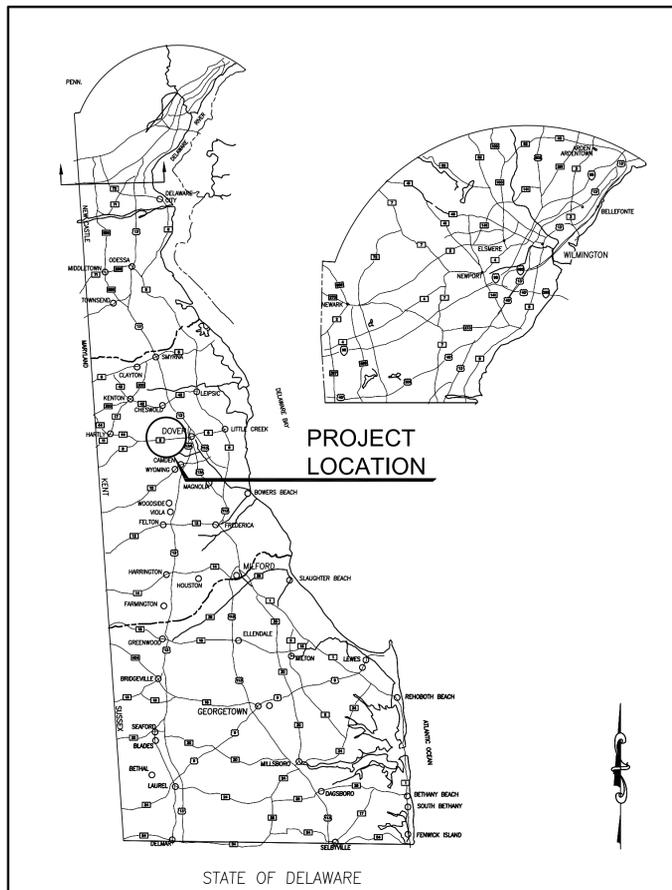


STATE OF DELAWARE  
 DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL  
 DIVISION OF PARKS AND RECREATION

# FORK BRANCH NATURE PRESERVE PROPOSED TRAIL SYSTEM



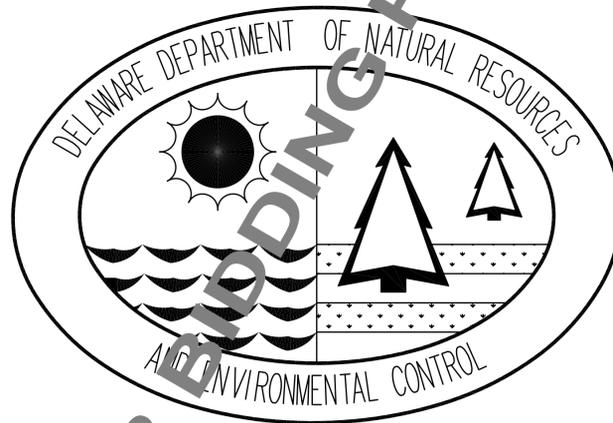
KENTON ROAD, DOVER, DE 19904



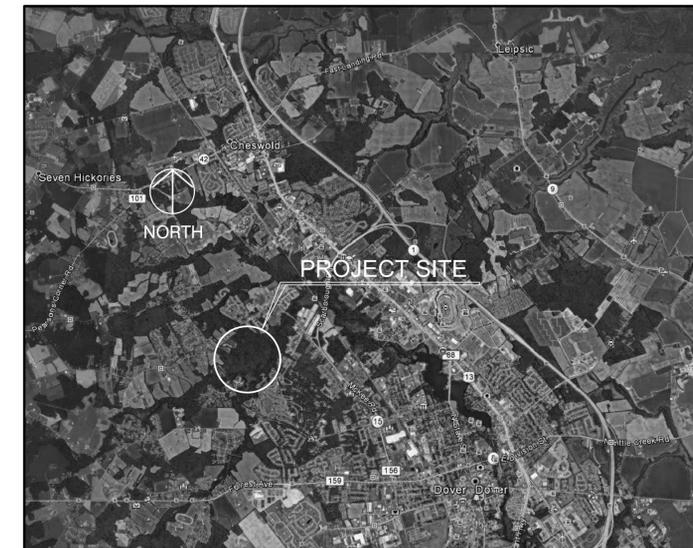
LOCATION MAP

PARKS PROJECT NO. FBNP-1

CONTRACT NO.: 2017-FBNP-100  
 AUGUST 8, 2017  
 ISSUED FOR BID



NOT FOR BIDDING PURPOSES



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	BRIDGE PLAN
C-10	BRIDGE PLAN

DATE:	DESCRIPTION:	BY:
DATE:	DESCRIPTION:	BY:
FORK BRANCH NATURE PRESERVE		
COVER SHEET		
DESIGNED BY:		
KJR		
DRAWN BY:		
KODM		
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.
- 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 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.

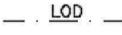
**Root Protection During Excavation & Grading**

- 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:			
DATE:	DESCRIPTION:	BY:			
FORK BRANCH NATURE PRESERVE					
GENERAL NOTES, ABBREVIATIONS & SYMBOLS					
					
DESIGNED BY:					
JFS					
DRAWN BY:					
KODM					
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"W	27.00'
L2	S88°06'51"E	24.89'
L3	N05°09'43"E	25.70'
L4	N80°23'04"E	29.18'
L5	S89°22'21"E	28.20'
L6	S78°54'09"E	43.60'
L7	S85°28'18"E	27.59'
L8	N1°52'21"E	32.08'
L9	N68°30'01"E	69.89'
L10	S42°03'51"E	15.87'
L11	N67°57'58"E	26.87'
L12	N68°11'32"E	113.39'
L13	N46°07'10"E	26.12'
L14	N43°01'28"E	30.21'
L15	N52°24'17"E	87.05'
L16	N1°34'48"E	10.00'
L17	N84°19'24"E	14.42'
L18	N41°32'35"E	31.85'
L19	N52°40'07"E	19.41'
L20	N78°38'33"E	8.52'
L21	N61°14'47"E	133.77'
L22	N65°27'58"E	35.08'
L23	N28°06'34"E	126.03'
L24	N67°42'35"E	143.95'
L25	N74°25'41"E	80.79'
L26	N80°31'26"E	104.68'
L27	N74°30'35"E	88.18'
L28	N50°37'11"E	137.51'
L29	N67°13'11"E	71.79'
L30	S74°42'13"E	205.00'
L31	N02°46'03"W	43.00'
L32	N28°40'35"E	80.29'
L33	N19°11'16"E	80.27'
L34	N10°14'47"E	177.00'
L35	N11°31'00"E	55.04'
L36	N1°43'28"E	84.34'
L37	N2°38'07"E	44.00'
L38	N16°34'43"E	46.39'
L39	S78°12'20"E	79.24'
L40	S62°14'50"W	100.22'
L41	N61°19'54"W	77.17'
L42	S12°02'23"E	42.87'
L43	S07°41'49"E	19.07'
L44	S20°04'44"W	28.88'
L45	S41°11'36"W	50.10'
L46	S64°29'30"W	51.24'
L47	S74°28'18"W	22.89'
L48	S88°41'28"W	16.26'
L49	N07°13'17"E	14.74'
L50	N72°01'45"W	18.86'
L51	N86°34'44"W	24.74'
L52	N67°47'14"W	71.11'
L53	S67°43'29"W	48.09'
L54	S77°17'48"W	22.04'
L55	N77°59'28"W	60.85'
L56	N62°30'36"E	87.75'
L57	S70°01'53"W	54.29'
L58	S12°41'02"E	44.69'
L59	S12°00'10"E	46.16'
L60	S24°04'30"E	44.62'
L61	S64°29'30"E	44.07'
L62	S43°01'47"E	53.85'
L63	S31°03'37"E	33.89'
L64	S43°30'51"E	87.12'
L65	N68°21'35"E	87.85'
L66	S11°34'06"E	22.59'
L67	S02°02'44"E	24.58'
L68	S11°20'07"W	32.32'
L69	S17°03'01"W	46.37'
L70	S48°03'11"W	37.42'
L71	S52°29'19"W	112.70'
L72	S35°51'13"W	103.44'
L73	S38°09'58"W	29.29'
L74	S37°42'22"W	17.85'
L75	S48°25'41"E	59.83'
L76	S49°19'57"E	66.97'
L77	S49°19'57"E	66.97'
L78	S18°35'01"E	25.87'
L79	S18°35'01"E	25.87'
L80	S68°54'38"W	45.00'
L81	S53°01'54"W	24.10'
L82	S68°33'58"W	71.74'
L83	S28°16'48"W	80.87'
L84	S32°03'00"E	45.98'
L85	S33°28'47"E	74.92'
L86	S37°43'37"E	87.85'
L87	S68°58'08"E	77.22'
L88	S78°14'10"E	69.55'
L89	S18°14'38"W	12.43'
L90	S38°42'37"E	184.53'
L91	N17°43'37"W	300.00'
L92	N43°47'37"W	450.00'
L93	S12°22'27"W	1070.83'
L94	S22°22'54"W	338.67'
L95	S47°43'05"W	70.00'
L96	S10°21'15"W	139.01'
L97	S71°08'29"W	108.17'
L98	N68°21'35"E	305.29'
L99	S33°59'34"W	254.08'
L100	S68°30'01"E	155.00'
L101	S64°16'31"E	107.49'
L102	S14°17'27"W	160.48'
L103	S09°51'00"E	74.00'
L104	S62°12'33"E	140.85'
L105	S45°49'39"W	169.88'
L106	S56°22'39"W	118.58'
L107	S67°48'37"W	140.00'
L108	S78°48'37"W	150.38'
L109	S39°17'55"W	81.86'
L110	S00°52'26"W	115.00'
L111	S45°02'34"E	170.00'
L112	S48°58'08"W	82.53'
L113	S24°05'59"W	152.64'
L114	S78°48'41"W	139.28'
L115	S28°38'28"W	109.01'
L116	S28°21'27"W	135.00'
L117	N40°24'04"E	165.00'
L118	S68°28'33"W	144.12'
L119	S18°22'15"E	200.00'
L120	S31°27'58"W	162.60'

