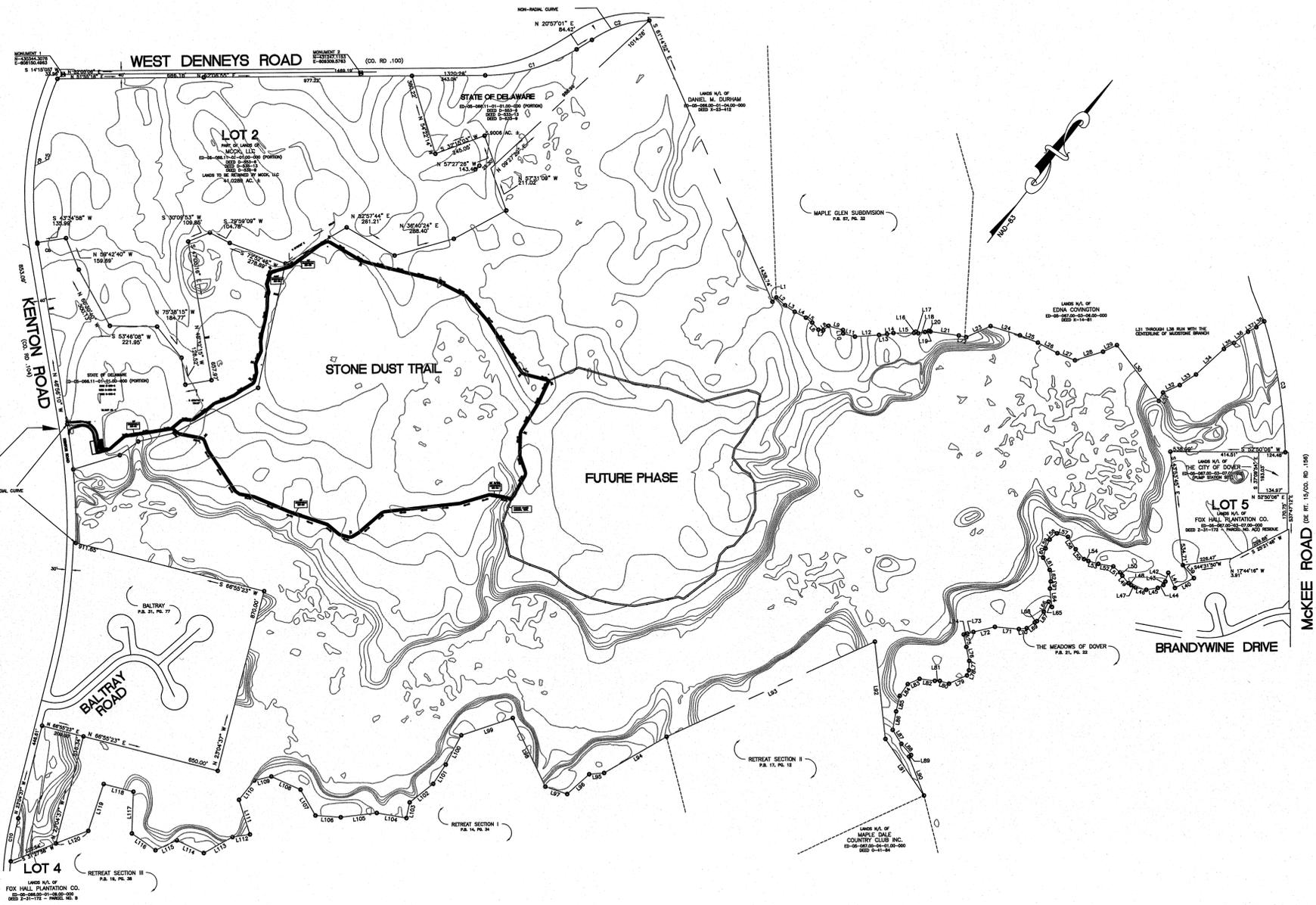
FORK BRANCH NATURE PRESERVE
GENERAL NOTES, ABBREVIATIONS & SYMBOLS



DESIGNED BY:	O.D.D.
DRAWN BY:	O.D.D.
BUILDING NO.:	N/A
DATE:	08\08\2017
SCALE:	N.T.S.
SHEET NO.:	G-02
PARKS PROJECT #:	FBNP-1
CONTRACT #:	2017-FBNP-100

LINE	BEARING	DISTANCE
L1	N04°16'48"E	27.00'
L2	S86°06'51"E	64.89'
L3	N85°08'43"E	25.70'
L4	N87°23'04"E	59.18'
L5	S89°02'22"E	36.20'
L6	S76°54'02"E	43.60'
L7	N68°28'12"E	22.30'
L8	N15°52'21"E	52.08'
L9	N88°33'07"E	69.83'
L10	S45°30'25"E	15.87'
L11	N87°57'50"E	56.87'
L12	N48°11'51"E	113.38'
L13	N46°07'10"E	38.12'
L14	N43°01'42"E	39.27'
L15	N52°44'17"E	97.05'
L16	N13°45'48"E	10.00'
L17	N88°18'24"E	14.42'
L18	N41°32'35"E	31.85'
L19	N32°42'07"E	19.41'
L20	N78°38'33"E	8.52'
L21	N65°14'47"E	133.77'
L22	N85°27'50"E	35.08'
L23	N28°08'24"E	126.03'
L24	N85°47'24"E	143.95'
L25	N74°28'41"E	90.79'
L26	N85°01'24"E	104.89'
L27	N74°30'24"E	88.16'
L28	N33°37'11"E	121.63'
L29	N67°13'11"E	71.79'
L30	S74°48'10"E	45.00'
L31	N02°42'40"W	80.29'
L32	N28°40'30"E	80.29'
L33	N18°11'31"E	90.22'
L34	N18°14'47"E	177.05'
L35	N21°01'11"E	104.94'
L36	N13°43'28"E	84.34'
L37	N63°36'07"E	44.05'
L38	N16°32'14"E	46.30'
L39	N16°32'14"E	46.30'
L40	S78°12'20"E	70.24'
L41	S28°21'28"E	109.23'
L42	N61°18'24"E	72.17'
L43	S19°02'27"E	143.83'
L44	S07°41'58"E	18.07'
L45	S20°04'14"E	18.83'
L46	S43°11'38"W	58.10'
L47	S44°28'20"W	51.24'
L48	S72°48'30"W	24.89'
L49	S89°41'28"W	16.26'
L50	N77°16'17"E	44.79'
L51	N72°01'42"W	18.86'
L52	N62°17'14"W	71.11'
L53	S67°43'20"W	48.09'
L54	S71°17'48"W	29.86'
L55	N77°29'28"W	60.85'
L56	N66°27'36"W	71.79'
L57	S70°01'59"W	54.28'
L58	S12°21'37"W	44.09'
L59	S12°00'10"W	46.16'
L60	S24°04'07"E	44.82'
L61	S46°26'44"E	64.07'
L62	S43°01'47"E	53.85'
L63	S31°02'37"E	53.90'
L64	S43°50'51"E	87.12'
L65	N58°18'38"W	59.85'
L66	S11°34'58"E	53.29'
L67	S04°00'44"E	54.58'
L68	S21°00'37"W	12.32'
L69	S17°03'01"W	48.37'
L70	S46°00'11"W	21.42'
L71	S57°29'19"W	112.70'
L72	S32°50'13"W	113.42'
L73	S38°39'58"W	29.28'
L74	S32°44'28"W	11.85'
L75	S44°35'41"E	58.83'
L76	S48°19'15"E	46.87'
L77	S38°50'04"E	14.82'
L78	S18°35'01"E	28.87'
L79	S22°43'28"W	14.82'
L80	S68°54'38"W	45.00'
L81	S31°01'14"E	14.82'
L82	S62°53'58"W	71.73'
L83	S28°16'48"W	60.87'
L84	S29°29'04"E	14.82'
L85	S23°28'47"E	24.95'
L86	S23°23'27"E	14.82'
L87	S68°38'08"E	27.22'
L88	S78°14'18"E	59.85'
L89	S18°14'38"W	11.43'
L90	S28°45'21"E	14.82'
L91	N71°12'37"E	300.00'
L92	N42°47'37"W	450.00'
L93	S27°29'27"W	1076.83'
L94	S22°25'54"W	338.67'
L95	S43°43'04"E	10.00'
L96	S17°27'15"W	138.01'
L97	S12°08'28"W	108.17'
L98	N62°52'16"W	355.29'
L99	S32°29'35"W	254.88'
L100	S28°29'01"E	150.00'
L101	S04°16'31"E	107.49'
L102	S17°12'27"E	146.46'
L103	S28°51'08"E	75.00'
L104	S68°18'37"E	140.80'
L105	S40°49'39"W	189.88'
L106	S62°29'39"W	118.20'
L107	N67°46'37"E	140.00'
L108	S78°48'37"W	150.78'
L109	S01°23'00"E	81.86'
L110	S00°27'28"W	115.00'
L111	S90°00'00"E	130.00'
L112	S43°56'08"W	82.53'
L113	S28°00'00"W	150.84'
L114	S78°44'41"W	138.28'
L115	S28°38'28"W	109.01'
L116	N88°21'27"E	138.00'
L117	N28°32'04"W	185.00'
L118	S88°38'53"W	144.12'
L119	S18°22'18"E	230.00'
L120	S31°27'58"W	182.00'