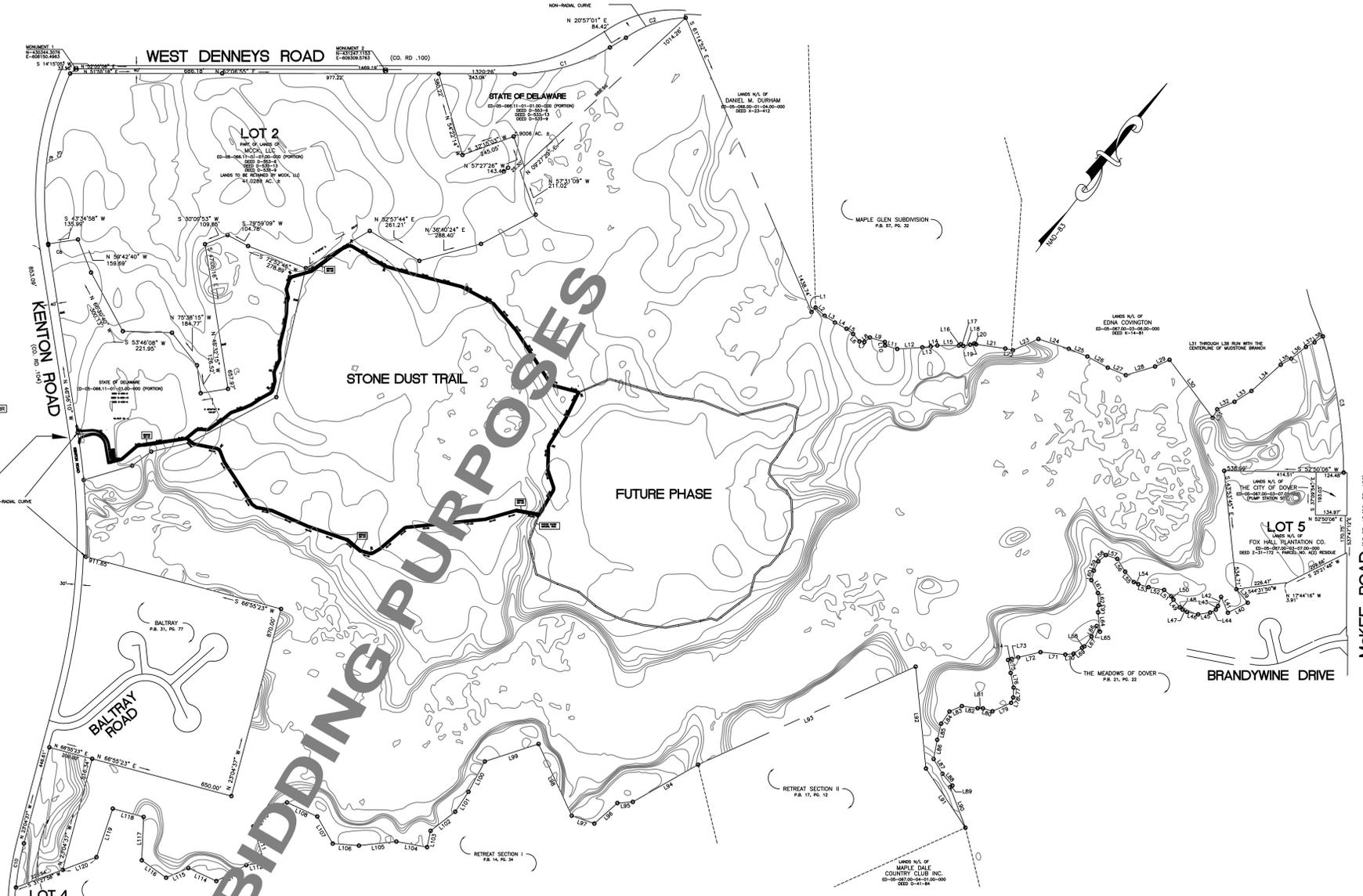
CURVE	RADIUS	LENGTH	CHORD	BEARING
C1	829.10'	450.98'	445.44'	N39°31'58"E
C2	486.24'	298.15'	284.12'	N33°35'19"E
C3	2251.83'	621.03'	619.03'	S49°42'32"E
C4	2874.79'	569.51'	558.63'	N41°40'14"W
C5	1392.39'	789.00'	776.76'	N32°44'14"W
C6	2874.79'	344.74'	344.53'	N32°35'43"W
C7	2874.79'	614.77'	614.71'	N40°11'07"W
C8	1392.39'	5.11'	5.11'	N48°49'51"W
C9	1392.39'	792.08'	777.86'	N32°38'59"W
C10	1243.20'	201.44'	201.22'	N27°43'58"W

**NOTES**

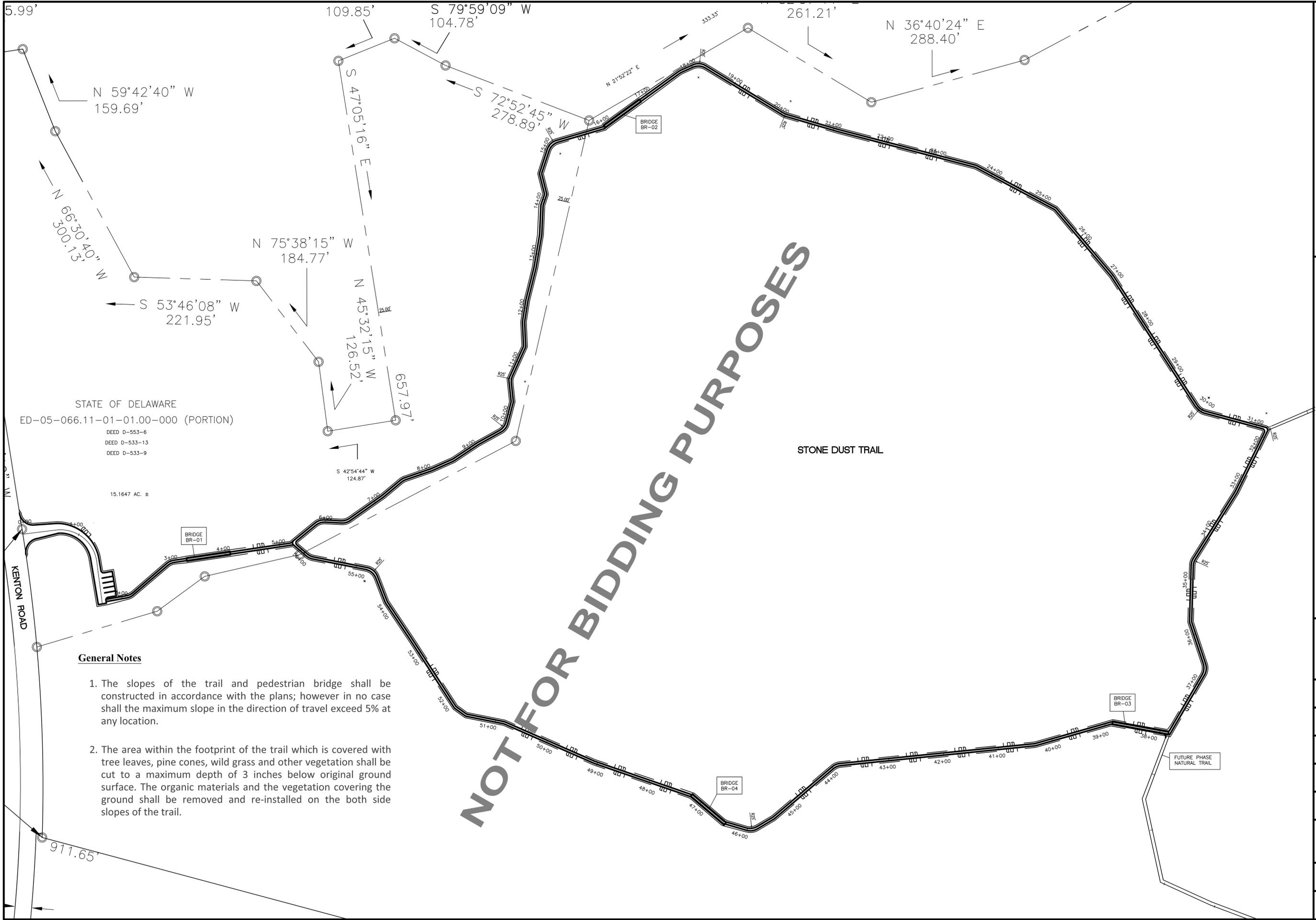
- THIS PLAN IS NOT THE RESULT OF A FIELD SURVEY BUT IS A COMPILATION OF THE FOLLOWING PLANS:
  - SURVEY AS PREPARED BY EARL D. SMITH, INC. DATED 6-12-89 ENTITLED "LANDS TO BE CONVEYED TO MCKEY LN. PART 1" (REV. 8-18-89).
  - SURVEY AS PREPARED BY EARL D. SMITH, INC. DATED 2-10-00 ENTITLED "SURVEY OF THE LANDS OF EDNA COVINGTON".
  - MINOR SUBDIVISION PLAN AS PREPARED BY SCOTT ENGINEERING, INC. DATED 5-29-03 ENTITLED "MINOR SUBDIVISION PLAN FOR DR. J. McCLEMENS C/O MCKEY LN."
  - 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 9-2-03 (REVISED 10-14-03) ENTITLED "MINOR LOT LINE ADJUSTMENT PLAN - LANDS OF MCKEY, LLC & FOX HALL PLANTATION".
  - RECORDED AND FOR THE RECORDER OF DEEDS OFFICE, KENT COUNTY, DELAWARE, 2003-25-03 IN PLOT BOOK 69, PAGE 92.
- THE PURPOSE OF THIS PLAN IS TO ROTATE THE NORTH ADJUTANT BASED UPON NORTH AMERICAN DATUM 1983 (NAD-83) AS ACQUIRED AND PROVIDED BY D. SMITH, INC. R.E.C. PROJECT NO. 21-4-0313 ACQUIRED NOV. 10, 2003).
- WATER LINE OF TRAIL TO BE CLEARLY DELINEATED IN THE FIELD PRIOR TO START OF CONSTRUCTION.

**DATA COLUMN**

- JAX PANGOL, INC. - AS NOTED  
 PRESENT ZONING: RM-1 & R-20  
 PLAN PURPOSE: TO CREATE SAME NUMBER OF PARCELS TO LOT 1 OF 2 PARCELS TRAIL AND CONVEY LOT 6 TO THE STATE OF DELAWARE
- EXISTING AREA: 298,092 AC. ±  
 PROPOSED LOT 1 AREA: 15,164 AC. ±  
 PROPOSED LOT 2 AREA: 41,029 AC. ±  
 PROPOSED LOT 3 AREA: 5,908 AC. ±  
 RESIDUAL AREA: 236,000 AC. ±  
 RESIDUAL ROAD FRONTAGE (KENTON ROAD): 848' ±  
 RESIDUAL ROAD FRONTAGE (MCKEE ROAD): 603' ±



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

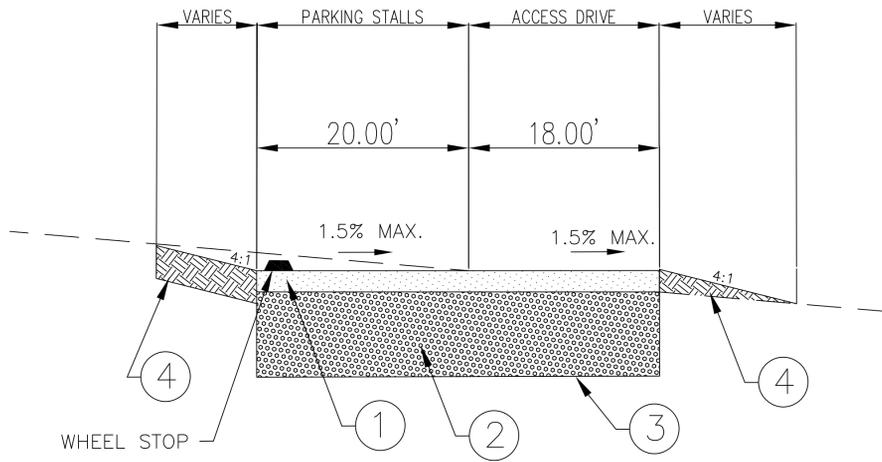


STATE OF DELAWARE  
 ED-05-066.11-01-01.00-000 (PORTION)  
 DEED D-553-6  
 DEED D-533-13  
 DEED D-533-9

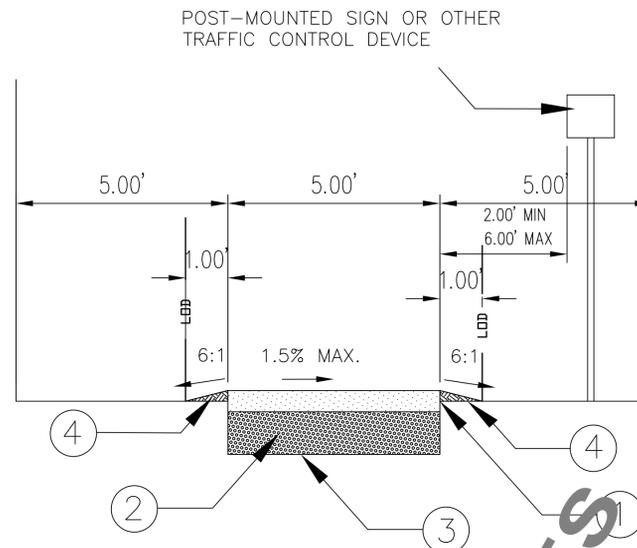
**General Notes**

1. 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.
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:
DATE:	DESCRIPTION:	BY:
FORK BRANCH NATURE PRESERVE		
SITE PLAN		
DESIGNED BY: JFS		
DRAWN BY: KODM		
BUILDING NO.: N/A		
DATE: 08\08\2017		
SCALE: N.T.S.		
SHEET NO.: <b>C-02</b>		
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