CURVE	RADIUS	LENGTH	CHORD	BEARING
C1	829.10	450.86	445.74	N09°31'50"E
C2	498.24	288.10	284.13	N33°30'19"E
C3	2231.83	821.03	819.03	S48°42'35"E
C4	2874.79	1029.17	1028.83	N41°40'11"W
C5	1362.39	787.20	776.78	N37°44'24"W
C6	2874.79	1029.17	1028.83	N39°54'47"W
C7	2874.79	1029.17	1028.83	N39°54'47"W
C8	1362.39	787.20	776.78	N37°44'24"W
C9	1362.39	787.20	776.78	N37°44'24"W
C10	1243.20	201.41	201.22	N27°43'08"W



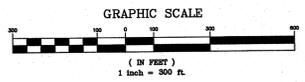
NOTES

- THIS PLAN IS NOT THE RESULT OF A RECENT FIELD SURVEY BUT IS A COMPILATION OF THE FOLLOWING PLANS:
 - SURVEY AS PREPARED BY EARL D. SMITH, INC. DATED 6-12-89 ENTITLED "LANDS TO BE CONVEYED TO MCKEY LIMITED PARTNERSHIP" (REV. 8-18-89).
 - SURVEY AS PREPARED BY DAVIS, BOWEN & FRIEDL, INC. DATED 2-10-00 ENTITLED "SURVEY OF THE LANDS OF EDNA COVINGTON" - MINOR SUBDIVISION PLAN AS PREPARED BY SCOTT ENGINEERING, INC. DATED 5-28-03 ENTITLED "MINOR SUBDIVISION PLAN FOR DR. J. MCLEMMENS C/O MCKEY, L.P."
 - SURVEY AS PREPARED BY EARL D. SMITH, INC. DATED 7-15-03 ENTITLED "TOPOGRAPHIC SURVEY - LANDS OF FOX HALL PLANTATION CO."
 - PROPOSED SUBDIVISION PLAN AS PREPARED BY BECKER MORGAN GROUP DATED 7-17-03 ENTITLED "NORTH GATE VILLAGE PROPOSED SUBDIVISION"
 - PLAN AS PREPARED BY EARL D. SMITH, INC. DATED 9-20-03 (REVISED 10-14-03) ENTITLED "MINOR LOT LINE ADJUSTMENT PLAN - LANDS OF MCKEY, L.L.C. & FOX HALL PLANTATION CO." AND RECORDED IN AND FOR THE RECORDER OF DEEDS OFFICE, KENT COUNTY, DELAWARE ON 11-25-03 IN LOT BOOK 89, PAGE 62.
- THE PURPOSE OF THIS PLAN IS TO ROTATE THE NORTH AZIMUTH BASED UPON NORTH AMERICAN DATUM 1983 (NAD-83) AS ACQUIRED AND PROVIDED BY D.M.E.C. (D.M.E.C. PROJECT NO. 214-0313 ACQUIRED NOV. 10, 2003)
- CENTER LINE OF TRAIL TO BE CLEARLY DELINEATED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.

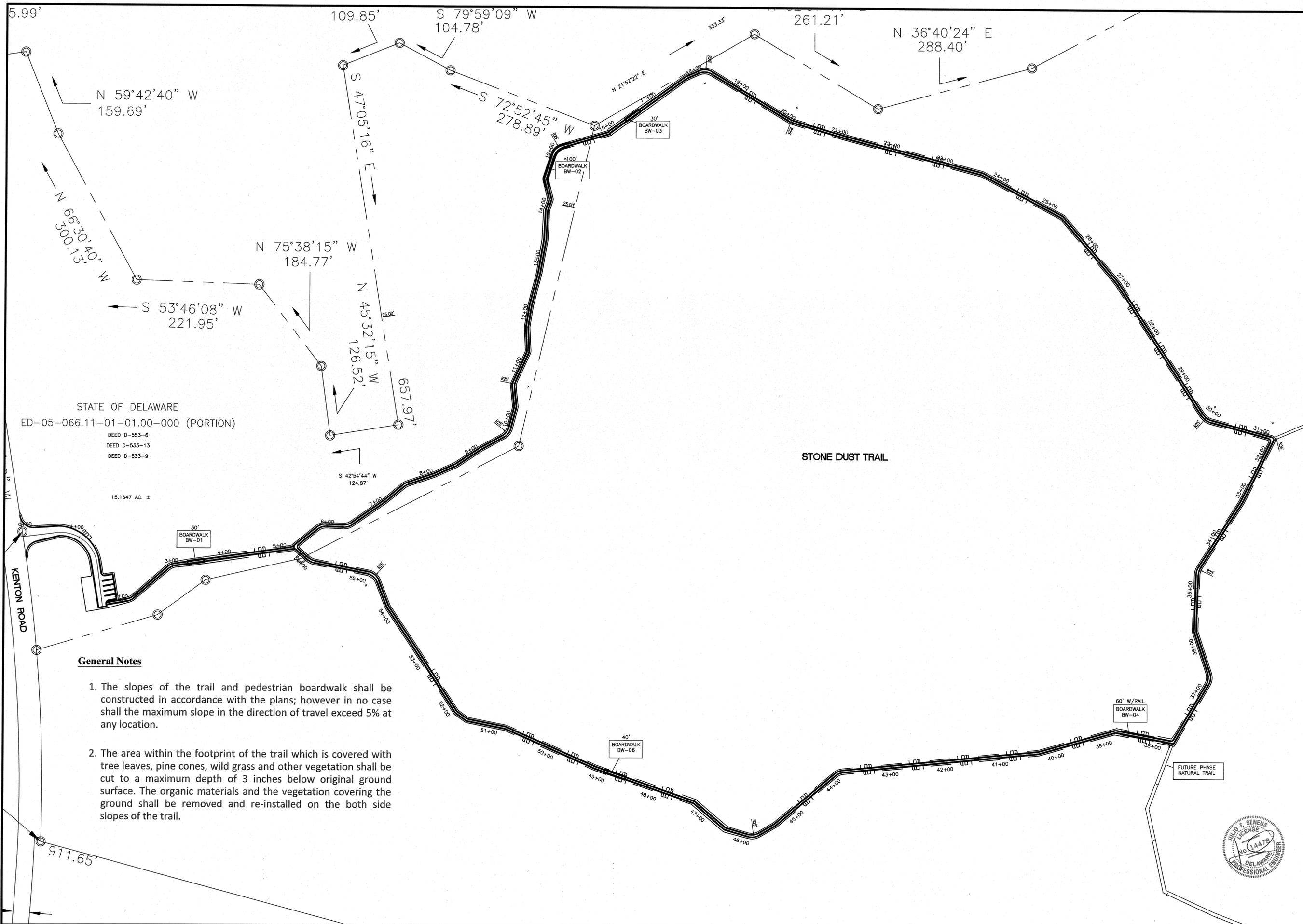
DATA COLUMN

TAX PARCEL NO. - AS NOTED
 PRESENT ZONING: RM-1 & R-20
 PLAN PURPOSE: TO CREATE SAME NUMBER OF PARCELS AS SHEET C-01 OF THE STATE OF DELAWARE LOT 6 TO THE STATE OF DELAWARE

EXISTING AREA 1 AREA: 238.0992 AC. ±
 PROPOSED LOT 1 AREA: 15.1847 AC. ±
 PROPOSED LOT 2 AREA: 41.0289 AC. ±
 PROPOSED LOT 3 AREA: 5.9006 AC. ±
 RESIDUAL AREA: 236.9250 AC. ±
 RESIDUAL ROAD FRONTAGE (KENTON BRANCH): ±
 RESIDUAL ROAD FRONTAGE (MCKEY BRANCH): ±



DATE:	DESCRIPTION:	BY:
DATE:	DESCRIPTION:	BY:
FORK BRANCH NATURE PRESERVE		
PROPOSED TRAIL SYSTEM		
DESIGNED BY:	O.D.D.	
DRAWN BY:	O.D.D.	
BUILDING NO.:	N/A	
DATE:	08\08\2017	
SCALE:	1" = 300'-0"	
SHEET NO.:	C-01	
PARKS PROJECT #:	FBNP-1	
CONTRACT #:	2017-FBNP-100	



STATE OF DELAWARE
 ED-05-066.11-01-01.00-000 (PORTION)
 DEED D-553-6
 DEED D-533-13
 DEED D-533-9
 15.1647 AC. ±

General Notes

1. The slopes of the trail and pedestrian boardwalk shall be constructed in accordance with the plans; however in no case shall the maximum slope in the direction of travel exceed 5% at any location.
2. The area within the footprint of the trail which is covered with tree leaves, pine cones, wild grass and other vegetation shall be cut to a maximum depth of 3 inches below original ground surface. The organic materials and the vegetation covering the ground shall be removed and re-installed on the both side slopes of the trail.

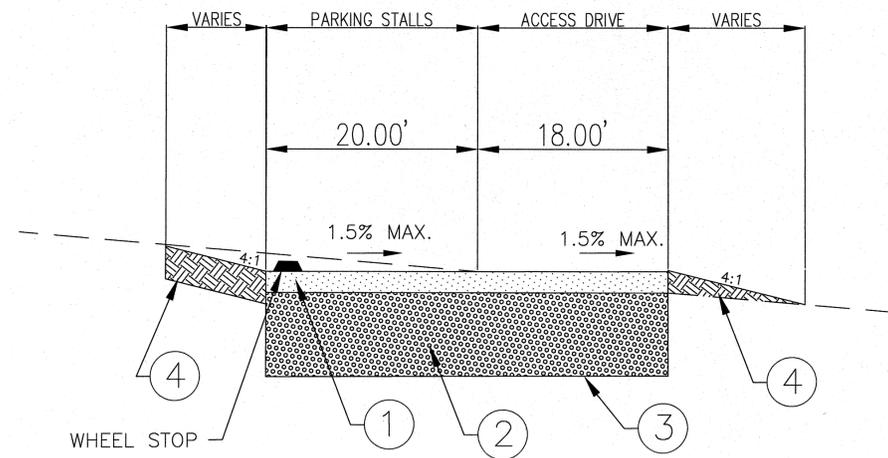


DATE:	DESCRIPTION:	BY:

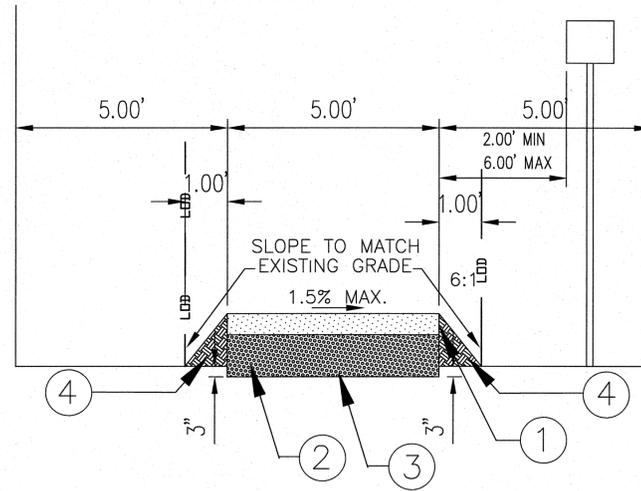
FORK BRANCH NATURE PRESERVE
SITE PLAN



DESIGNED BY:	O.D.D.
DRAWN BY:	O.D.D.
BUILDING NO.:	N/A
DATE:	08\08\2017
SCALE:	N.T.S.
SHEET NO.:	C-02
PARKS PROJECT #:	FBNP-1
CONTRACT #:	2017-FBNP-100



**PARKING LOT & ACCESS DRIVE
TYPICAL SECTION**



**TYPICAL STONE DUST
TRAIL SECTION**

LEGEND

TRAIL TYPICAL SECTION

- ① 1.5" Stone Dust (AASHTO #10)
- ② 6" Graded Aggregate Base Course (GABC), Type B, (ITEM 302005)
- ③ Non-Woven Geotextile Separation Fabric (AASHTO M 288, Class 2 - Mirafi 140n, Or Equivalent) Between Prepared Subgrade And Graded Aggregate Base Course

Subgrade Shall Be Leveled and Compacted Via Minimum Two Passes With A Walk-Behind, Double Drum Roller - Vibratory Compactor

- ④ Slope Less Than 4:1
Fill With Excavated Material
Permanent Seeding
Mulch
- Slope Greater Than 4:1
Fill With Excavated Material
Permanent Seeding
Stabilization Matting

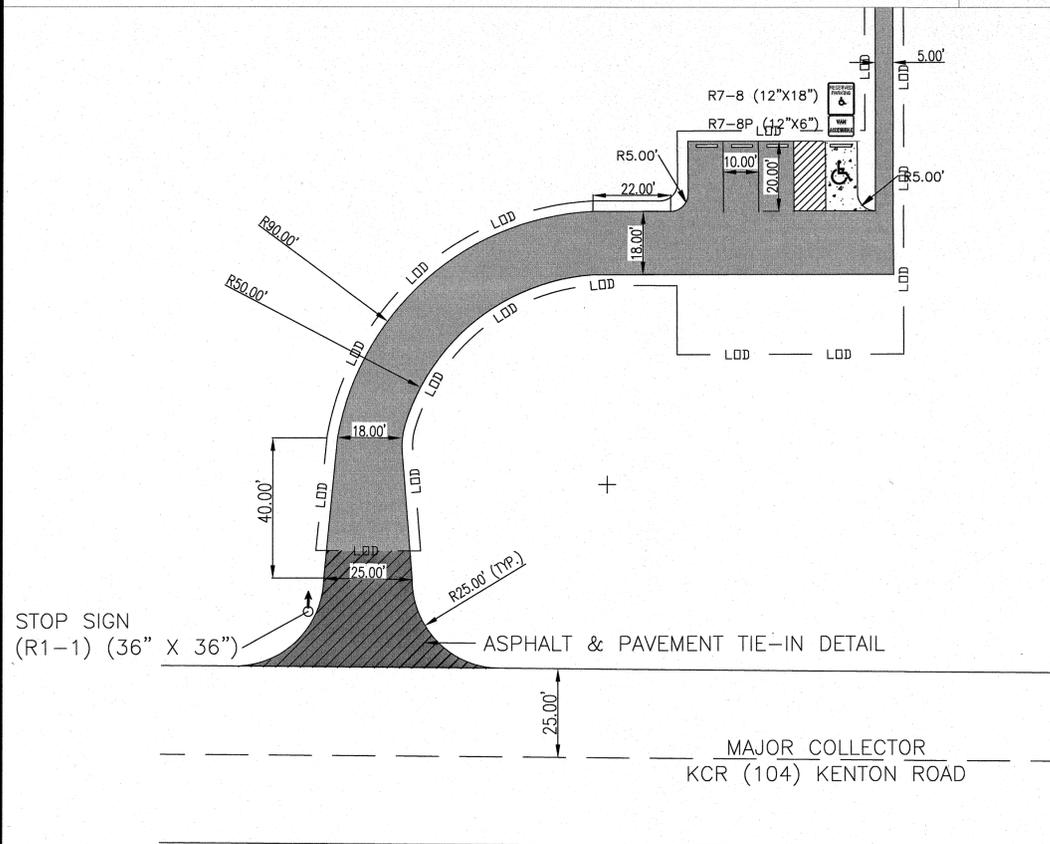
The area within the footprint of the trail which is covered with tree leaves, pine cones, wild grass and other vegetation shall be cut to a maximum depth of 3 inches below original ground surface. The organic materials and the vegetation covering the ground shall be removed and re-installed on the both side slopes of the trail

PARKING LOT TYPICAL SECTION & ENTRANCE DETAIL

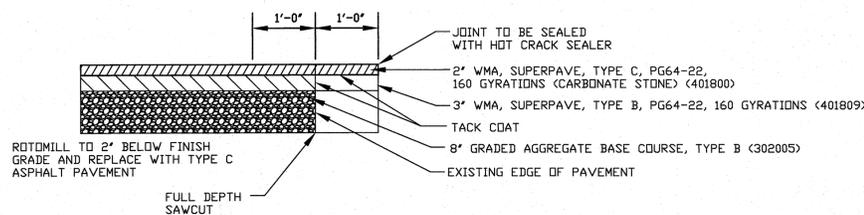
- ① 2" Stone Dust (AASHTO #10)
- ② 8" Graded Aggregate Base Course (GABC), Type B, (ITEM 302005)
- ③ Non-Woven Geotextile Separation Fabric (AASHTO M 288, Class 2 - Mirafi 140n, Or Equivalent) Between Prepared Subgrade And Graded Aggregate Base Course

Subgrade Shall Be Leveled And Compacted Via Minimum Two Passes With A Walk-Behind, Double Drum Roller - Vibratory Compactor

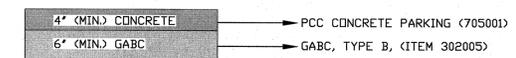
- ④ Slope Less Than 4:1
Fill With Excavated Material
Permanent Seeding
Mulch
- Slope Greater Than 4:1
Fill With Excavated Material
Permanent Seeding
Stabilization Matting