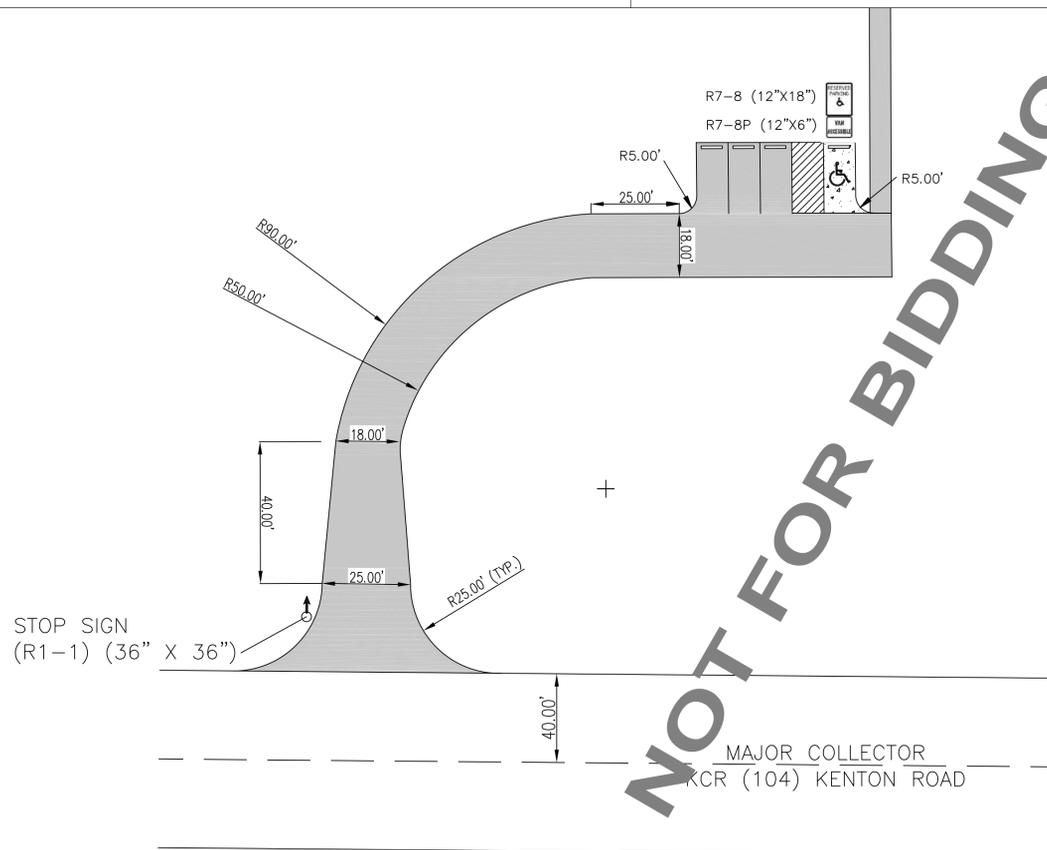
The area within the footprint of the trail which is covered with tree leaves, pine cones, wild grass and other vegetation shall be cut to a maximum depth of 3 inches below original ground surface. The organic materials and the vegetation covering the ground shall be removed and re-installed on the both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

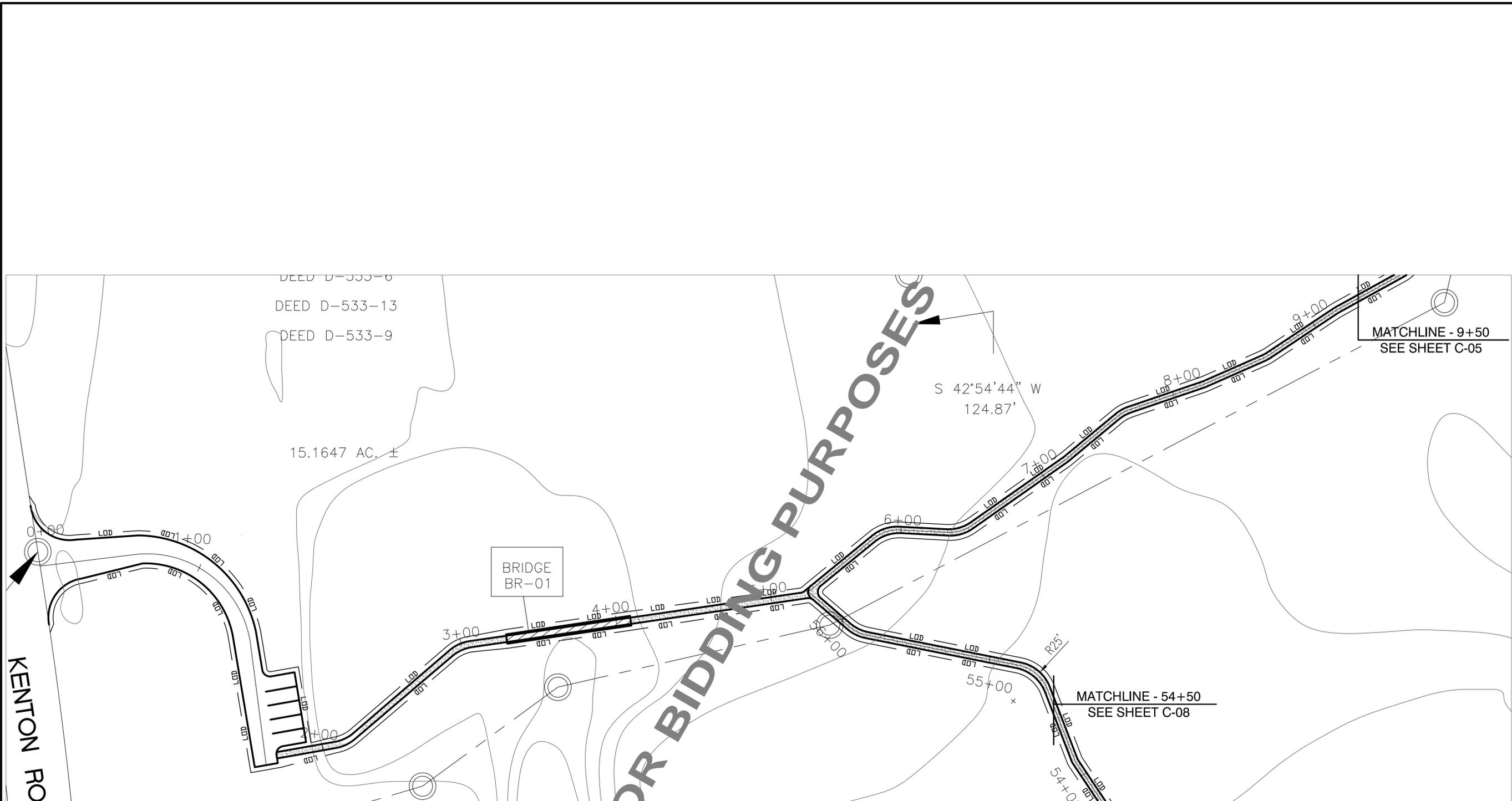
- ④ Slope Less Than 4:1  
Fill With Excavated Material  
Permanent Seeding  
Mulch
- Slope Greater Than 4:1  
Fill With Excavated Material  
Permanent Seeding  
Stabilization Matting