PHASE 1



**ASPHALT & PAVEMENT TIE IN DETAIL
NOT TO SCALE**



**CONCRETE PARKING DETAIL
NOT TO SCALE**

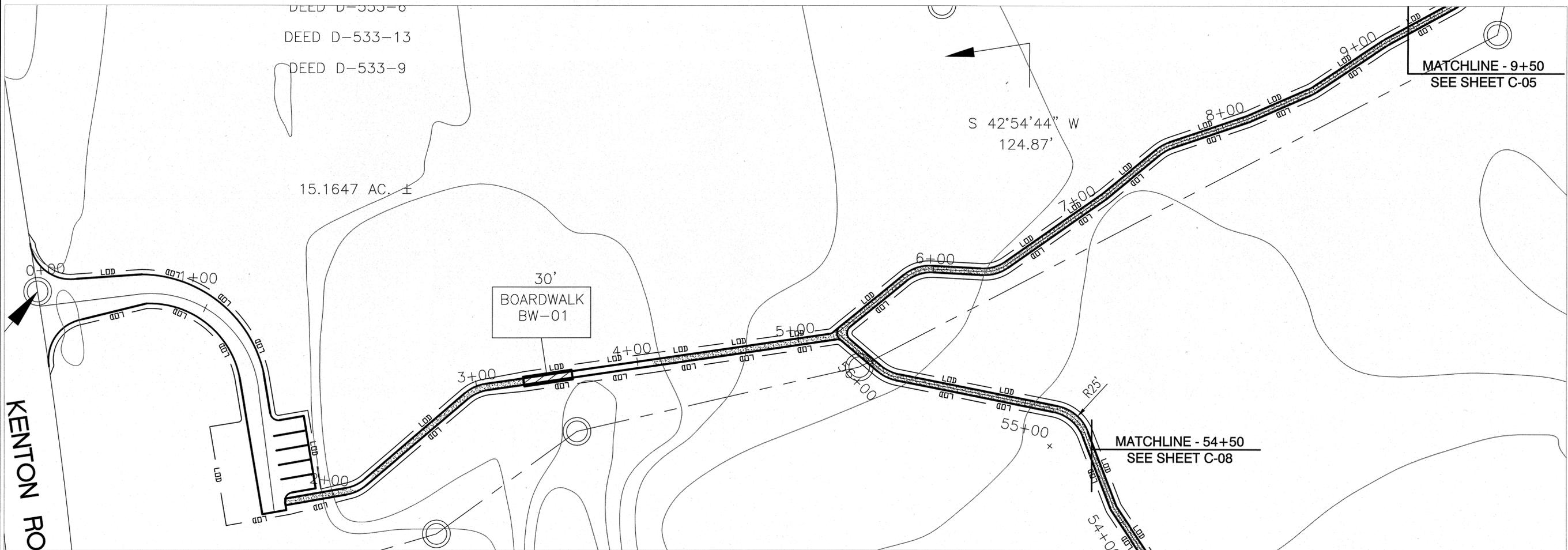


DATE:	DESCRIPTION:	BY:

**FORK BRANCH NATURE PRESERVE
TRAIL & PARKING LOT SECTIONS
AND DETAILS**



DESIGNED BY:	O.D.D.
DRAWN BY:	O.D.D.
BUILDING NO.:	N/A
DATE:	08\08\2017
SCALE:	N.T.S.
SHEET NO.:	C-03
PARKS PROJECT #:	FBNP-1
CONTRACT #:	2017-FBNP-100



FORK BRANCH NATURE PRESERVE TRAIL PLAN VIEW (STA.: 1+00 - 9+00)

KENTON RO

DEED D-533-8
DEED D-533-13
DEED D-533-9

15.1647 AC. ±

30'
BOARDWALK
BW-01

S 42°54'44" W
124.87'

MATCHLINE - 9+50
SEE SHEET C-05

MATCHLINE - 54+50
SEE SHEET C-08



DATE:	DESCRIPTION:	BY:
DATE:	DESCRIPTION:	BY:

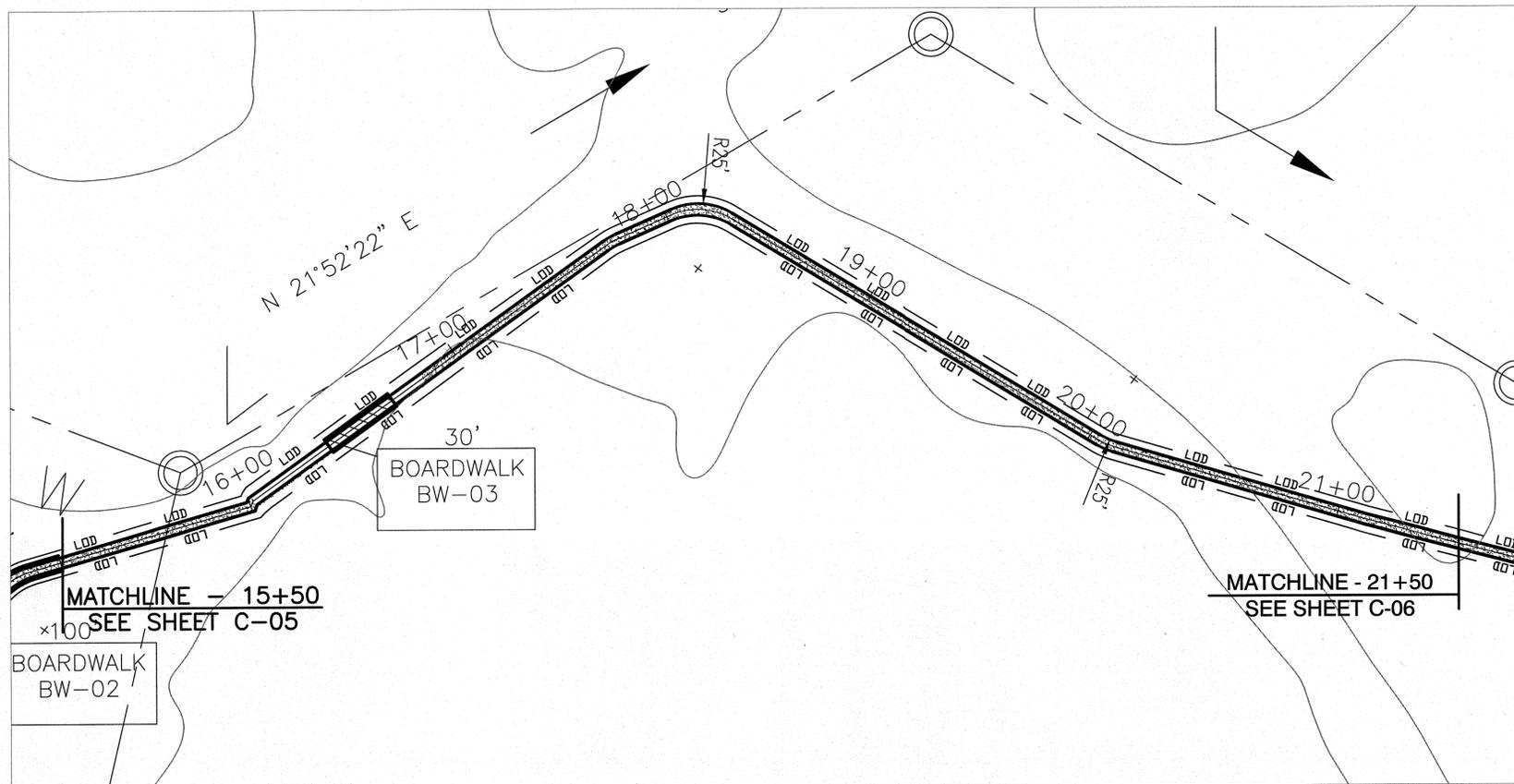
FORK BRANCH NATURE PRESERVE
SITE ALIGNMENT & GRADING



DESIGNED BY:	O.D.D.
DRAWN BY:	O.D.D.
BUILDING NO.:	N/A
DATE:	08\08\2017
SCALE:	1"=30'-0"
SHEET NO.:	C-04
PARKS PROJECT #:	FBNP-1
CONTRACT #:	2017-FBNP-100



FORK BRANCH NATURE PRESERVE TRAIL PLAN VIEW (STA.: 10+00 - 15+00)



FORK BRANCH NATURE PRESERVE TRAIL PLAN VIEW (STA.: 16+00 - 21+00)



DATE: _____	DESCRIPTION: _____	BY: _____
	DATE: _____	DESCRIPTION: _____
FORK BRANCH NATURE PRESERVE		
SITE ALIGNMENT & GRADING		
		
DESIGNED BY: O.D.D.		
DRAWN BY: O.D.D.		
BUILDING NO.: N/A		
DATE: 08\08\2017		
SCALE: 1" = 30'-0"		
SHEET NO.: C-05		
PARKS PROJECT #: FBNP-1		
CONTRACT #: 2017-FBNP-100		



FORK BRANCH NATURE PRESERVE TRAIL PLAN VIEW (STA.: 22+00 - 31+00)

DATE:	DESCRIPTION:	BY:
08\08\2017	FORK BRANCH NATURE PRESERVE	
SCALE:	SITE ALIGNMENT & GRADING	
1" = 30'-0"		
SHEET NO.:		
C-06		
PARKS PROJECT #:		
FBNP-1		
CONTRACT #:		
2017-FBNP-100		



DESIGNED BY:
O.D.D.
DRAWN BY:
O.D.D.
BUILDING NO.:
N/A

DATE:
08\08\2017

SCALE:
1" = 30'-0"