**PHASE 1**

NOT FOR BIDDING PURPOSES

DATE:	DESCRIPTION:	BY:			
DATE:	DESCRIPTION:	BY:			
FORK BRANCH NATURE PRESERVE					
TRAIL & PARKING LOT SECTIONS AND DETAILS					
					
DESIGNED BY: JFS					
DRAWN BY: KODM					
BUILDING NO.: N/A					
DATE: 08\08\2017					
SCALE: N.T.S.					
SHEET NO.: <b>C-03</b>					
PARKS PROJECT #: FBNP-1					
CONTRACT #: 2017-FBNP-100					

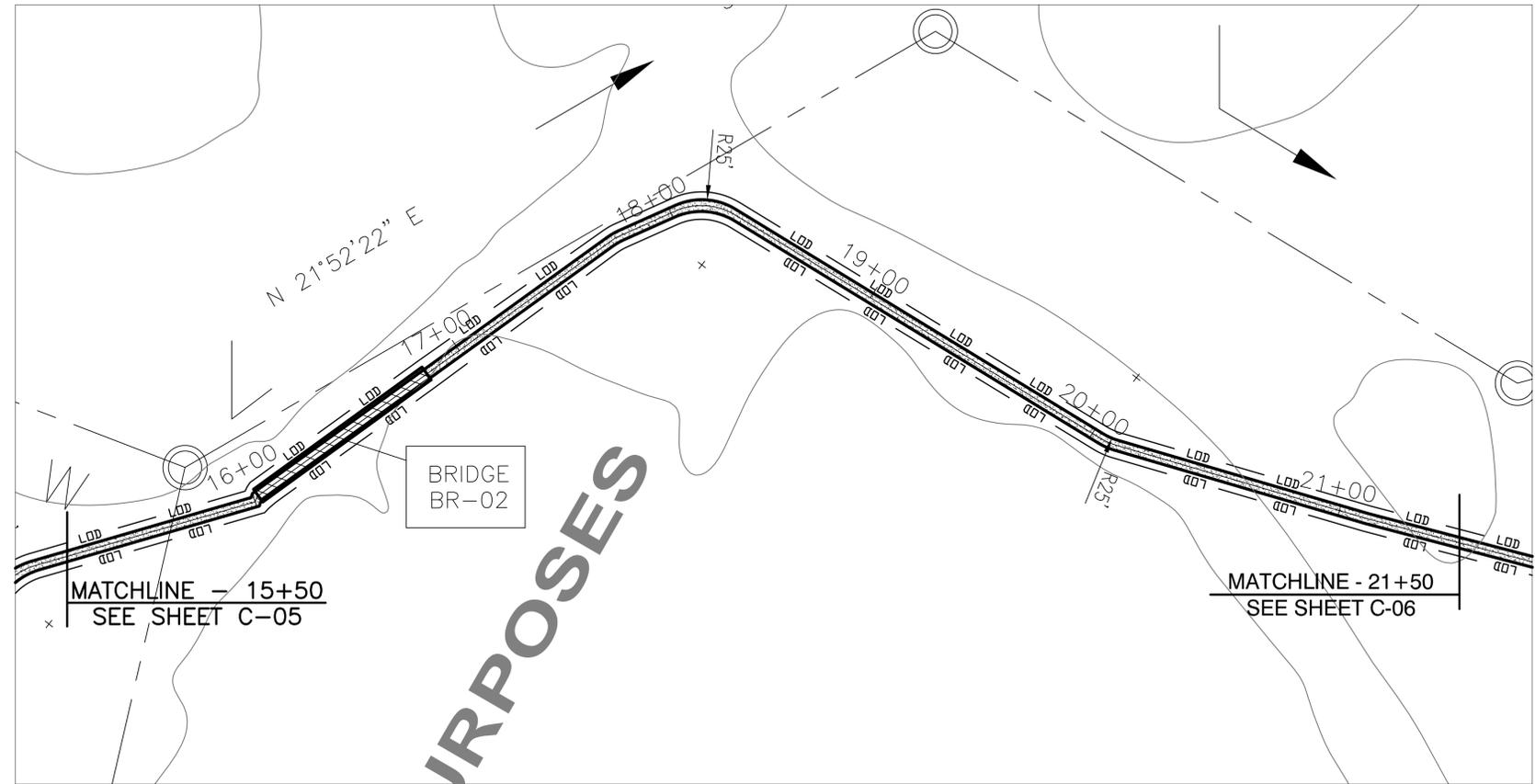


FORK BRANCH NATURE PRESERVE TRAIL PLAN VIEW (STA.: 1+00 - 9+00)

DATE:	DESCRIPTION:	BY:
DATE:	DESCRIPTION:	BY:
DATE:	DESCRIPTION:	BY:
<b>FORK BRANCH NATURE PRESERVE</b>		
<b>SITE ALIGNMENT &amp; GRADING</b>		
DESIGNED BY:	JFS	
DRAWN BY:	KODM	
BUILDING NO.:	N/A	
DATE:	08\08\2017	
SCALE:	1"=30'-0"	
SHEET NO.:	<b>C-04</b>	
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)

NOT FOR BIDDING PURPOSES

DATE:	DESCRIPTION:	BY:

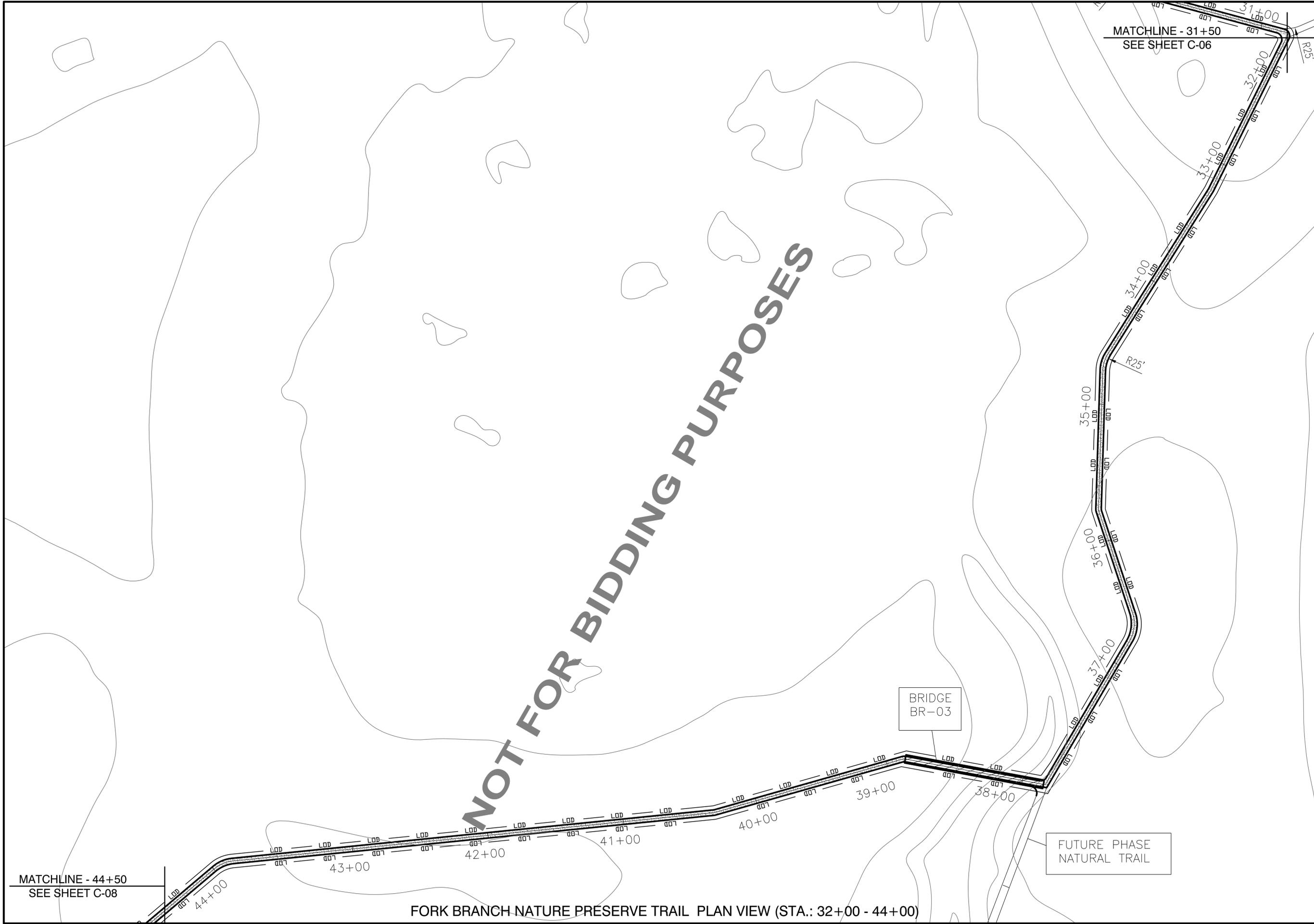
FORK BRANCH NATURE PRESERVE	SITE ALIGNMENT & GRADING
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DESIGNED BY:	JFS
DRAWN BY:	KODM
BUILDING NO.:	N/A
DATE:	08\08\2017
SCALE:	1"=30'-0"
SHEET NO.:	C-05
PARKS PROJECT #:	FBNP-1
CONTRACT #:	2017-FBNP-100



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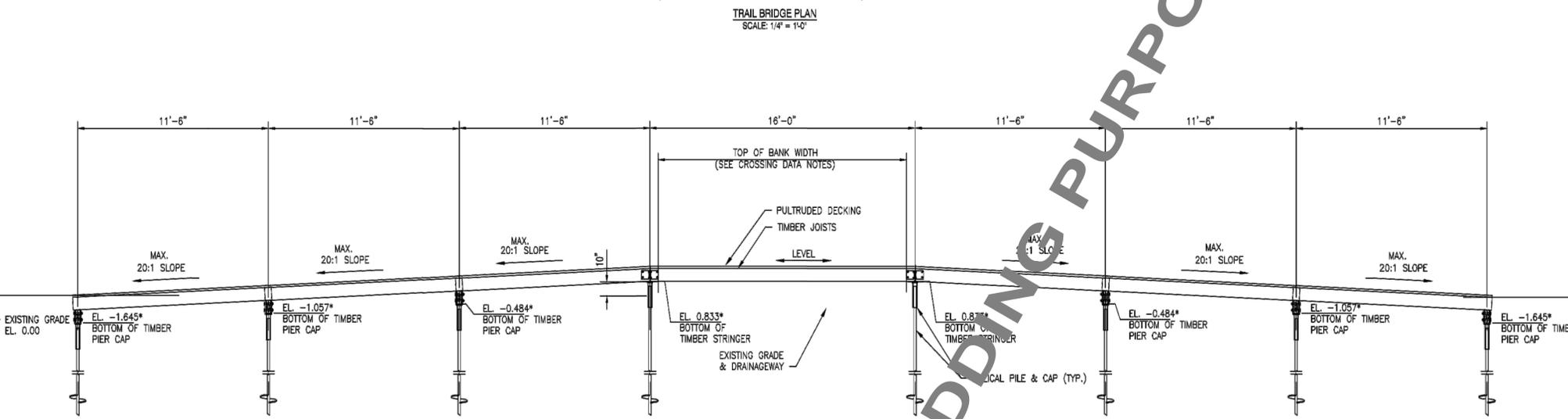
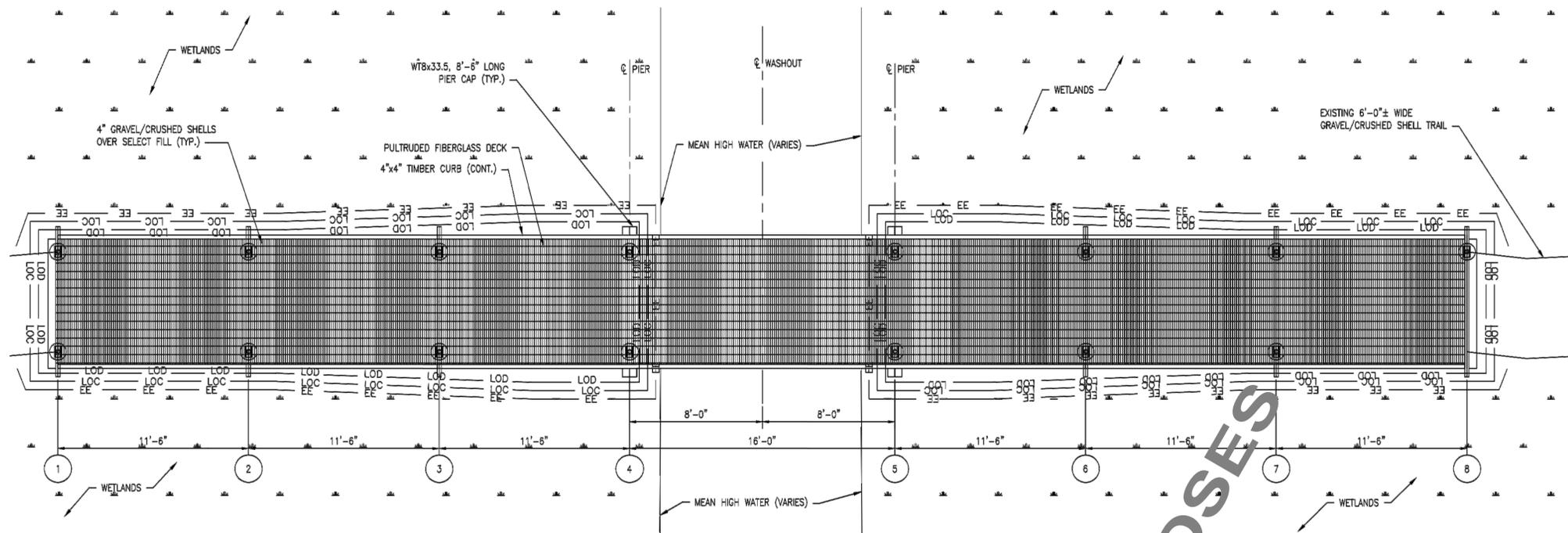
MATCHLINE - 31+50  
SEE SHEET C-06

MATCHLINE - 44+50  
SEE SHEET C-08

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

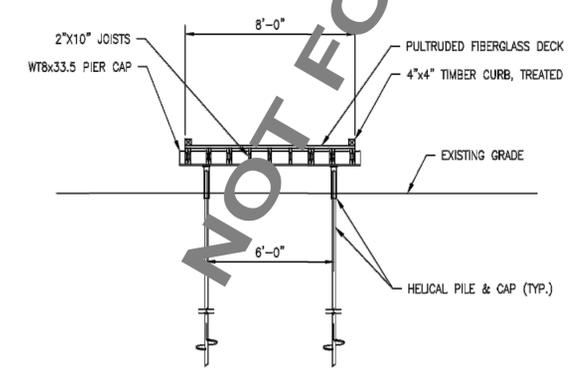
DATE:	DESCRIPTION:	BY:
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FORK BRANCH NATURE PRESERVE		
SITE ALIGNMENT & GRADING		
DESIGNED BY:	JFS	
DRAWN BY:	KODM	
BUILDING NO.:	N/A	
DATE:	08\08\2017	
SCALE:	1"=30'-0"	
SHEET NO.:	<b>C-07</b>	
PARKS PROJECT #:	FBNP-1	
CONTRACT #:	2017-FBNP-100	