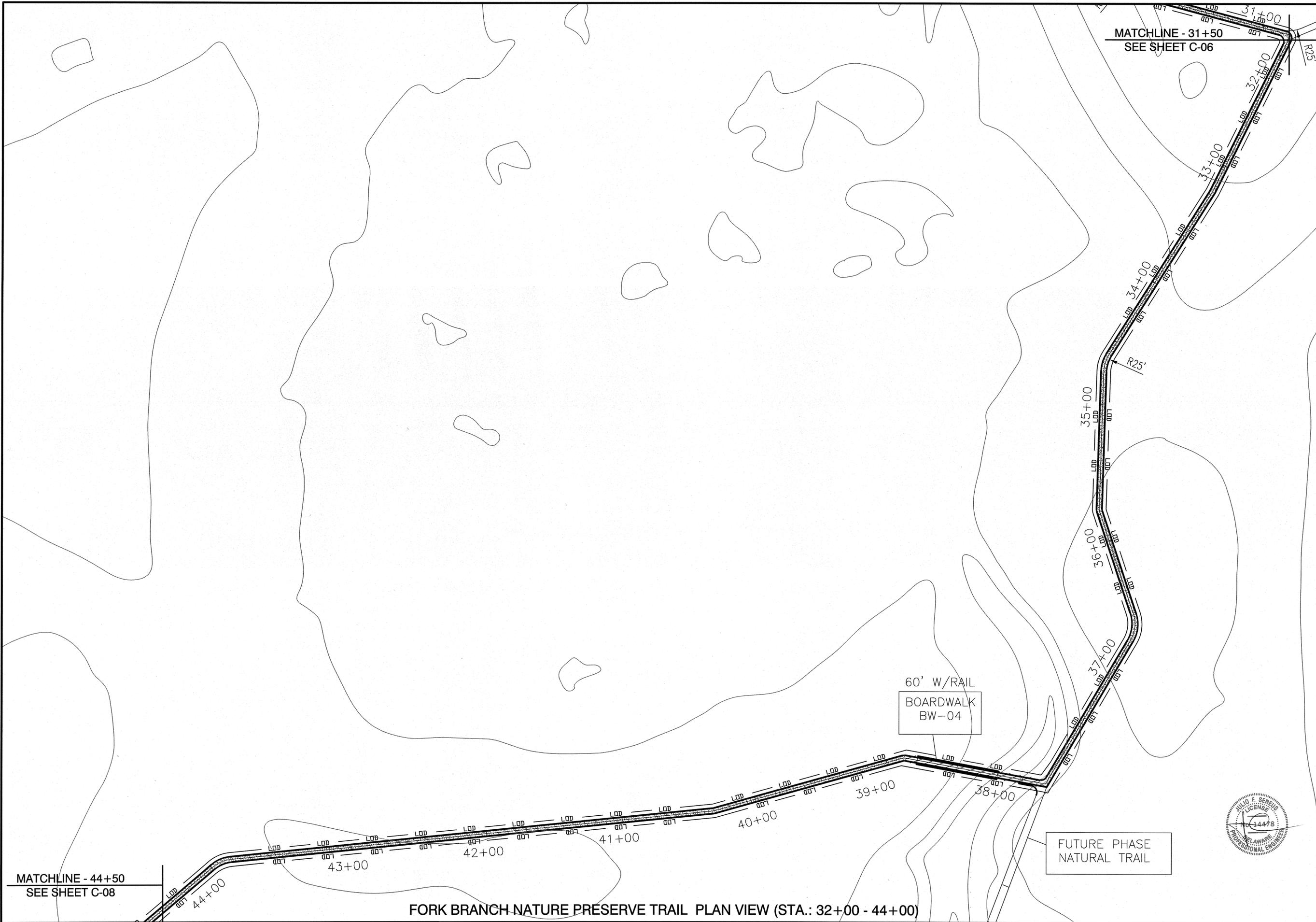
SHEET NO.:

C-06

PARKS PROJECT #:
FBNP-1

CONTRACT #:
2017-FBNP-100





MATCHLINE - 44+50
SEE SHEET C-08

MATCHLINE - 31+50
SEE SHEET C-06

FORK BRANCH NATURE PRESERVE TRAIL PLAN VIEW (STA.: 32+00 - 44+00)

DATE:	DESCRIPTION:	BY:

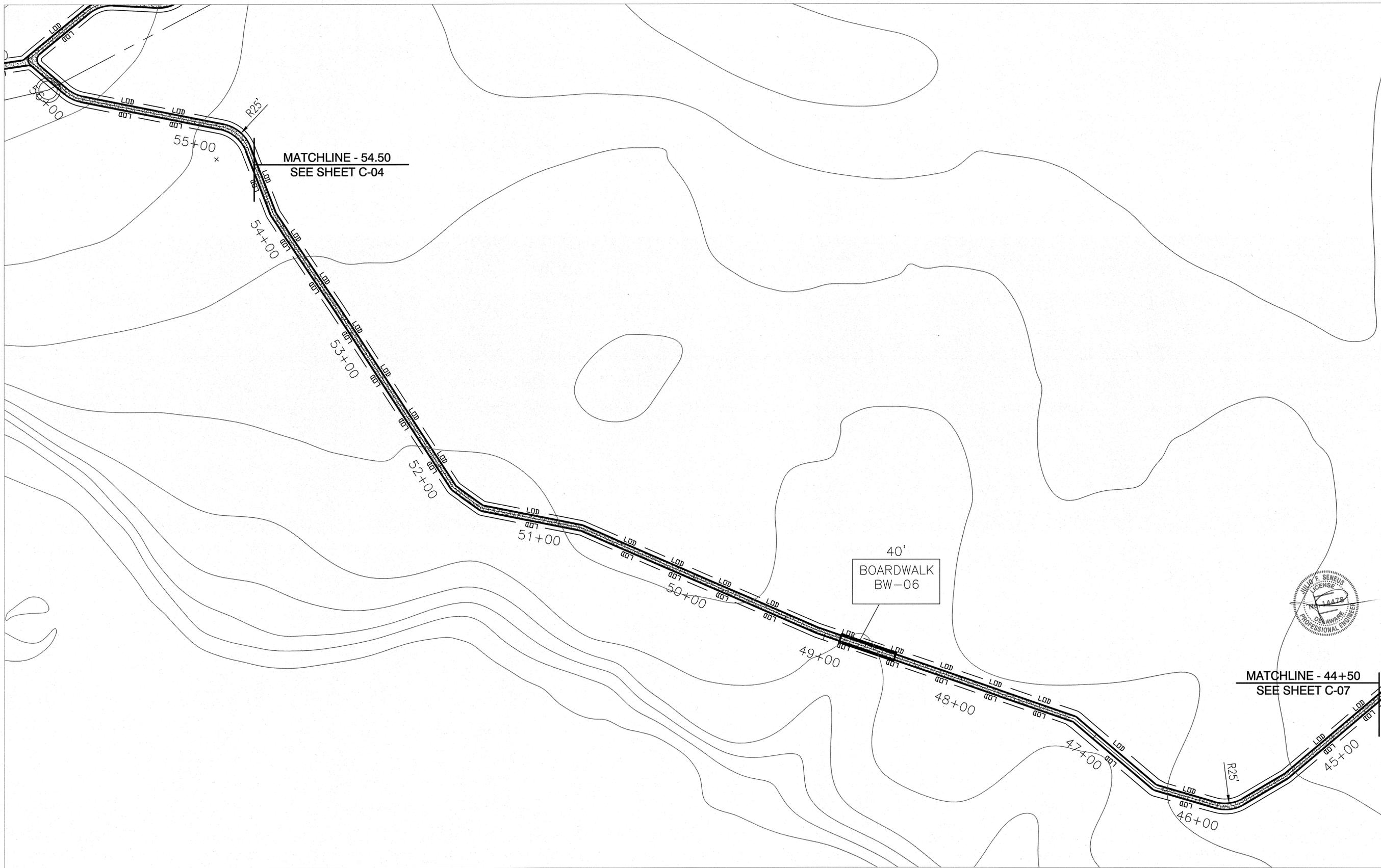
FORK BRANCH NATURE PRESERVE

SITE ALIGNMENT & GRADING



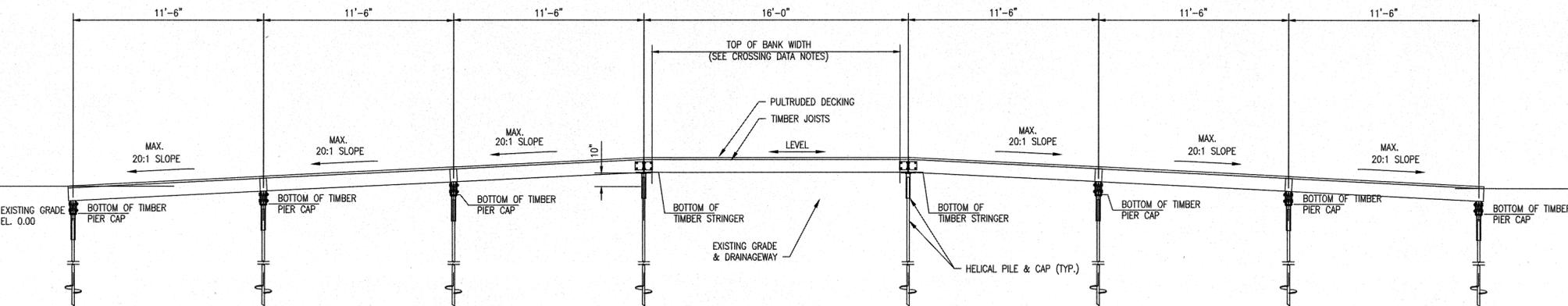
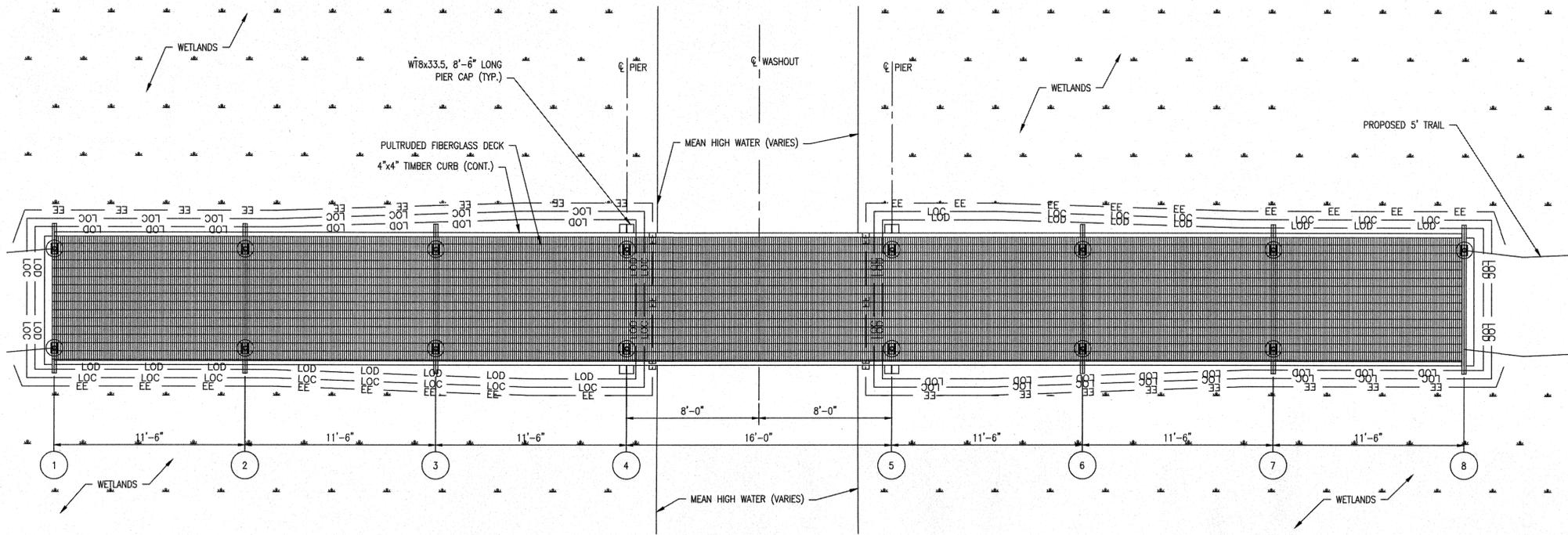
DESIGNED BY:	O.D.D.
DRAWN BY:	O.D.D.
BUILDING NO.:	N/A
DATE:	08\08\2017
SCALE:	1"=30'-0"
SHEET NO.:	C-07
PARKS PROJECT #:	FBNP-1
CONTRACT #:	2017-FBNP-100





FORK BRANCH NATURE PRESERVE TRAIL PLAN VIEW (STA.: 45+00 - 56+00)

DATE:	DESCRIPTION:	BY:
DATE:	DESCRIPTION:	BY:
FORK BRANCH NATURE PRESERVE SITE ALIGNMENT & GRADING		
DESIGNED BY:	O.D.D.	
DRAWN BY:	O.D.D.	
BUILDING NO.:	N/A	
DATE:	08\08\2017	
SCALE:	1"=30'-0"	
SHEET NO.:	C-08	
PARKS PROJECT #:	FBNP-1	
CONTRACT #:	2017-FBNP-100	

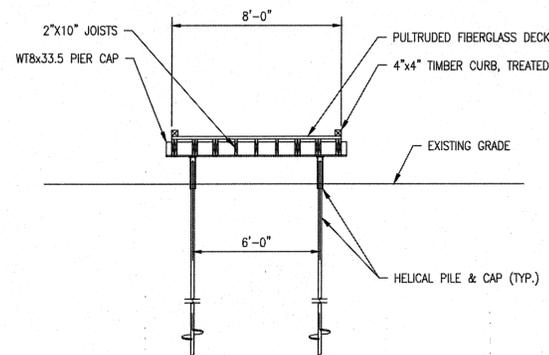


NOTE:
EXISTING GRADE ELEVATION IS ASSUMED.
ELEVATIONS NOTED THUS (*) BASED ON PULTRUDED
DECK WITH 1 1/2 INCHES OVERALL THICKNESS.
CONTRACTOR TO ADJUST ELEVATION ACCORDINGLY BASED
ON ACTUAL THICKNESS OF DECK.

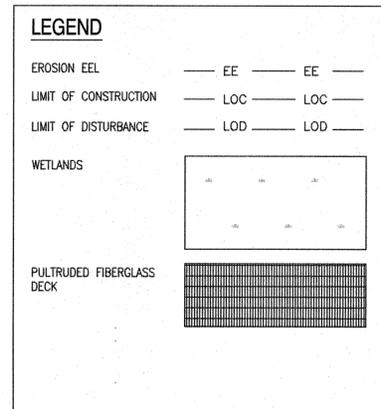
TRAIL BOARDWALK ELEVATION
SCALE: 1/4" = 1'-0"

NOTES:

- FINAL LENGTH OF STRUCTURES ARE TO BE DETERMINED BY THE ENGINEER OR DNREC FIELD STAFF.
- LENGTH OF BOARDWALK VARIES FROM 30'- 100'.



TRAIL BOARDWALK SECTION
SCALE: 1/4" = 1'-0"



Fork Branch Trail Boardwalk Number	Length of Structure
Boardwalk BW- 01	30'
Boardwalk BW- 02	100'
Boardwalk BW- 03	30'
Boardwalk BW- 04	60'
Boardwalk BW- 06	40'

Note: The length of the boardwalk structures can be adjusted in field at the discretion of the design engineer and Parks field staffs.

PROJECT NOTES

LOADS:

LIVE LOAD - 90 PSF PEDESTRIAN LOAD.
H-5 VEHICLE LOADING (10,000 LBS TOTAL VEHICLE LOAD)

MATERIAL:

TIMBER:
STRUCTURAL MEMBERS SHALL BE SOUTHERN YELLOW PINE, NO. 2 OR BETTER. ALL TIMBER MEMBERS SHALL BE TREATED WITH CHROMATED COPPER ARSENATE (CCA) WITH A MINIMUM RETENTION OF 2.5 LBS/FT³.

FIELD TREATMENT OF HOLES AND CUTS IN TIMBER JOISTS SHALL CONSIST OF AN APPLICATION OF A COPPER NAPHTHENATE SOLUTION WITH A MINIMUM OF 2% COPPER METAL IN ACCORDANCE WITH AWPA STANDARD P9. METHOD OF APPLICATION FOR ALL CUTS, HOLES AND INJURIES TO THE SURFACE OF TREATED LUMBER SHALL CONSIST OF BRUSHING, SPRAYING, DIPPING, SOAKING OR COATING. CARE SHALL BE TAKEN TO ASSURE THAT ALL INJURIES, SUCH AS ABRASIONS NAIL AND SPIKE HOLES, ARE THOROUGHLY SATURATED WITH THE FIELD-TREATING SOLUTION.

DECKING:
INDIVIDUAL DECKING PANELS SHALL BE ORIENTED WITH MAIN BARS TRANSVERSE TO THE JOISTS, AND SPAN THE FULL WIDTH OF THE BOARDWALK WITH NO JOINTS. DECKING MATERIAL SHALL CONSIST OF PULTRUDED HIGH LOAD CAPACITY FIBERGLASS GRATING AS MANUFACTURED BY STRONGWELL CORPORATION, OR APPROVED EQUAL, WITH THE FOLLOWING CHARACTERISTICS:

- LIVE LOAD DEFLECTION:
 - <0.033 INCHES WITH A 4000 LB/FT LINE LOAD OVER 12 INCH SPAN.
 - <0.033 INCHES WITH A 4000 LB/SQ.FT UNIFORM LOAD OVER 12 INCH SPAN.
- RATE OF BURN - ASTM D 635.
- FLAME SPREAD RATING OF 25 OR LESS IN ACCORDANCE WITH ASTM E-84.
- VISUAL QUALITY - ASTM D4385.
- MANUFACTURER - ISO-9001:2008 CERTIFIED.
- SURFACE WEAR INDEX - LESS THAN 1.0 PER ASTM D4060.
- MODULUS OF ELASTICITY (E) - 3,790,000 PSI, MINIMUM.
- THICKNESS - 1 1/2 INCHES, MINIMUM.
- SPACING BETWEEN GRATING - 1/2 INCH MAXIMUM.