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 BRIDGE ELEVATION  
SCALE: 1/4" = 1'-0"



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

LEGEND	
EROSION EEL	— EE — EE —
LIMIT OF CONSTRUCTION	— LOC — LOC —
LIMIT OF DISTURBANCE	— LOD — LOD —
WETLANDS	(Symbol)
PULTRUDED FIBERGLASS DECK	(Symbol)
GRAVEL/CRUSHED SHELL APPROACH	(Symbol)

Fork Branch Trail Bridge Number	Length of Structure
Bridge BR- 01	80'
Bridge BR- 02	80'
Bridge BR- 03	103'
Bridge BR- 04	80'

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

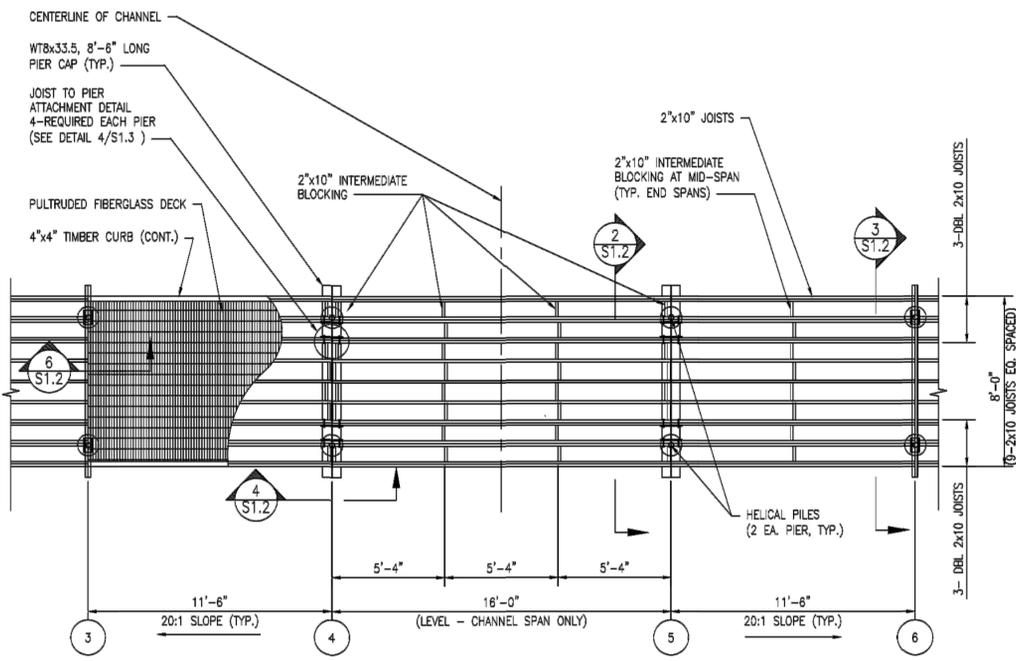
**PROJECT NOTES**

- LOADS:**  
LIVE LOAD - 90 PSF PEDESTRIAN LOAD.  
H-5 VEHICLE LOADING (10,000 LBS TOTAL VEHICLE LOAD)
- MATERIAL:**  
CONCRETE:  
CONCRETE FOR ABUTMENT AND CURBS SHALL BE DELDOT CLASS A ( $f'_c = 4500$  PSI).  
MINIMUM CONCRETE COVER FOR REBAR SHALL BE:  
• 3" MINIMUM FOR SURFACES CAST AGAINST EARTH.  
• 2" FOR FIELD-FORMED SURFACES EXPOSED TO WEATHER.  
CHAMFER ALL EXPOSED CONCRETE EDGES 3/4" UNLESS OTHERWISE NOTED.  
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/FT<sup>3</sup>.  
FIELD TREATMENT OF HOLES AND CUTS IN TIMBER JOISTS SHALL CONSIST OF AN APPLICATION OF A COPPER NAPHTHENE SOLUTION WITH A MINIMUM OF 2% COPPER METAL IN ACCORDANCE WITH AWPA STANDARD P9. METHOD OF APPLICATION FOR ALL CUTS, HOLES AND INJURIES OF 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 835.  
• 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.

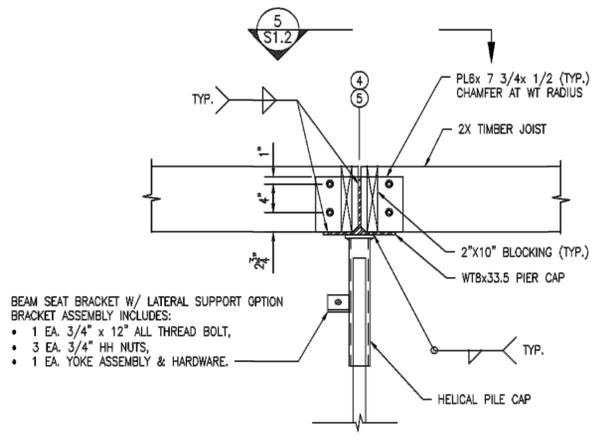
**EROSION & SEDIMENT CONTROL NOTES**

- 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.
- ALL CONCRETE SHALL BE WASHED OUT OFF SITE, OR IN A PREFABRICATED CONCRETE WASHOUT UNIT WITH A MINIMUM AREA OF 4'x4' AND A DEPTH OF 12", PLACED ON TOP OF A WOODEN PALLET. THE UNIT SHALL BE LINED WITH A MINIMUM 4ML POLYETHYLENE LINER THAT CAN BE TIED OFF DURING RAIN EVENTS. AFTER THE WASHOUT UNIT IS UTILIZED IT SHALL REMAIN EXPOSED (EXCEPT DURING RAIN EVENTS) SO THAT THE WASTEWATER CAN EVAPORATE, LEAVING ONLY SOLID CONCRETE RESIDUE. THE PALLET SHALL BE LEGALLY DISPOSED OF OFF SITE. A TYPICAL 4'x4' UNIT MAY BE ABLE TO ACCOMMODATE 10 WASHOUTS BEFORE NEEDING TO BE REPLACED. THE UNIT SIZE OR DISPOSAL FREQUENCY SHALL BE ADJUSTED DEPENDING ON THE EXPECTED FREQUENCY OF USE.
- THE LOCATION OF THE PREFABRICATED CONCRETE WASHOUT SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.
- NO TRESPASSING OF THE CONTRACTOR'S PERSONNEL OR EQUIPMENT SHALL BE ALLOWED BEYOND THE LIMIT OF CONSTRUCTION (LOC) WITH THE EXCEPTION OF THE EXISTING GRAVEL TRAIL.
- ALL DISTURBED AREAS SHALL BE STABILIZED WITH A MINIMUM OF 4 INCHES OF GRAVEL/CRUSHED SHELLS.
- THE CONTRACTOR SHALL REMOVE ALL SEDIMENT FROM THE EXISTING 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.

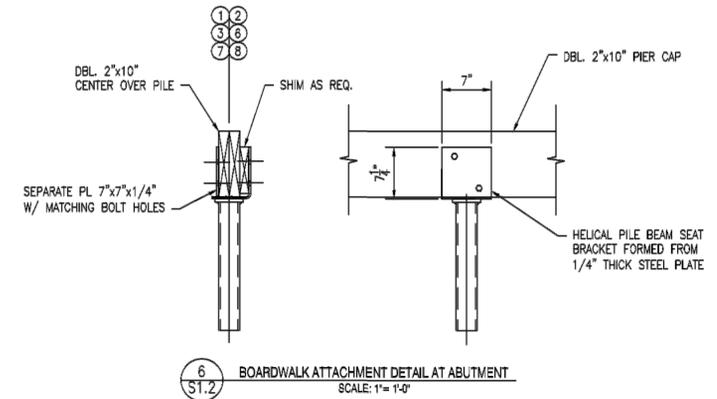
DATE:	DESCRIPTION:	BY:
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FORK BRANCH NATURE PRESERVE		
BRIDGE PLAN		
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DRAWN BY:	KODM	
BUILDING NO.:	N/A	
DATE:	08\08\2017	
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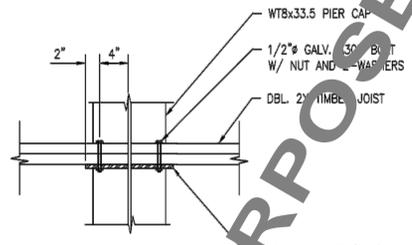
1 BOARDWALK FRAMING PLAN  
SCALE: 1/4" = 1'-0"



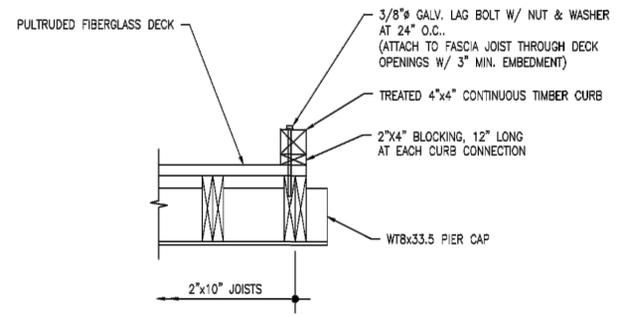
4 STEEL PIER CAP DETAIL  
SCALE: 1" = 1'-0"



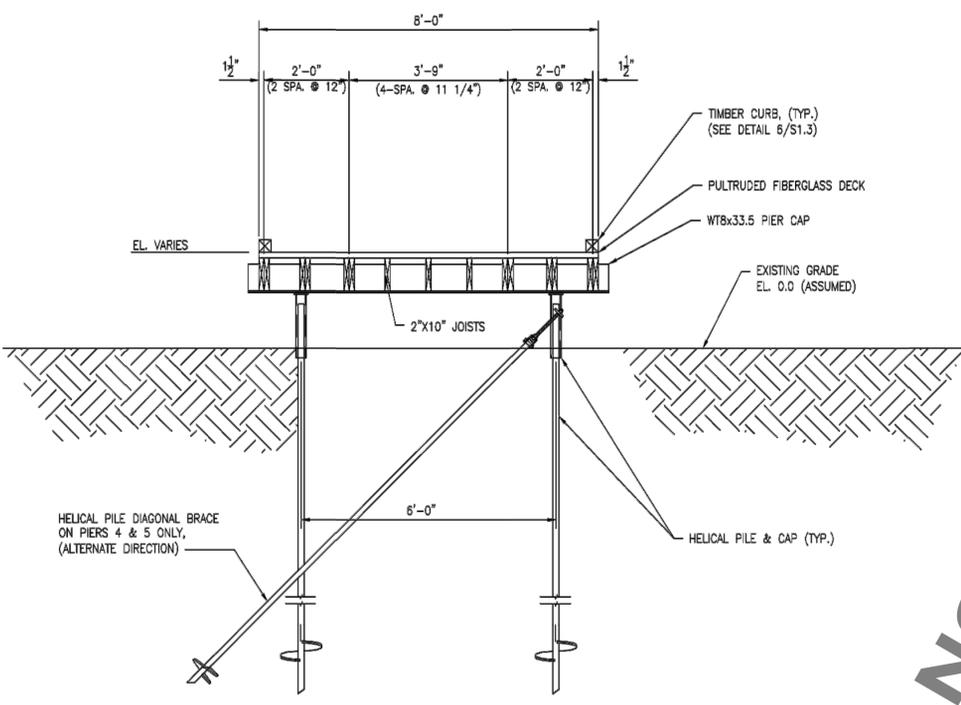
6 BOARDWALK ATTACHMENT DETAIL AT ABUTMENT  
SCALE: 1" = 1'-0"



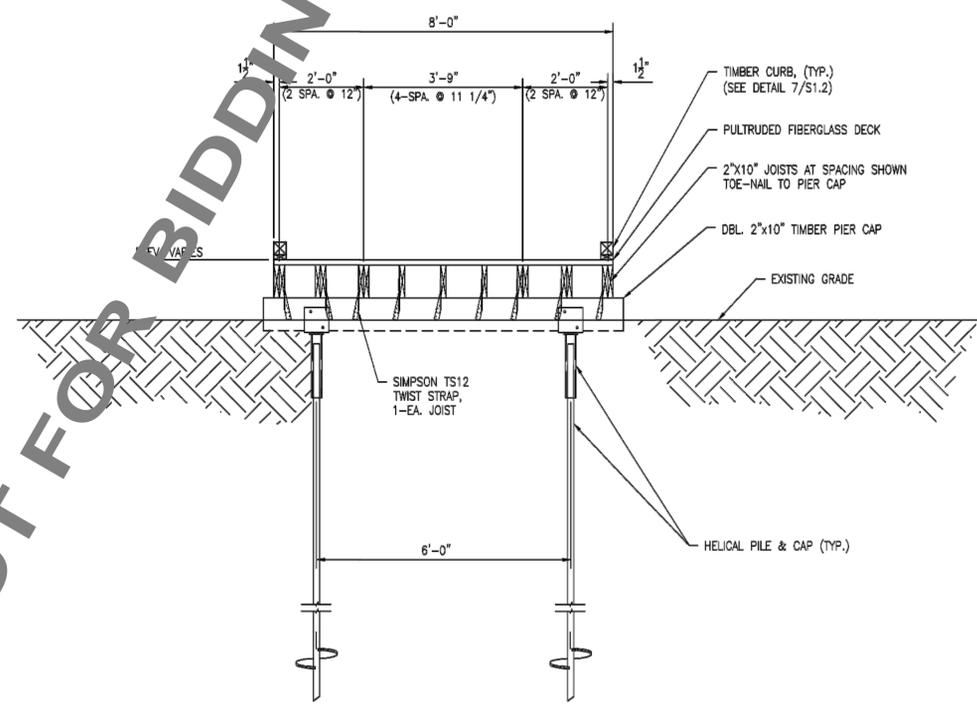
5 PIER CAP PLAN VIEW  
SCALE: 1" = 1'-0"



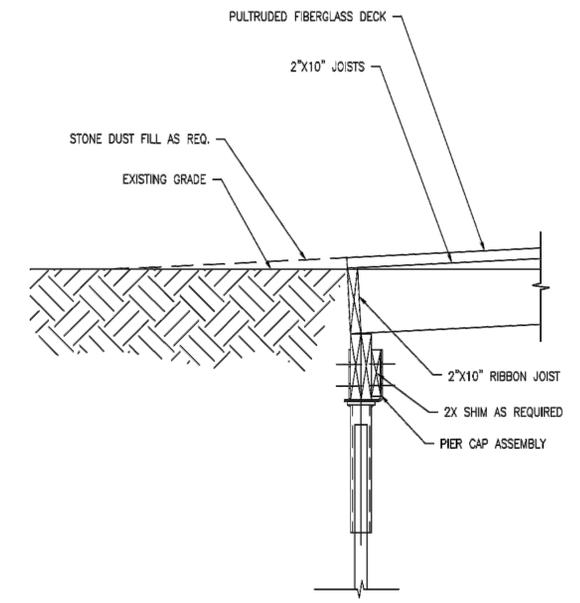
7 TIMBER CURB DETAIL  
SCALE: 1" = 1'-0"



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"

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<b>BRIDGE PLAN</b>		
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