FASTENERS:
ALL PULTRUDED DECKING CLAMPS AND SCREWS SHALL BE TYPE 316L STAINLESS STEEL. INSTALL 2 CLIPS AT EACH SUPPORT WITH A MINIMUM OF 4 CLIPS PER PANEL, INSTALLED IN ACCORDANCE WITH THE DECK MANUFACTURER'S REQUIREMENTS.

TIMBER FASTENERS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A - 153.

STEEL FASTENERS SHALL CONFORM TO ASTM A325, GALVANIZED.

HELICAL ANCHORS:

HELICAL ANCHORS SHALL BE BY A.B. CHANCE. HELICAL ANCHORS SHALL BE INSTALLED TO OBTAIN A MINIMUM ULTIMATE BEARING CAPACITY OF 10 KIPS WITH A FACTOR OF SAFETY OF 2.0. ALLOWABLE BEARING CAPACITY = 5 KIPS.

HELICAL ANCHORS SHALL BE INSTALLED TO A MINIMUM ULTIMATE CAPACITY OF 10 KIPS, AS DETERMINED BY TORQUE VALUE READINGS DURING INSTALLATION. TORQUE VALUE READINGS SHALL BE USED IN CONJUNCTION WITH APPLICABLE TABLES AND/OR CHARTS PROVIDED BY CHANCE ANCHOR AND SHALL TAKE INTO ACCOUNT THE SOIL TYPE AND CONDITIONS.

BEARING ANCHORS SHALL BE INSTALLED A MINIMUM OF 4'-0" AS MEASURED FROM THE UPPER MOST HELIX AND THE FINAL GRADE. DIAGONAL ANCHORS SHALL BE THE SAME LENGTH AND CONFIGURATION AS BEARING ANCHORS AND SHALL BE INSTALLED A MINIMUM DEPTH OF 4'-0" AS MEASURED FROM THE UPPERMOST HELIX AND THE FINAL GRADE.

STRUCTURAL STEEL:

ALL STRUCTURAL STEEL SHALL BE HOT DIPPED GALVANIZED AFTER SHOP FABRICATION IN ACCORDANCE WITH ASTM A123.

STEEL SHALL CONFORM TO THE FOLLOWING:

- ROLLED SHAPES - ASTM A992, GR. 50.

EROSION & SEDIMENT CONTROL NOTES

- THE CONSTRUCTION SITE SHALL BE PROTECTED FROM EROSION BY THE EXCLUSIVE USE OF EROSION EELS (EE).
- ALL CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE AT THE CONCLUSION OF EACH WORK DAY.
- NO TRESPASSING OF THE CONTRACTOR'S PERSONNEL OR EQUIPMENT SHALL BE ALLOWED BEYOND THE LIMIT OF CONSTRUCTION (LOC)
- ALL DISTURBED AREAS SHALL BE STABILIZED WITH A MINIMUM OF 4 INCHES OF GRAVEL.
- THE CONTRACTOR SHALL REMOVE ALL SEDIMENT FROM THE GRAVEL TRAILS AS DIRECTED BY THE ENGINEER.
- ALL WORK SHALL BE IN ACCORDANCE WITH THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK DATED 03/2013, AND ALL APPLICABLE DETAILS INCLUDING, BUT NOT LIMITED TO, THE STANDARD AND SPECIFICATIONS FOR CONSTRUCTION SITE WASTE MANAGEMENT & SPILL CONTROL.
- NO WORK, EQUIPMENT, MATERIALS, OR PERSONNEL ARE ALLOWED IN THE WATER WAY OR ADJACENT WETLANDS.
- NO STRUCTURES ARE ALLOWED WITHIN STATE OR USACE JURISDICTIONAL WATERS.

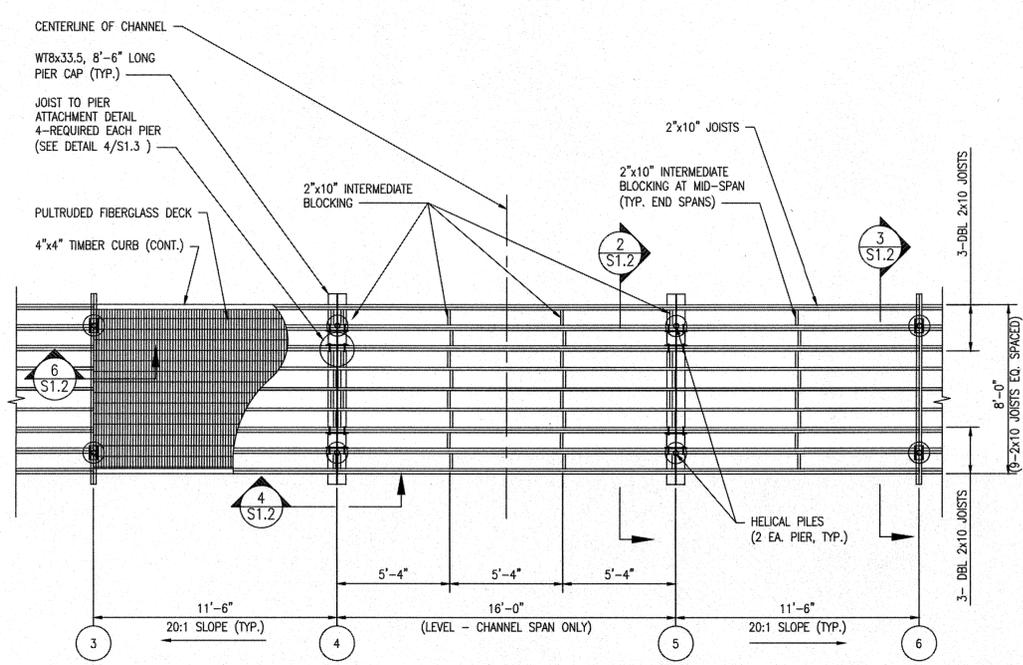
BY: _____
DATE: _____ DESCRIPTION: _____

DATE: _____ DESCRIPTION: _____

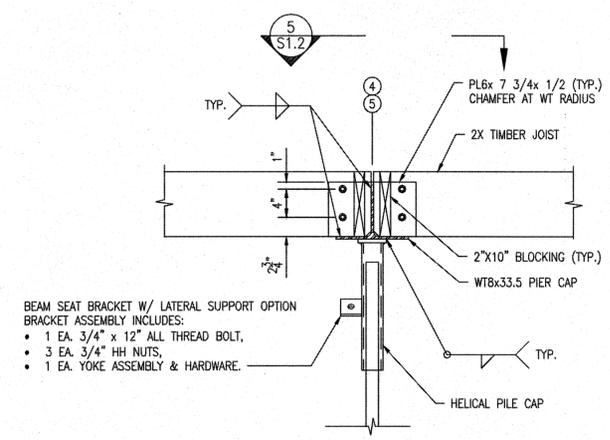
FORK BRANCH NATURE PRESERVE

BOARDWALK PLAN

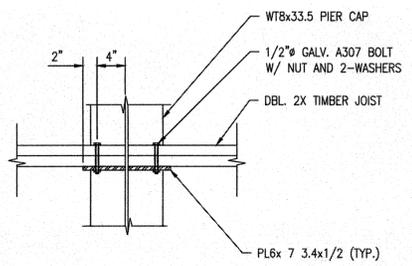
DESIGNED BY: O.D.D.
DRAWN BY: O.D.D.
BUILDING NO.: N/A
DATE: 08\08\2017
SCALE: 1"=30'-0"
SHEET NO.: C-9
PARKS PROJECT #: FBNP-1
CONTRACT #: 2017-FBNP-100



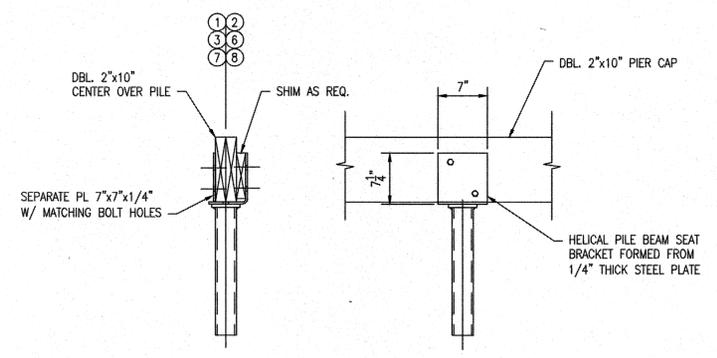
1 BOARDWALK FRAMING PLAN
SCALE: 1/4" = 1'-0"



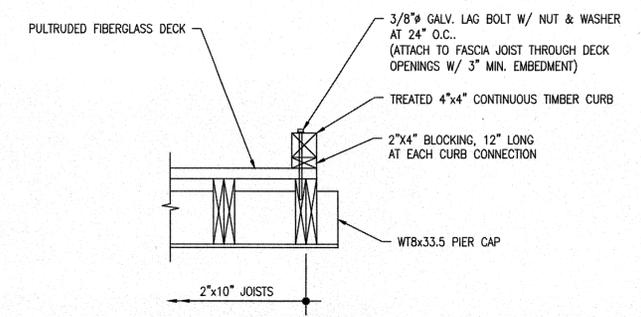
4 STEEL PIER CAP DETAIL
SCALE: 1" = 1'-0"



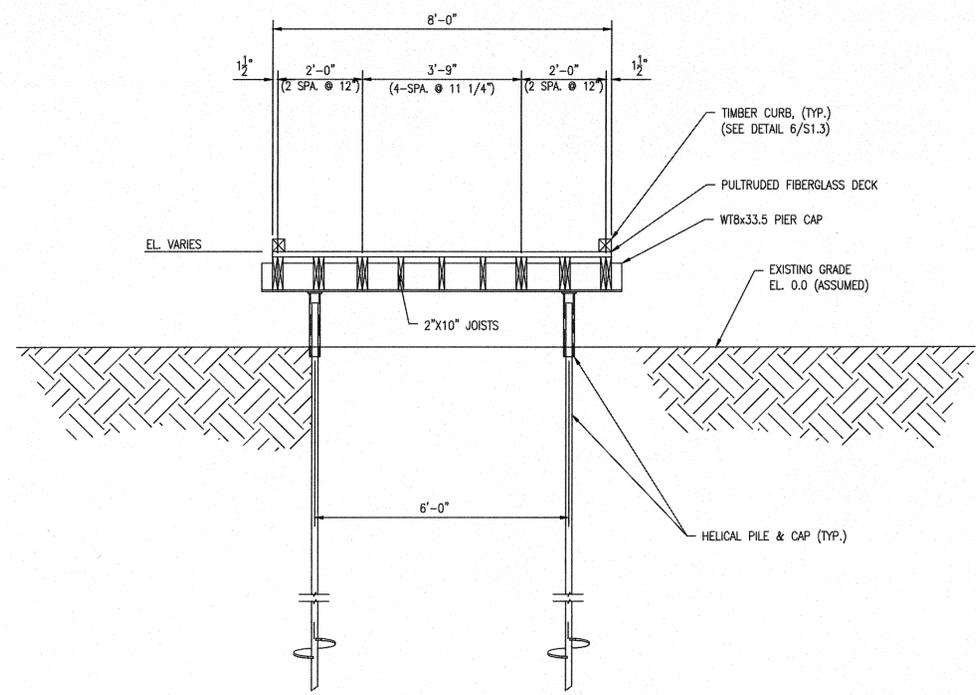
5 PIER CAP PLAN VIEW
SCALE: 1" = 1'-0"



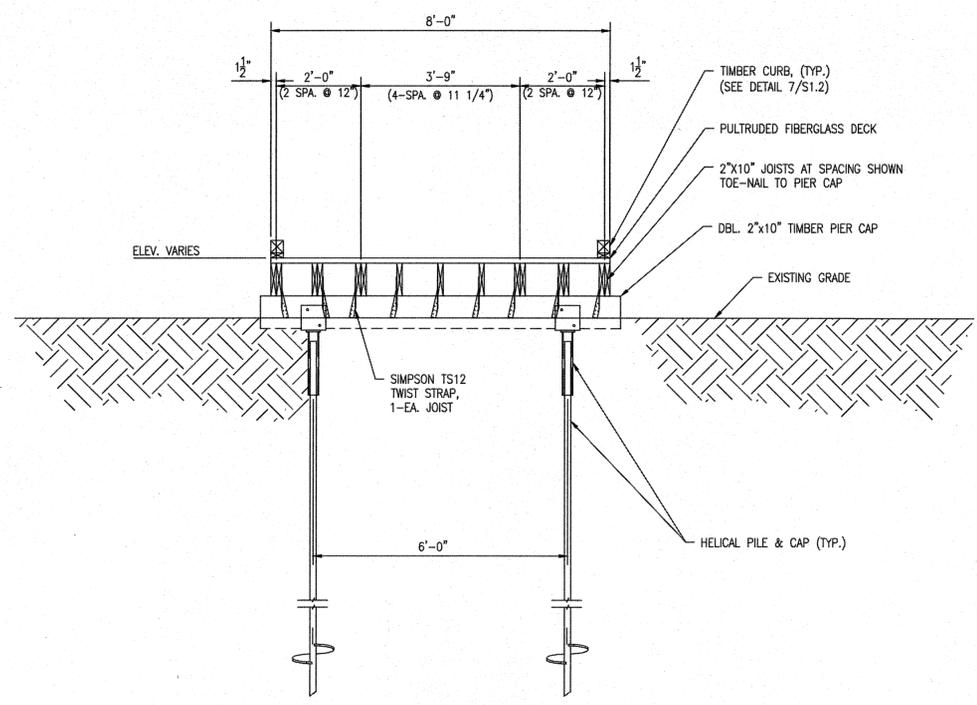
6 BOARDWALK ATTACHMENT DETAIL AT ABUTMENT
SCALE: 1" = 1'-0"



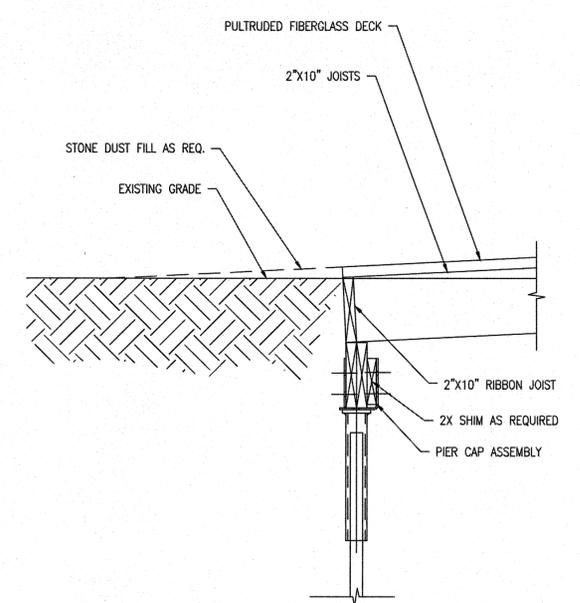
7 TIMBER CURB DETAIL
SCALE: 1" = 1'-0"



2 PIER 4 & 5 ELEVATION
SCALE: 1/2" = 1'-0"



3 TYPICAL PIER ELEVATION
SCALE: 1/2" = 1'-0"



8 TYPICAL BOARDWALK TERMINATION
SCALE: 1" = 1'-0"

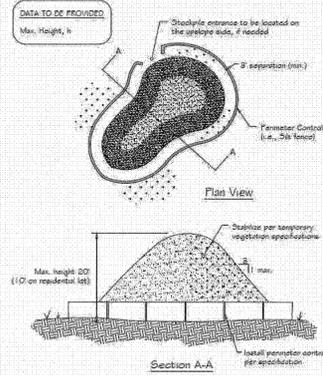
DATE:	DESCRIPTION:	BY:

FORK BRANCH NATURE PRESERVE
BOARDWALK PLAN



DESIGNED BY:	O.D.D.
DRAWN BY:	O.D.D.
BUILDING NO.:	N/A
DATE:	08\08\2017
SCALE:	1" = 30'-0"
SHEET NO.:	C-10
PARKS PROJECT #:	FBNP-1
CONTRACT #:	2017-FBNP-100

Standard Detail & Specifications
Soil Stockpile



Source: Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3
Symbol: **SP**
Detail No. **DE-ESC-3.7.3**
Sheet 1 of 2
Date: 03/13

Standard Detail & Specifications
Soil Stockpile



Construction Notes:

1. 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 perimeter device.
3. 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 vegetation dies or erosion results.

Source: Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3
Symbol: **SP**
Detail No. **DE-ESC-3.7.3**
Sheet 2 of 2
Date: 03/13

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-3.4.2, Std. Detail and Specifications for Vegetative Stabilization.
3. Adhesives - Use on mineral soils only (not effective on rock 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)	2.5:1	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: Adapted from VA ESC Handbook
Symbol:
Detail No. **DE-ESC-3.4.6**
Sheet 1 of 1
Date: 12/03

BY:	
DESCRIPTION:	
DATE:	

FORK BRANCH NATURE PRESERVE
EROSION & SEDIMENT CONTROL HANDBOOK



DESIGNED BY:
ODD

DRAWN BY:
ODD

BUILDING NO.:
N/A

DATE:
08/08/2017

SCALE:
N/A

SHEET NO.:
ES-2

PARKS PROJECT #:

CONTRACT #: