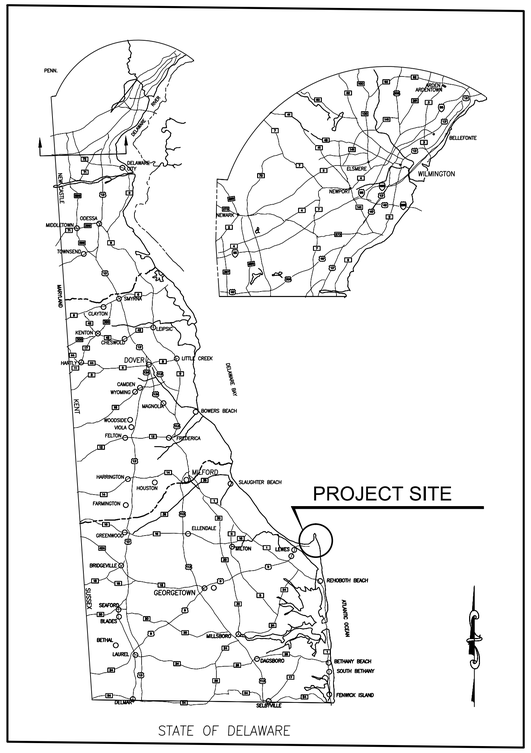
STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
DIVISION OF PARKS AND RECREATION

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS



LOCATION MAP

CONTRACT NO.: 2015-CH-300
APRIL 7, 2016
ISSUED FOR REVIEW

PROGRESS - NOT FOR CONSTRUCTION

SITE MAP

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PARKS PROJECT NO. CH-44

DATE:	DESCRIPTION:	BY:

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

COVER SHEET

DESIGNED BY: O.D.D.
DRAWN BY: O.D.D.
BUILDING NO.: N/A
DATE: 04\26\2016
SCALE: N/A
SHEET NO.: G-1
PARKS PROJECT #: CH-44
CONTRACT #: 2015-CH-500

SYMBOLS

- Interior Elevation Number / Sheet Number (3 / A-302)
- Elevation Or Section Number / Sheet Number (1 / A-201)
- Detail Number / Sheet Number (4 / A-401)
- Door Number (100)
- New Column (1)
- Existing Column (1)
- Window Type (A)
- Partition Type (1)
- Working Point Or Control Point
- Room Name (OFFICE) / Room Number (1201)
- Ceiling Type (ACT-1) / Ceiling Height (9'-0")
- W: Wall Finish (W P-1)
- B: Base (B WB-1)
- F: Floor Finish (F CPT-1)
- Casework Finish (C SS-1)
- Revision Number (1)
- Accessory / Fixture Type (3)
- Magnetic North
- Plan North (N)
- & And
- @ At
- # Number Or Pound
- ø Diameter
- ℄ Center Line
- ⅊ Plate
- Dimension to Face of Material
- Dimension to Centerline of Structure

MATERIALS

- Concrete Masonry Unit
- Brick
- Concrete
- Porous Fill, Stone Or Gravel
- Earth
- Insulation - Batt, Blanket Or Loose
- Insulation - Rigid
- Glass In Elevation
- Wood - Continuous Lumber
- Wood - Blocking
- Wood - Finish
- Plywood - Small Scale
- Plywood - Large Scale
- Gypsum Board
- Steel
- Stone

STANDARD ABBREVIATIONS

AB	Anchor Bolt
ADJ	Adjustable
AFF	Above Finished Floor
AHU	Air Handling Unit
ALUM	Aluminum
ALT	Alternate
APC	Acoustic Panel Ceiling
APPROX	Approximate
ARCH	Architectural
BD	Board
BITUM	Bituminous
BLDG	Building
BLKG	Blocking
BM	Beam
BRG	Bearing
BSMT	Basement
BUR	Built-up Roofing
BW	Both Ways
CAB	Cabinet
CB	Catch Basin
CCTV	Closed Circuit Television
CEM	Cement
CF/CI	Contractor Furnished / Contractor Installed
CF/OI	Contractor Furnished / Owner Installed
CI	Cast Iron
CIP	Cast-in-place
CJ	Control Joint
CLG	Ceiling
CLO	Closet
CLR	Clear
CMU	Concrete Masonry Unit
CNTR	Center
COL	Column
CONC	Concrete
CONST	Construction
CONT	Continuous
CORR	Corridor
CRS	Course(s)
CPT	Carpet
CT	Ceramic Tile
DBL	Double
DEPT	Department
DET	Detail
DF	Drinking Fountain
DH	Double Hung
DIA	Diameter
DIM	Dimension
DN	Down
DS	Downspout
DWG	Drawing
E	East
EA	Each
EIFS	Exterior Insulation and Finish System
EJ	Expansion Joint
EL	Elevation
ELEC	Electrical
ELEV	Elevator
EMER	Emergency
ENCL	Enclosure
EOS	Edge of Slab
EPDM	Ethylene Propylene Piene Monomer Rubber
EPS	Expanded Polystyrene Insulation
EQ	Equal
EQUIP	Equipment
ETR	Existing to Remain
EW	Each Way
EWC	Electric Water Cooler
EXIST	Existing
EXP	Expansion
EXT	Exterior
FA	Fire Alarm
FD	Floor Drain
FDN	Foundation
FE	Fire Extinguisher
FEC	Fire Extinguisher Cabinet
FHC	Fire Hose Cabinet
FIN	Finish
FIXT	Fixture
FLR	Floor
FLUOR	Fluorescent
FOC	Face Of Concrete
FOF	Face Of Finish
FOM	Face Of Masonry
FOS	Face Of Studs
FRJS	Fire Resistive Joint System
FRP	Fiberglass Reinforced Plastic
FRT	Fire Retardant Treated
FT	Foot
FTG	Footing
FURR	Furring
FUT	Future
GA	Gauge
GALV	Galvanized
GFCI	Ground Fault Circuit Interrupter
GL	Glass
GR	Grade
GYP BD	Gypsum Board
HB	Hose Bibb
HC	Hollow Core
HDW	Hardware
HDWD	Hardwood
HM	Hollow Metal
HORIZ	Horizontal
HP	High Point
HR	Hour
HSS	Hollow Structural Section
HT	Height
ID	Inside Diameter
IN	Inch
INS	Insulation
INT	Interior
JAN	Janitor
JST	Joist
JT	Joint
LAB	Laboratory
LAM	Laminate
LAV	Lavatory
LCC	Lead Coated Copper
LP	Low Point
LTTR	Long Term Thermal Resistance
LVL	Laminated Veneer Lumber
MAS	Masonry
MAX	Maximum
MDF	Medium Density Fiberboard
MECH	Mechanical
MEP	Mechanical, Electrical, Plumbing
MFR	Manufacturer
MIN	Minimum
MISC	Miscellaneous
MO	Masonry Opening
MOD BIT	Modified Bituminous
MT	Marble Threshold
MTD	Mounted
MTL	Metal
MUL	Mullion
N	North
NIC	Not In Contract
NO	Number
NOM	Nominal
NTS	Not To Scale
OC	On Center
OD	Outside Diameter
OF/CI	Owner Furnished/ Contractor Installed
OF/OI	Owner Furnished/ Owner Installed
OFF	Office
OH	Overhead
OPG	Opening
OPP	Opposite
OSB	Oriented Strand Board
PCC	Precast Concrete
PFCS	Perimeter Fire Containment System
PL	Plate
PLAM	Plastic Laminate
PLYWD	Plywood
PR	Pair
PSF	Pounds Per Square Foot
PSI	Pounds Per Square Inch
PSL	Parallel Strand Board
PT	Pressure Treated
PTAC	Packaged Terminal Air Conditioner
PTD	Painted
PVMT	Pavement
R	Riser or Radius
RD	Roof Drain
REF	Reference
REFR	Refrigerator
REINF	Reinforced
REQD	Required
RES	Resilient
RM	Room
RO	Rough Opening
RWC	Rain Water Conductor
S	South
SC	Solid Core
SCHED	Schedule
SECT	Section
SF	Square Feet
SFRM	Spray Fire Resistive Materials
SIM	Similar
SPEC	Specification
SPM	Single Ply Membrane
SQ	Square
SS	Stainless Steel
STA	Station
STD	Standard
STL	Steel
STOR	Storage
STRUCT	Structure
SUSP	Suspended
SYM	Symmetrical
T	Tread
T&G	Tongue & Groove
TEL	Telephone
THK	Thick
TOC	Top Of Concrete
TOF	Top Of Finish
TOM	Top Of Masonry
TOS	Top Of Steel
TPO	Thermoplastic Polyolefin
TYP	Typical
UNO	Unless Noted Otherwise
VCT	Vinyl Composition Tile
VERT	Vertical
VEST	Vestibule
VIF	Verify In Field
W	West
W/	With
W/O	Without
WC	Water Closet
WD	Wood
WH	Water Heater
WIC	Walk-in-Closet
WP	Working Point
WSCT	Wainscot
WT	Weight
WWF	Welded Wire Fabric
XPS	Extruded Polystyrene Insulation

KEY INFORMATION

1. Applicable Code(s) & Regulations For This Project:
   - 2012 IBC (International Building Code With Amendments)
   - 2012 IRC (International Residential Code With Amendments)
   - ICC/ANSI A117.1-2009 (Accessibility required by IBC)
   - 2010 ADA Standards for Accessible Design
   - Delaware State Fire Prevention Regulation 2009
   - 2009 Edition of Life Safety NFPA 101
2. Occupancy Use Group(s): B
3. Construction Type(s): II B
4. Project Description: Campground improvements include new electric & water connections at each RV camping site, new & modified roadways & parking, removal of roadways, pavement of RV parking spots as well as grading and stormwater management. Alternates will be accepted to convert the bathhouse into a camp store & laundry, renovate the contact station and to enclose the power panels.
5. Type Of Construction: Renovation of existing.

LIST OF ALTERNATES

1. Alternate One: Bathhouse Conversion
2. Alternate Two: Contact Station Renovations
3. Alternate Three: Power Panel Enclosures

GENERAL NOTES

1. All work shall be in accordance with applicable state and local building codes and all other governing agencies and regulations.
2. 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.
3. Notify 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.
4. Contractor shall obtain all required building permits and licenses.
5. Contractor shall remove all rubbish and debris from the site during course of project, and dispose of legally off-site.
6. Contractor shall perform all cutting, patching and protection required to complete the work indicated on the Contract Documents.
7. Contractor shall provide all inspections and tests required by state and local authorities including but not limited to mechanical and electrical work. Refer to individual drawings and specifications for additional testing requirements.
8. 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 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.
9. All dimensions are either to face of masonry or the face of stud, unless noted otherwise. Drawings are not to be scaled.
10. Install all equipment and materials per manufacturer's instructions and recommendations unless specifically otherwise indicated, or where local codes and regulations take precedence.
11. Contractor shall provide supervision while any subcontractors or workers are on the job site and shall supervise and direct all work.
12. 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.
13. 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.
14. Locations of rated fire/smoke separations and/or fire resistive structural protection are shown on documents. Provide complete assemblies to meet fire resistive requirements of the project including protection of structural elements and fire separation assemblies. Maintain the integrity of these assemblies at openings and penetrations including but not limited to fire or smoke dampers in ductwork, light fixture protection, electrical device box ratings, expansion joints, and sealants. Provide this protection by using complete building component systems approved by recognized authorities such as Underwriters Laboratories, Inc., Factory Mutual, or other building code accepted agencies. It is the responsibility of the Contractor to coordinate subcontractors and suppliers to accomplish this work during bidding, procurement, scheduling, sequencing and construction of the project.
15. 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 conformance with the performance and design criteria.

PROGRESS - NOT FOR CONSTRUCTION

DATE:	DESCRIPTION:	BY:

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

GENERAL NOTES, ABBREVIATIONS & SYMBOLS

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: O.D.D.
DRAWN BY: O.D.D.
BUILDING NO.: N/A
DATE: 04\26\2016
SCALE: AS NOTED
SHEET NO.: G-2
PARKS PROJECT #: CH-44
CONTRACT #: 2015-CH-300

PROJECT NOTES

1. THE INTENT OF THIS PROJECT IS TO PROVIDE THE FOLLOWING IMPROVEMENTS AT THE CAPE HENLOPEN CAMPGROUND:
   1.1. CONSTRUCTION OF BACK-IN AND PULL-THROUGH HOT-MIX ASPHALT CAMPER/RV PARKING SITES.
   1.2. CONSTRUCTION OF A ONE-WAY LOOP ROADWAY SYSTEM THROUGHOUT THE CAMPGROUND. THE ROADWAY AND ASSOCIATED IMPROVEMENTS SHALL FOLLOW, AS CLOSELY AS POSSIBLE, THE HORIZONTAL ALIGNMENT AND PATH PROFILE SHOWN ON THE PLANS. MINOR ADJUSTMENT IN THE ALIGNMENT AND/OR PROFILE MAY BE REQUIRED BY THE ENGINEER IN THE FIELD.
   1.3. REMOVAL OF EXISTING EXCESS ASPHALT PAVEMENT.
   1.4. PLACEMENT OF CONCRETE AND/OR HOT-MIX WALKWAYS.
   1.5. CONSTRUCTION OF NEW WATER SERVICE, AND HOSE BIB CAMPER HOOK-UP SERVICE, AS SHOWN.
   1.6. REMOVAL/ABANDONMENT OF EXISTING WATER HOSE BIBS AND UNDERGROUND WATER SERVICE.
   1.7. CONSTRUCTION OF NEW ELECTRICAL CAMPER HOOK-UP SERVICE, AS SHOWN.
2. THESE PLANS WERE DEVELOPED FROM AERIAL SURVEY PROVIDED BY DNREC STATE PARKS. CONTROL POINTS UTILIZED FOR THE AERIAL SURVEY, AND THE ASSOCIATED SURVEY INFORMATION, HAVE BEEN INCLUDED IN THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL ADDITIONAL PHYSICAL CONTROL AS REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
3. 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.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MINOR RELOCATION OF WATER LINES, YARD HYDRANTS, ELECTRICAL LINES, AND ELECTRICAL PEDESTALS THAT CONFLICT WITH EXISTING FEATURES TO REMAIN, 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.
5. 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 2001 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, REFER TO THE "STANDARD SPECIFICATIONS" FOR MATERIALS AND METHOD OF CONSTRUCTION. UNLESS NOTED OTHERWISE, THE COST FOR ALL WORK SHALL BE PAID FOR IN THE LUMP SUM PRICE BID FOR THE PROJECT, WHETHER THE INDIVIDUAL SECTION IS INCLUDED IN THE SPECIFICATION PACKET OR NOT.
6. ALL EXCAVATION FOR CONSTRUCTION OF THE PROPOSED ROADWAY SHALL BE IN ACCORDANCE WITH SECTION 202 – EXCAVATION AND EMBANKMENT, OF THE DELDOT STANDARD SPECIFICATIONS.
7. CLEARING AND GRUBBING IS ASSUMED TO EXTEND A MINIMUM OF SIX (6) INCHES BELOW EXISTING GRADE FOR THE LENGTH OF THE PROJECT. CLEARING AND GRUBBING WITHIN THE LIMITS OF DISTURBANCE (LOD) SHALL CONSIST OF CLEARING, GRUBBING, REMOVING AND DISPOSING OF ALL TREES, ROOTS, VEGETATION AND DEBRIS UNLESS OTHERWISE INDICATED, EXCEPT SUCH OBJECT(S) THAT ARE DESIGNATED TO REMAIN.
8. 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 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.
9. 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, SEE DNREC DETAIL DE-ESC-3.7.2, SENSITIVE AREA PROTECTION.
10. ENDS OF THE PROPOSED ROADWAY SHALL BE TRANSITIONED AS NECESSARY TO MEET THE EXISTING GRADES OF THE EXISTING PAVEMENT.
11. CROSS SLOPE OF ALL NEW WALKWAYS SHALL NOT EXCEED A SLOPE OF 1:50. LONGITUDINAL SLOPES OF ALL NEW WALKWAYS SHALL NOT EXCEED 1:20.
12. CAMP SITES AND WALKWAYS SHOWN FOR BIDDING PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYING OUT THE CENTER LINE OF CAMP SITES AND ALL WALKWAYS IN THE FIELD FOR APPROVAL OF THE OWNER PRIOR TO STARTING CONSTRUCTION. THE OWNER RESERVES THE RIGHT TO ADJUST THE LOCATION OF THE CAMP SITES AND/OR THE WALKWAYS TO AVOID CONFLICT WITH EXISTING SITE FEATURES INCLUDING, BUT NOT LIMITED TO, TREES AND OBJECTIONABLE SLOPES.
13. THE CONTRACTOR MAY STORE AND/OR STOCKPILE EQUIPMENT AND MATERIALS WITHIN THE PROJECT SITE LIMIT OF DISTURBANCE (LOD) SHOWN ON PLAN.
14. EXCESS EXCAVATED MATERIAL SHALL BE STOCKPILED WITHIN CAPE HENLOPEN STATE PARK AT A LOCATION TO BE DETERMINED BY THE ENGINEER. ANY ADDITIONAL LOCATIONS FOR STOCKPILE/STORAGE AREAS SHALL BE COORDINATED WITH THE ENGINEER AND APPROVED BY THE DNREC SEDIMENT AND STORMWATER MANAGEMENT PROGRAM PRIOR TO THE START OF WORK. ALL STOCKPILE AREAS SHALL BE STABILIZED DURING CONSTRUCTION, AND REDRESSED AFTER CONSTRUCTION IN ACCORDANCE WITH EROSION AND SEDIMENT CONTROL REQUIREMENTS. COST SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR THE PROJECT.
15. THE OWNER RESERVES THE RIGHT TO ELIMINATE RV SITES SHOWN ON THESE PLANS. PROPOSED UTILITIES ASSOCIATED WITH ANY RV SITE(S) ELIMINATED BY THE OWNER SHALL ALSO BE ELIMINATED. THE CONTRACTOR SHALL ISSUE A CREDIT FOR ALL RV SITES AND UTILITIES ELIMINATED.
16. THE CONTRACTOR IS ADVISED THAT CONTRACTOR EMPLOYEE PARKING SHALL BE LIMITED TO THE EXISTING PAVED PARK PARKING AREAS OF CAMPGROUND, UNLESS APPROVED BY THE ENGINEER. VEHICLE PARKING SHALL NOT BE ALLOWED ON UNPAVED AREAS.
17. EXISTING BUILDING PAD TO BE CONVERTED INTO OVERFLOW PARKING LOT AS NOTED IN SECTION 12300 – ALTERNATES.
   17.1. POWER SWEEP EXISTING BUILDING PAD WITH TRACTOR MOUNTED ROTARY BROOM TO REMOVE ALL EXISTING DEBRIS, VEGETATION, ETC. TO REVEAL BARE PAD.
   17.2. POWER WASH ALL DEBRIS OUT OF ALL CRACKS TO A MINIMUM DEPTH OF ONE (1) INCH AND APPLY CRACK SEALANT IN ACCORDANCE WITH SECTION 406507 – CRACK SEALING.
   17.3. APPLY BITUMINOUS ASPHALT TACK COAT, ITEM 404501, TO PAD IMMEDIATELY PRIOR TO PLACING ASPHALT OVERLAY.
18. EXISTING ROADWAY TO REMAIN SHALL RECEIVE THE FOLLOWING WORK PRIOR TO PLACEMENT OF ASPHALT OVERLAY:
   18.1. REMOVE AND PATCH DAMAGED SECTIONS OF ASPHALT AS SHOWN ON PLAN SHEET C2.1 – DEMOLITION PLAN, AND AS DIRECTED BY THE ENGINEER. PATCHING SHALL INCLUDE SAWCUTTING EXISTING PAVEMENT, PLACEMENT AND COMPACTION OF TYPE B WARM MIX ASPHALT TO MATCH THE ELEVATION OF THE EXISTING ADJACENT ASPHALT. TYPE B ASPHALT PATCH MATERIAL SHALL BE PLACED AT A THICKNESS EQUIVALENT TO THE THICKNESS OF THE EXISTING ASPHALT OR THREE (3) INCHES, WHICHEVER IS GREATER. TYPE C WMA, SUPERPAVE SHALL BE PLACED AS PART OF THE OVERLAY OPERATION AND NOT INCLUDED IN THE PATCHING OPERATION.
   18.2. POWER WASH ALL DEBRIS OUT OF ALL CRACKS TO A MINIMUM DEPTH OF ONE (1) INCH AND APPLY CRACK SEALANT IN ACCORDANCE WITH SECTION 406507 – CRACK SEALING.
   18.3. CRACKS WIDER THAN ONE (1) INCH IN WIDTH SHALL BE REMOVED BY SAWCUTTING PAVEMENT ONE (1) FOOT ON EACH SIDE OF CRACK AND REMOVING ASPHALT PAVEMENT. PLACE NEW WARM MIX ASPHALT, TYPE B AND COMPACT WITH VIBRATORY PLATE COMPACTOR TO BRING PATCH LEVEL WITH SURROUNDING ASPHALT PAVEMENT. CRACKS SHALL BE IDENTIFIED IN THE FIELD WITH PAINT MARKS IDENTIFYING THE LONGITUDINAL LIMITS OF THE CRACK FOR APPROVAL BY THE ENGINEER. THE PRICE FOR ALL SAWCUTTING, REMOVAL, AND PLACEMENT OF NEW WARM MIX ASPHALT SHALL BE PAID FOR UNDER THE UNIT COST BID FOR THIS WORK.
   18.4. AREAS OF PAVEMENT TO RECEIVE AN OVERLAYMENT THAT CONTAIN RAISED AREAS HIGHER THAN ONE INCH FROM TREE ROOTS, ETC. SHALL BE MILLED TO MATCH THE SURROUNDING PAVEMENT PRIOR TO PLACING THE NEW WARM MIX ASPHALT OVERLAY. THE PRICE FOR ALL MILLING SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR THE PROJECT.
   18.5. SWEEP AND BLOW OFF EXISTING ROADWAY WITH TRACTOR MOUNTED ROTARY BROOM AND COMPRESSED AIR TO REMOVE ALL EXISTING DEBRIS, VEGETATION, ETC. TO REVEAL BARE PAVEMENT AND/OR BUILDING PAD.
   18.6. APPLY BITUMINOUS ASPHALT TACK COAT, ITEM 404501, TO EXISTING ROADWAY IMMEDIATELY PRIOR TO PLACING TYPE C WMA OVERLAY.

GENERAL NOTES

1. THE TERM "ENGINEER", "STATE", "OWNER", 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 CAPE HENLOPEN STATE PARK.
2. THE TERM HOT-MIX ASPHALT MAY BE FOUND WITHIN THESE PLANS AND SPECIFICATIONS. IN ALL CASES, WARM MIX ASPHALT SHALL BE USED IN PLACE OF HOT-MIX ASPHALT.
3. THE CONTRACTOR SHALL PROTECT ALL FEATURES NOT DESIGNATED TO BE REMOVED. DAMAGED ITEMS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY DNREC, AT NO COST TO THE OWNER.
4. 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.
5. THE CONTRACTOR SHALL PROVIDE NECESSARY FACILITIES, INCLUDING BUT NOT LIMITED TO RESTROOMS, AND CONSTRUCTION TRAILER DURING CONSTRUCTION. PARK FACILITIES SHALL NOT BE USED.
6. 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.
7. 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.
8. 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).
9. 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.
10. 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.
11. 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.
12. 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 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.
13. THESE DRAWINGS DO NOT INCLUDE NECESSARY ELEMENTS OF CONSTRUCTION SAFETY. ALL CONSTRUCTION, INCLUDING EXCAVATION, MUST BE COMPLETED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT, CFR §1926.652(b)(2), AND ALL FEDERAL, STATE AND LOCAL REQUIREMENTS. CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SITE SAFETY.
14. NO DEBRIS SHALL BE BURIED OR BURNED ON THE SITE UNLESS SPECIFICALLY NOTED WITHIN THESE PLANS OR SPECIFICATIONS.
15. THE CONTRACTOR SHALL CONTACT MISS UTILITY TWO (2) CONSECUTIVE WORKING DAYS PRIOR TO EXCAVATION AT 1-800-282-8555.

SEQUENCE OF CONSTRUCTION

1. INSTALL ALL MAINTENANCE OF TRAFFIC, BARRICADES, TEMPORARY SIGNAGE AS REQUIRED TO PREVENT UNAUTHORIZED VEHICULAR, PEDESTRIAN, AND BICYCLE TRAFFIC INTO WORK ZONE.
2. NOTIFY THE DNREC SEDIMENT AND STORMWATER PROGRAM IN WRITING AT LEAST FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
3. PRIOR TO ANY CLEARING, INSTALLATION OF SEDIMENT CONTROL MEASURES OR GRADING, A PRECONSTRUCTION MEETING MUST BE SCHEDULED AND CONDUCTED WITH THE AGENCY CONSTRUCTION SITE REVIEWER. THE LANDOWNER/DEVELOPER, CONTRACTOR, AND CERTIFIED CONSTRUCTION REVIEWER ARE REQUIRED TO BE IN ATTENDANCE AT THE PRE-CONSTRUCTION MEETING; THE DESIGNER IS RECOMMENDED TO ATTEND.
4. CLEAR AND GRUB AS REQUIRED TO INSTALL STABILIZED CONSTRUCTION ENTRANCE. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND TRAFFIC DIVERSION BARRELS. CLEAR AND GRUB AS REQUIRED TO INSTALL SILT FENCE. INSTALL SILT FENCE. ALL PERIMETER CONTROLS ARE TO BE REVIEWED BY THE AGENCY CONSTRUCTION SITE REVIEWER AND APPROVED PRIOR TO PROCEEDING WITH FURTHER SITE DISTURBANCE OR CONSTRUCTION.
5. AT THE OWNER'S DIRECTION, THE CONTRACTOR SHALL PLACE SENSITIVE AREA PROTECTION AROUND ALL TREES WITHIN THE LIMITS OF DISTURBANCE THAT ARE TO REMAIN FOLLOWING CONSTRUCTION.
6. THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT OR DEBRIS LADEN RUNOFF OR WIND FROM LEAVING THE SITE. PERIMETER CONTROLS SHOULD BE CHECKED DAILY AND ADJUSTED AND/OR REPAIRED TO FULLY CONTAIN AND CONTROL SEDIMENTATION ON THE SITE. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF THE CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST OR REPAIR MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
7. SAW CUT AND DEMO EXISTING ASPHALT TO BE REMOVED.
8. PERFORM ALL UTILITY WORK (ELECTRIC, WATER & SEWER) AS SHOWN ON PLAN SHEETS C8.1 – C8.6 & E1.1 – E1.3. ALL UNDERGROUND UTILITIES SHALL BE INSTALLED CONTINUOUSLY, BACKFILLING AND STABILIZING ALL DISTURBED TRENCH AREA AS UTILITY LINE IS PLACED.
8. PERFORM ROUGH GRADING FOR CONSTRUCTION OF THE EAST LOOP ROADWAY, NEW CAMPING SPACES, NEW PARKING AREA, AND SIDEWALKS. STOCKPILE ANY EXCESS SUBGRADE MATERIAL ONSITE IN DESIGNATED STOCKPILE AREAS SURROUNDED BY APPROVED PERIMETER CONTROLS.
9. INSTALL PCC AND/OR ASPHALT SIDEWALKS.
10. PLACE STONE BASE FOR ALL UNSTABILIZED AREAS TO BE PAVED.
11. PERMANENTLY GRADE AND STABILIZE ALL REMAINING DISTURBED AREAS.
12. PERFORM CRACK SEALING, PATCHING, AND PERFORM PAVING OF ALL SURFACES SHOWN.
13. PLACE PAVEMENT MARKINGS AND STRIPING.
14. PERFORM CLEANOUT & MAINTENANCE OF ALL EXISTING DRAINAGE PIPES. INSTALL RIP RAP AT EXISTING DRAINAGE OUTFALLS.
   14.1. ALL RIP RAP SHALL BE RIVER ROCK OF THE SIZE INDICATED ON THE STORMWATER MANAGEMENT PLANS AND DETAILS. THE USE OF GREY GRANITE RIP RAP SHALL NOT BE ALLOWED. SUBMIT RIP RAP COLOR SAMPLES FOR APPROVAL PRIOR TO INSTALLATION.
15. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE REMOVED ONLY AFTER WORK IN AN AREA HAS BEEN COMPLETED AND STABILIZED, WITH WRITTEN APPROVAL FROM THE AGENCY CONSTRUCTION SITE REVIEWER.
16. THE TERMINATION OF THE CONSTRUCTION GENERAL PERMIT WILL REQUIRE SUBMISSION AND ACCEPTANCE OF THE POST CONSTRUCTION VERIFICATION DOCUMENTS, INCLUDING FINAL STABILIZATION THROUGHOUT THE SITE, AND ALL ELEMENTS OF THE SEDIMENT AND STORMWATER MANAGEMENT PLAN IMPLEMENTED.

PROGRESS - NOT FOR CONSTRUCTION

UTILITIES

DESCRIPTION	EXISTING	PROPOSED
WATERLINE (CHSP/PRIVATE)	W	SEE NOTE BELOW
WATER VALVE	WV	SEE NOTE BELOW
HOSE BIB	HB	SEE NOTE BELOW
SANITARY SEWER (CHSP/PRIVATE)	S S	SEE NOTE BELOW
OVERHEAD ELECTRIC (CITY OF LEWES)	OH OH	SEE NOTE BELOW
UNDERGROUND ELECTRIC (BY OTHERS)	E E	SEE NOTE BELOW
ELECTRIC TRANSFORMER	E	SEE NOTE BELOW
ELECTRIC METER	E	SEE NOTE BELOW
UTILITY POLE		SEE NOTE BELOW

NOTE:
REFER TO THE ELECTRIC AND UTILITY PLANS FOR ADDITIONAL LEGEND AND INFORMATION.

SITE

DESCRIPTION	EXISTING	PROPOSED
WOODEN POST		N/A
WOODEN FENCE	X	N/A
SIGN		
GRAVEL PATH/ROAD		
CONCRETE SIDEWALK		
TRAVERSE POINT IDENTIFIER	6 148.27 TP	N/A
TREELINE		N/A
CONTOUR	151	151
TO BE REMOVED	N/A	
PATCH ASPH. PAVEMENT	N/A	
BUILDINGS		N/A
OVERLAY EXISTING ASPH. PAVEMENT	N/A	
FULL DEPTH PAVEMENT	N/A	
SAWCUT	N/A	SAW

REFER TO THE EROSION AND SEDIMENT CONTROL PLANS FOR ADDITIONAL LEGEND AND INFORMATION.

CAMPGROUND SITES

PULL-THRU SITES	12
SMALL CAMPER SITES	101
PAVED TENT SITES	16
HOST SITES	4
TOTAL SITES	133

FIRE MARSHAL NOTES

NAME OF PROJECT:	CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS
ADDRESS:	15099 CAPE HENLOPEN DRIVE LEWES, DE 19958
TAX MAP NUMBER:	3-35-5.00-12.00
OWNER'S NAME AND ADDRESS:	STATE OF DELAWARE DELAWARE STATE PARKS
ENGINEER:	CENTURY ENGINEERING, INC. 4134 N. DUPONT HWY. DOVER, DE 19901
APPLICANT:	WALTER J. HOEY, III, P.E. (CENTURY ENGINEERING, INC.)
INTENDED USE OF SITE:	RECREATIONAL VEHICLE (RV), TENT, AND CABIN CAMPING
WATER SUPPLIER:	CITY OF LEWES PUBLIC WORKS (FIRE HYDRANT TO BE INSTALLED AT REQUIRED DISTANCE TO CABINS IN THE UPCOMING PHASE 2 CONSTRUCTION.)
NUMBER OF FIRE HYDRANTS	4
MAXIMUM HEIGHT OF BUILDING:	NO NEW BUILDINGS PROPOSED
FIRE LANES:	NONE

NOTE:
1. ALL FIRE LANES, FIRE HYDRANTS, AND FIRE DEPARTMENT CONNECTIONS SHALL BE MARKED IN ACCORDANCE WITH THE STATE FIRE PREVENTION REGULATIONS.

REVISIONS:
DATE: DESCRIPTION: BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

PROJECT NOTES & LEGEND

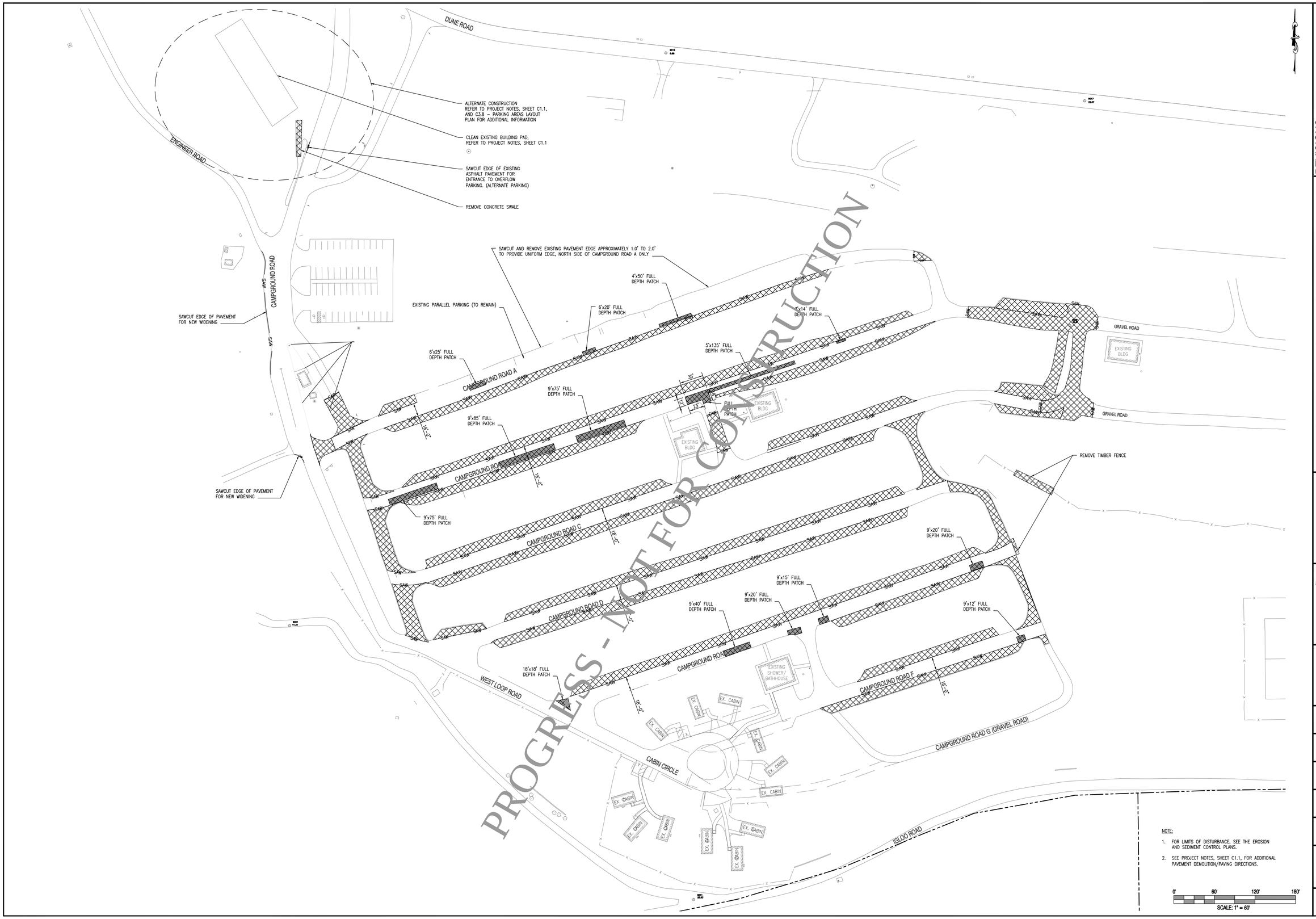
SEAL:
CONSTRUCTION DOCUMENTS SUBMISSION

CIVIL ENGINEER:
CENTURY ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901
CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH
DRAWN BY: DLD
CHECKED BY: SLR
DATE: APRIL 25, 2016
SCALE: NONE
SHEET NO.: C1.1
CONTRACT NO.:

O:\PROJECTS\125002.0C (DNREC Civil Engineering Services - 2012)\125002.15 (Cape Campground Improvements)\CADD FILES\Sheets\Construction Plans\C1-1_ProjectNotesLegend.dwg, 4/21/2016 2:24 PM



NOTE:

1. FOR LIMITS OF DISTURBANCE, SEE THE EROSION AND SEDIMENT CONTROL PLANS.
2. SEE PROJECT NOTES, SHEET C1.1, FOR ADDITIONAL PAVEMENT DEMOLITION/PAVING DIRECTIONS.

0' 60' 120' 180'
SCALE: 1" = 60'

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

SITE DEMOLITION PLAN

SEAL:

CONSTRUCTION DOCUMENTS SUBMISSION

CIVIL ENGINEER:

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH

DRAWN BY: DLD

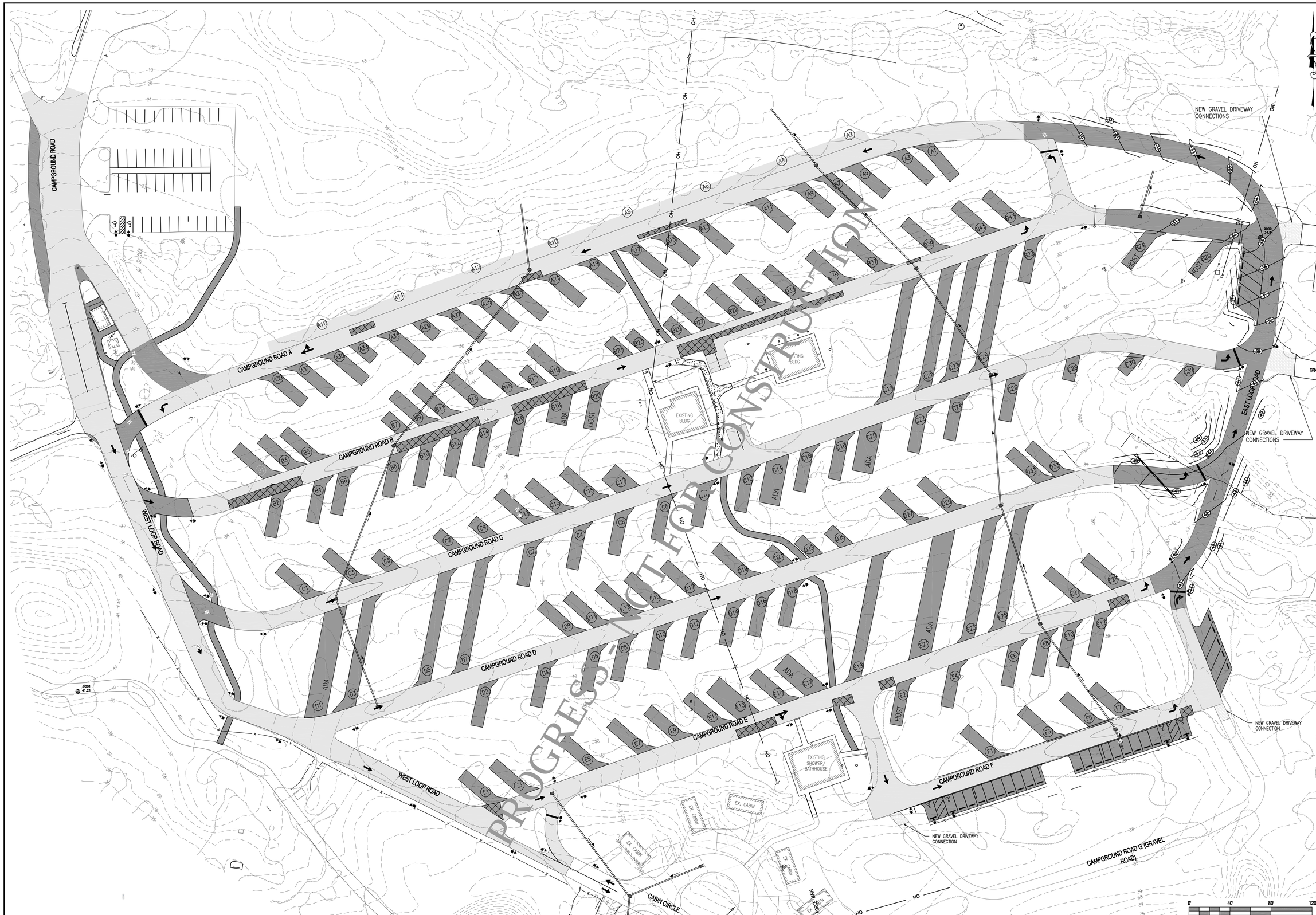
CHECKED BY: SLR

DATE: APRIL 25, 2016

SCALE: 1" = 60'

SHEET NO.: C2.1

CONTRACT NO.:



REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

SITE GRADING PLAN

SEAL:

CONSTRUCTION DOCUMENTS SUBMISSION

CIVIL ENGINEER:

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH

DRAWN BY: DLD

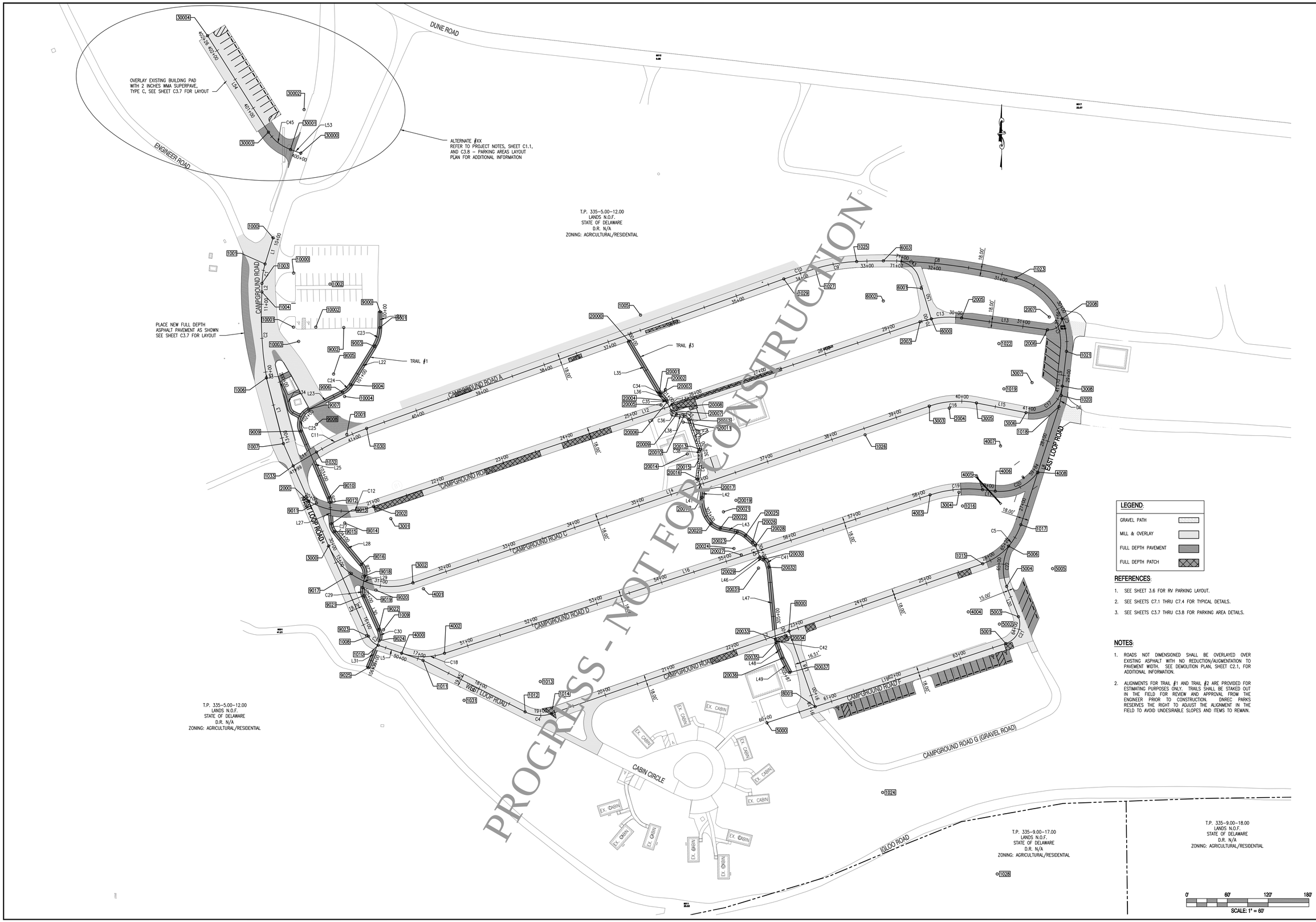
CHECKED BY: SLR

DATE: APRIL 25, 2016

SCALE: 1" = 40'

SHEET NO.: C2.2

CONTRACT NO.:



LEGEND:

GRAVEL PATH	
MILL & OVERLAY	
FULL DEPTH PAVEMENT	
FULL DEPTH PATCH	

REFERENCES:

1. SEE SHEET 3.6 FOR RV PARKING LAYOUT.
2. SEE SHEETS C7.1 THRU C7.4 FOR TYPICAL DETAILS.
3. SEE SHEETS C3.7 THRU C3.8 FOR PARKING AREA DETAILS.

NOTES:

1. ROADS NOT DIMENSIONED SHALL BE OVERLAYED OVER EXISTING ASPHALT WITH NO REDUCTION/AUGMENTATION TO PAVEMENT WIDTH. SEE DEMOLITION PLAN, SHEET C2.1, FOR ADDITIONAL INFORMATION.
2. ALIGNMENTS FOR TRAIL #1 AND TRAIL #2 ARE PROVIDED FOR ESTIMATING PURPOSES ONLY. TRAILS SHALL BE STAKED OUT IN THE FIELD FOR REVIEW AND APPROVAL FROM THE ENGINEER PRIOR TO CONSTRUCTION. DNREC PARKS RESERVES THE RIGHT TO ADJUST THE ALIGNMENT IN THE FIELD TO AVOID UNDESIRABLE SLOPES AND ITEMS TO REMAIN.

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

OVERALL SITE ALIGNMENT PLAN

SEAL:

CONSTRUCTION DOCUMENTS SUBMISSION

CIVIL ENGINEER:

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH

DRAWN BY: DLD

CHECKED BY: SLR

DATE: APRIL 25, 2016

SCALE: 1" = 60'

SHEET NO.: C3.1

CONTRACT NO.:

ROAD A & ROAD E ALIGNMENT

LINE/CURVE NUMBER	RADIUS	ARC	DELTA	CHORD BEARING	CHORD DISTANCE
C1	100.00'	29.02'	16° 37' 36"	S8° 49' 35.43"W	28.92'
C2	557.83'	126.74'	13° 01' 04"	S3° 02' 06.91"E	126.47'
C3	24.00'	19.92'	47° 33' 21"	S47° 35' 20.25"E	19.35'
C4	50.00'	40.14'	45° 59' 49"	S86° 11' 00.51"E	39.07'
C5	90.00'	83.17'	52° 57' 01"	N44° 20' 34.70"E	80.25'
C6	85.00'	16.74'	11° 17' 04"	N12° 13' 32.20"E	16.71'
C7	100.00'	89.01'	51° 00' 05"	N18° 55' 02.52"W	86.10'
C8	782.15'	236.34'	17° 18' 46"	N84° 08' 33.61"W	235.44'
C9	255.41'	62.12'	13° 56' 09"	S80° 13' 59.03"W	61.97'
C10	930.05'	48.49'	2° 59' 13"	S71° 46' 17.92"W	48.48'
C11	425.00'	81.56'	10° 59' 42"	S64° 46' 50.26"W	81.43'
L1				S17° 08' 23.22"W	40.24'
L2				S0° 30' 47.63"W	12.60'
L3				S14° 26' 34.80"E	99.92'
L4				S23° 48' 39.62"E	310.00'
L5				S71° 22' 00.88"E	69.57'
L6				S63° 11' 06.14"E	168.15'
L7				N70° 49' 05.11"E	671.41'
L8				N17° 52' 04.28"E	182.56'
L9				N6° 35' 00.12"E	65.38'
L10				S70° 16' 41.30"W	651.91'
L11				S59° 16' 59.21"W	39.88'

ROAD A & ROAD E ALIGNMENT LAYOUT

POINT NO.	NORTHING	EASTING	STATION
1000	283029.5064	746617.5471	STA. 10+00.00
1001	282991.0580	746605.6896	PC STA. 10+40.24
1002	282961.5876	746701.2484	RADIUS
1003	282962.4834	746601.2524	PT STA. 10+69.25
1004	282949.8849	746601.1396	PC STA. 10+81.85
1005	282916.0869	747157.9412	RADIUS
1006	282823.5954	746607.8361	PT STA. 12+08.59
1007	282726.8313	746632.7583	STA. 13+08.51
1008	282443.2204	746757.9107	PC STA. 16+18.51
1009	282452.9097	746779.8679	RADIUS
1010	282430.1677	746772.1997	PT STA. 16+38.43
1011	282407.9399	746838.1222	STA. 17+08.00
1012	282332.0878	746988.1865	PC STA. 18+76.15
1013	282376.7112	747010.7421	RADIUS
1014	282329.4872	747027.1705	PT STA. 19+16.29
1015	282550.0910	747661.3028	PC STA. 25+87.70
1016	282635.0942	747631.7317	RADIUS
1017	282607.4802	747717.3907	PT STA. 26+70.87
1018	282781.2384	747773.4054	PC STA. 28+53.43
1019	282807.3183	747692.5053	RADIUS
1020	282797.5732	747776.9448	PT STA. 28+70.17
1021	282862.5178	747784.4400	PC STA. 29+35.55
1022	282873.9827	747685.0994	RADIUS
1023	282970.7914	747710.1605	PT/ PC STA. 30+78.79
1024	282213.5981	747514.1441	RADIUS
1025	282994.8185	747475.9494	PT/PC STA. 33+15.13
1026	282739.7103	747488.4219	RADIUS
1027	282984.3059	747414.8775	PT/PC STA. 33+77.25
1028	282093.6470	747682.6786	RADIUS
1029	282969.1408	747368.8295	PT STA. 34+25.74
1030	282749.1520	746755.1625	PC STA. 40+77.64
1031	282349.0818	746898.5807	RADIUS
1032	282714.4550	746681.4923	PT STA. 41+59.20
1033	282694.0852	746647.2086	STA. 41+99.08

ROAD B ALIGNMENT

LINE/CURVE NUMBER	RADIUS	ARC	DELTA	CHORD BEARING	CHORD DISTANCE
C12	113.00'	98.19'	49° 47' 15"	S85° 24' 44.17"E	95.13'
C13	134.00'	61.89'	26° 27' 42"	N84° 33' 54.96"E	61.34'
C14	19.00'	29.74'	89° 41' 53"	N52° 56' 49.50"E	26.80'
L12				N71° 20' 04.07"E	848.81'
L13				S82° 12' 14.14"E	127.66'

ROAD B ALIGNMENT LAYOUT

POINT NO.	NORTHING	EASTING	STATION
2000	282641.9037	746670.2353	PC STA. 20+00.00
2001	282740.2719	746725.8473	RADIUS
2002	282634.2945	746765.0620	PT STA. 20+98.19
2003	282905.9499	747569.2257	PVC STA. 29+47.00
2004	282778.9979	747612.1115	RADIUS
2005	282911.7594	747630.2883	PT STA. 30+08.89
2006	282894.4424	747756.7701	PC STA. 31+36.55
2007	282913.2668	747759.3474	RADIUS
2008	282910.5903	747778.1579	PVT STA. 31+66.29

ROAD C ALIGNMENT

LINE/CURVE NUMBER	RADIUS	ARC	DELTA	CHORD BEARING	CHORD DISTANCE
C15	100.00'	148.49'	85° 04' 44"	S66° 21' 01.67"E	135.22'
C16	134.00'	70.12'	29° 58' 49"	N86° 06' 00.89"E	69.32'
C17	45.00'	74.23'	94° 30' 25"	N53° 50' 12.80"E	66.09'
L14				N71° 06' 36.29"E	803.15'
L15				S78° 54' 34.52"E	74.41'

ROAD C ALIGNMENT LAYOUT

POINT NO.	NORTHING	EASTING	STATION
3000	282576.1688	746699.2430	PC STA. 30+00.00
3001	282616.5409	746790.7312	RADIUS
3002	282521.9267	746823.1063	PT STA. 31+48.49
3003	282781.9475	747583.0013	PC STA. 39+51.64
3004	282655.1645	747626.3840	RADIUS
3005	282786.6620	747652.1599	PT STA. 40+21.76
3006	282772.3496	747725.1754	PC STA. 40+96.16
3007	282816.5092	747733.8315	RADIUS
3008	282811.3500	747778.5348	PT STA. 41+70.39

ROAD D ALIGNMENT

LINE/CURVE NUMBER	RADIUS	ARC	DELTA	CHORD BEARING	CHORD DISTANCE
C18	100.00'	64.06'	36° 42' 21"	S89° 43' 11.57"E	62.97'
C19	181.00'	78.12'	24° 43' 48"	N84° 17' 31.88"E	77.52'
C20	67.00'	72.01'	61° 34' 44"	N65° 52' 04.14"E	68.59'
L16				N71° 55' 37.75"E	751.45'
L17				S83° 20' 34.00"E	18.72'

ROAD D ALIGNMENT LAYOUT

POINT NO.	NORTHING	EASTING	STATION
4000	282418.5394	746806.6866	PC STA. 50+00.00
4001	282513.2978	746838.6373	RADIUS
4002	282418.2315	746869.6599	PT STA. 50+64.06
4003	282651.3519	747584.0389	PC STA. 58+15.52
4004	282479.2819	747640.1898	RADIUS
4005	282659.0615	747661.1729	PT STA. 58+93.64
4006	282656.8918	747679.7623	PC STA. 59+12.36
4007	282723.4401	747687.5295	RADIUS
4008	282684.9354	747742.3601	PT STA. 59+84.37

ROAD F ALIGNMENT

LINE/CURVE NUMBER	RADIUS	ARC	DELTA	CHORD BEARING	CHORD DISTANCE
C21	30.00'	48.65'	92° 54' 19"	N25° 12' 08.87"E	43.49'
C22	72.50'	61.22'	48° 22' 58"	N2° 56' 30.08"E	59.42'
L19				N71° 39' 18.30"E	370.22'
L20				N21° 14' 58.91"W	47.80'

ROAD F ALIGNMENT LAYOUT

POINT NO.	NORTHING	EASTING	STATION
5000	282316.2109	747343.9434	STA. 60+00.00
5001	282432.7325	747695.3480	PC STA. 63+70.22
5002	282461.2079	747685.9059	RADIUS
5003	282472.0811	747713.8661	PT STA. 64+18.87
5004	282516.6333	747696.5410	PC STA. 64+66.67
5005	282542.9097	747764.1117	RADIUS
5006	282575.9740	747699.5903	PT STA. 65+27.89

SPUR #5 ALIGNMENT

LINE/CURVE NUMBER	RADIUS	ARC	DELTA	CHORD BEARING	CHORD DISTANCE
C43	35.00'	43.76'	71° 37' 58"	N52° 39' 44.32"W	40.96'
L50				N16° 50' 45.12"W	62.96'

SPUR 5 ALIGNMENT LAYOUT

POINT NO.	NORTHING	EASTING	STATION
6000	282910.3739	747585.7227	STA. 70+00.00
6001	282955.0573	747571.1387	PC STA. 70+47.00
6002	282936.7511	747515.0506	RADIUS
6003	282995.7510	747515.1264	PT STA. 71+20.99

SPUR #7 ALIGNMENT

LINE/CURVE NUMBER	RADIUS	ARC	DELTA	CHORD BEARING	CHORD DISTANCE
L18				S19° 10' 54.89"E	117.71'

SPUR 7 ALIGNMENT LAYOUT

POINT NO.	NORTHING	EASTING	STATION
8000	282450.9336	747376.2718	STA. 90+00.00
8001	282339.7555	747414.9488	STA. 91+17.71

TRAIL #1 ALIGNMENT

LINE/CURVE NUMBER	RADIUS	ARC	DELTA	CHORD BEARING	CHORD DISTANCE
C23	53.00'	28.65'	30° 58' 23"	S16° 11' 09.72"W	28.30'
C24	30.00'	16.77'	32° 01' 38"	S47° 40' 59.20"W	16.55'
C25	25.00'	37.57'	86° 06' 49"	S20° 11' 33.00"W	34.14'
C26	20.00'	6.84'	19° 35' 04"	S13° 04' 19.61"E	6.80'
C27	20.00'	12.67'	36° 17' 35"	S21° 25' 35.53"E	12.46'
C28	20.00'	18.78'	53° 47' 41"	S16° 25' 14.16"E	18.10'
C29	20.00'	12.08'	34° 37' 14"	S6° 50' 00.99"E	11.90'
C30	20.00'	16.19'	46° 22' 34"	S0° 57' 21.31"E	15.75'
L21				S0° 41' 58.03"W	24.05'
L22				S31° 40' 21.41"W	66.11'
L23				S63° 14' 57.41"W	55.64'
L25				S22° 51' 51.41"E	106.48'
L27				S3° 16' 47.81"E	31.66'
L28				S39° 34' 23.25"E	62.26'
L29				S10° 28' 36.25"W	17.31'
L30				S24° 08' 38.22"E	55.46'
L31				S22° 13' 55.61"W	42.82'

TRAIL 1 ALIGNMENT LAYOUT

POINT NO.	NORTHING	EASTING	STATION
9000	282920.9778	746774.8920	STA. 100+00.00
9001	282897.4059	746774.6042	PC STA. 100+74.[illegible]9
9002	282897.5781	746721.6023	RADIUS
9003	282869.7556	746766.7123	PT STA. [illegible]0+52.70
9004	282813.4819	746731.9941	PC STA. [illegible]+18+81
9005	282829.2325	746706.4614	RADIUS
9006	282802.3386	746719.7550	P[illegible] STA. 101+35.58
9007	282777.2951	746670.0711	P[illegible] STA. 101+91.22
9008	282754.9707	746681.323[illegible]	RADIUS
9009	282745.2570	746658.[illegible]881	PT STA. 102+28.80
9010	282647.1475	746699.659[illegible]	PC STA. 103+35.27
9011	282639.3765	74[illegible]681.2[illegible]06	RADIUS
9012	282640.5208	74[illegible]978	PT STA. 103+42+11
9013	282608.9134	746703.009[illegible]	PC STA. 103+73.77
9014	282610.05[illegible]7	[illegible]722.9764	RADIUS
9015	282597.[illegible]64	746707.5602	PT STA. 103+86.44
9016	28254[illegible].32[illegible]	[illegible]6747.2258	PC STA. 104+48.70
9017	282[illegible]35.6022	[illegible]46732.6747	RADIUS
9018	282531.[illegible]	746752.3412	PT STA. 104+67.48
9019	[illegible]514.9454	746749.1939	PC STA. 104+84.79
9020	[illegible]511.[illegible]087	746768.8605	RADIUS
9021	282[illegible]03.1281	746750.6101	PT STA. 104+96.87
9022	28[illegible]452.5232	746773.2933	PC STA. 105+52.33
9023	282444.3426	746755.0429	RADIUS
9024	282436.7754	746773.5561	PT STA. 105+68.52
9025	282397.1379	746757.3544	STA. 106+11.34

TRAIL #2 ALIGNMENT

LINE/CURVE NUMBER	RADIUS	ARC	DELTA	CHORD BEARING	CHORD DISTANCE
L33				S25° 09' 14.53"E	20.23'
L34				S13° 57' 02.09"[illegible]	[illegible]

TRAIL 2 ALIGNMENT LAYOUT

POINT NO.	NORTHING	EASTING	STATION
10000	282977.7815	746647.6810	STA. 200+00.00
10001	282898.2255	746647.5890	PC STA. 200+79.56
10002	282898.1876	746680.3950	RADIUS
10003	282877.1647	746655.2102	PT STA. 201+02.41
10004	282796.2874	746722.7221	STA. 202+07.77

TRAIL #3 ALIGNMENT

LINE/CURVE NUMBER	RADIUS	ARC	DELTA	CHORD BEARING	CHORD DISTANCE
C34	10.00'	1.95'	11° 10' 06"	S36° 11' 17.46"E	1.95'
C35	10.00'	2.88'	16° 30' 32"	S33° 31' 04.62"E	2.87'
C36	10.00'	10.01'	57° 21' 21"	S53° 56' 29.19"E	9.60'
C37	10.00'	11.02'	63° 08' 43"	S51° 02' 48.08"E	10.47'
C38	20.00'	9.34'	26° 46' 00"	S6° 05' 26.46"E	9.26'
C41	15.00'	14.09'	53° 48' 28"	S32° 21' 45.57"E	13.57'
C42	20.00'	5.36'	15° 21' 45"	S13° 08' 23.83"E	5.35'
L35				S30° 36' 14.34"E	88.83'
L36				S41° 46' 20.57"E	12.76'
L37				S25° 15' 48.67"E	13.83'
L38				S82° 37' 09.71"E	11.32'
L39				S19° 28' 26.45"E	46.07'
L40				S7° 17' 33.53"W	34.48'
L41				S23° 29' 38.79"E	18.06'
L42				S5° 09' 53.75"W	10.45'
L43				S79° 10' 42.20"E	25.39'
L45				S21° 04' 05.15"E	18.02'
L46				S59° 15' 59.63"E	6.82'
L47				S5° 27' 31.51"E	106.43'
L48				S20° 49' 16.16"E	24.40'
L49				S27° 27' 18.08"E	24.04'

TRAIL 3 ALIGNMENT LAYOUT

POINT NO.	NORTHING	EASTING	STATION
20000	282877.8292	747140.7825	STA. 300+00.00
20001	282801.3714	747186.0066	PC STA. 300+88.83
20002	282806.4625	747194.6137	RADIUS
20003	282799.8007	747187.1557	PT TA. 300+90.78
20004	282790.2813	747195.6588	PC STA. 301+03.55
20005	282783.6196	747188.2008	RADIUS
20006	282787.8874	747197.2443	PT STA. 301+06.43
20007	282775.3842	747203.1449	PC STA. 301+20.52
20008	282779.6520	747212.1884	RADIUS
20009	282769.7349	747210.9038	PT STA. 301+30.26
20010	282768.2805	747222.1312	PC STA. 301+41.58
20011	282758.3634	747220.8466	RADIUS
20012	282761.6972	747230.2745	PT STA. 301+52.60
20013	282718.2609	747245.6339	PC STA. 301+98.68
20014	282711.5933	747226.7781	RADIUS
20015	282709.0545	747246.6163	PT STA. 302+08.02
20016	282674.8582	747242.2401	STA. 302+42.50
20017	282658.2969	747249.4391	STA. 302+60.55
20018	282647.8867	747248.4982	PC STA. 302+71.01
20019	282643.3843	747298.3095	RADIUS
20020	282609.4573	747261.5617	PCC STA. 303+12.80
20021	282626.4256	747279.9409	RADIUS
20022	282601.8561	747275.2444	PT STA. 303+28.72
20023	282597.0887	747300.1851	PC STA. 303+54.11
20024	282572.5474	747295.4940	RADIUS
20025	282591.1933	747312.1256	PT STA. 303+67.59
20026	282581.6882	747322.7819	PC STA. 303+81.87
20027	282563.0423	747306.1503	RADIUS
20028	282576.9174	747326.9292	PT STA. 303+88.21
20029	282560.0977	747333.4086	STA. 304+06.23
20030	282556.6117	747339.2718	PC STA. 304+13.06
20031	282543.7184	747331.6062	RADIUS
20032	282545.1453	747346.5381	PT STA. 304+27.14
20033	282439.1943	747356.6631	PC STA. 305+33.58
20034	282441.0969	747376.5724	RADIUS
20035	282433.9879	747357.8785	PT STA. 305+38.94
20036	282411.1814	747366.5515	STA. 305+63.34
20037	282389.8495	747377.6349	STA. 305+87.38

PARKING LOT ALIGNMENT

LINE/CURVE NUMBER	RADIUS	ARC	DELTA	CHORD BEARING	CHORD DISTANCE
C45	62.00'	42.03'	38° 50' 12"	N51° 39' 34.72"W	41.23'
L53				N70° 52' 24.58"W	16.18'
L54				N32° 14' 28.93"W	167.94'

PARKING LOT ALIGNMENT LAYOUT

POINT NO.	NORTHING	EASTING	STATION
30000	283154.2299	746658.4381	STA. 400+00.00
30001	283159.5322	746643.1491	PC STA. 400+16.18
30002	283218.1817	746663.2545	RADIUS
30003	283185.1055	746610.8144	PT STA. 400+58.21
30004	283327.1546	746521.2181	STA. 402+26.15

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

ALIGNMENT LAYOUT PLAN

SEAL:

CONSTRUCTION DOCUMENTS SUBMISSION

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH

DRAWN BY: DLD

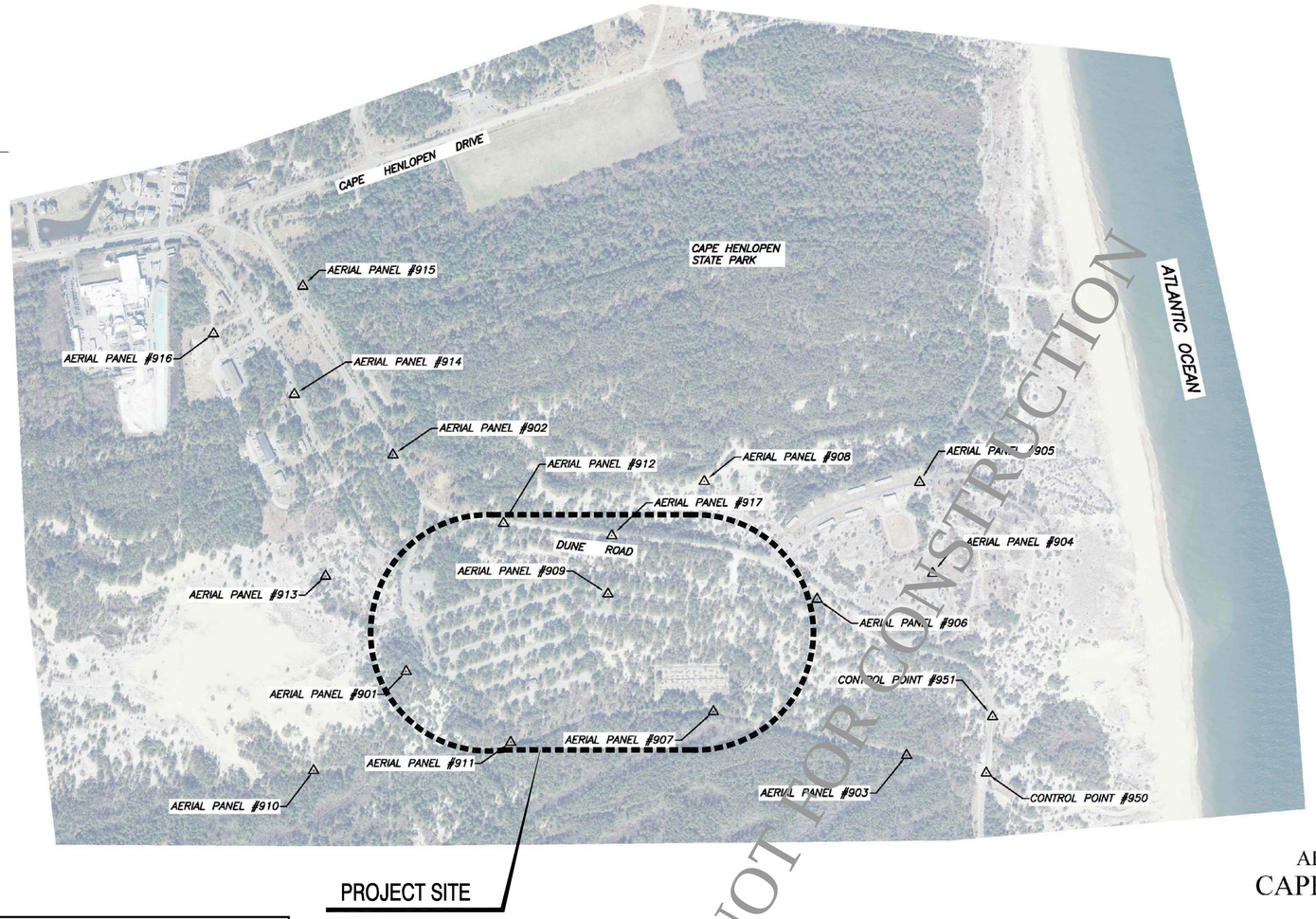
CHECKED BY: SLR

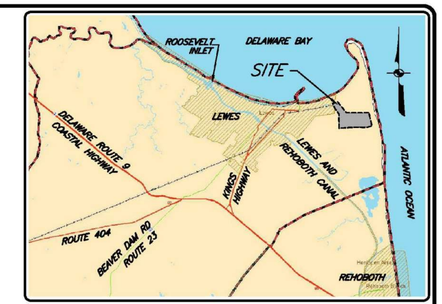
DATE: APRIL 25, 2016

SCALE: NOT TO SCALE

SHEET NO.: C3.2

CONTRACT NO.:





LOCATION PLAN SCALE: 1" = 12,000'

NOTES:

1. The purpose of this plan is to show control point locations and coordinate information within a portion of Cape Henlopen State Park Campground as requested by Cooper Aerial Surveys Co.
2. Date of Field Survey: May 6, 2015 and May 7, 2015.
3. Datum: Horizontal – Delaware State Plane Meridian – NAD 83' derived from network RTK GPS observations.

   Vertical – North American Vertical Datum – NAVD 88' referenced to NGS Benchmarks "Smith 2005," located as shown – Elevation = 5.14 feet, and "Henlo USCG 1995," located as shown – Elevation = 20.98 feet.
4. All measurements shown are in U.S. Survey feet, unless otherwise specified.
5. Aerial photograph is for visual presentation and does not make an attempt to depict with accuracy as to the location of dwellings and other notable physical features. Aerial photograph was obtained from the DEMAC Aerial Data Distribution website (http://demac.udel.edu/tiles/).

IN PROGRESS - NOT FOR CONSTRUCTION

AERIAL PANEL POINT DATA

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
901	282,448.24	746,619.20	41.21	AERIAL PANEL 1
902	283,684.82	746,543.52	7.20	AERIAL PANEL 2
903	281,968.41	749,478.41	12.44	AERIAL PANEL 3
904	283,007.86	749,627.08	45.24	AERIAL PANEL 4
905	283,528.60	749,552.56	36.66	AERIAL PANEL 5
906	282,860.99	748,966.88	49.34	AERIAL PANEL 6
907	282,218.40	748,374.42	28.66	AERIAL PANEL 7
908	283,533.40	748,322.18	8.87	AERIAL PANEL 8
909	282,891.02	747,772.03	34.81	AERIAL PANEL 9
910	281,881.30	746,090.38	9.39	AERIAL PANEL 10
911	282,043.41	747,216.14	25.53	AERIAL PANEL 11
912	283,293.89	747,175.10	9.88	AERIAL PANEL 12
913	282,992.69	746,158.69	18.15	AERIAL PANEL 13
914	284,030.95	745,980.06	7.52	AERIAL PANEL 14
915	284,649.37	746,028.40	5.39	AERIAL PANEL 15
916	284,377.66	745,518.84	6.32	AERIAL PANEL 16
917	283,223.09	747,793.90	22.07	AERIAL PANEL 17
950	281,867.60	749,933.28	15.03	SET NAIL
951	282,188.95	749,969.30	21.35	SET NAIL

LEGEND:

[illegible]	Control Point–Aerial Panel
N: 281,8[illegible].60	Northing Coordinate
E: 749,933.28	Easting Coordinate
EL.: 15.03	Elevation

AERIAL SURVEY CONTROL PLAN

CAPE HENLOPEN STATE PARK CAMPGROUND

PREPARED FOR

COOPER AERIAL SURVEYS CO.

LEWES AND REHOBOTH HUNDRED

SUSSEX COUNTY DELAWARE

SCALE: 1"=500' MAY 7, 2015

500 0 250 500 1000 2000

GRAPHIC SCALE (IN FEET)

NO.	DATE	REVISION	BY	APPROVED

VANDEMARK & LYNCH, INC. IS NOT RESPONSIBLE FOR ANY MODIFICATION MADE TO THIS PLAN AND/OR CADD FILE WITHOUT ITS WRITTEN AUTHORIZATION.

VANDEMARK & LYNCH, INC.
ENGINEERS – PLANNERS – SURVEYORS
4305 MILLER ROAD
WILMINGTON, DE 19802/(302) 764–7635
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SURVEYED BY: J. CHAMBERS, J. REILLY
COMPUTED BY: T. LUNDIN
PROJECT MANAGER: J. BIANCO
DRAWN BY: T. LUNDIN

FILE NAME: 23923–EXHIB–01
REVISION:
SHEET: 1 OF 1
PERMANENT FILE: N/A
QA REVIEW:
SIZE: M
APPROVED BY:
1

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

AERIAL CONTROL PLAN

SEAL: CONSTRUCTION DOCUMENTS SUBMISSION

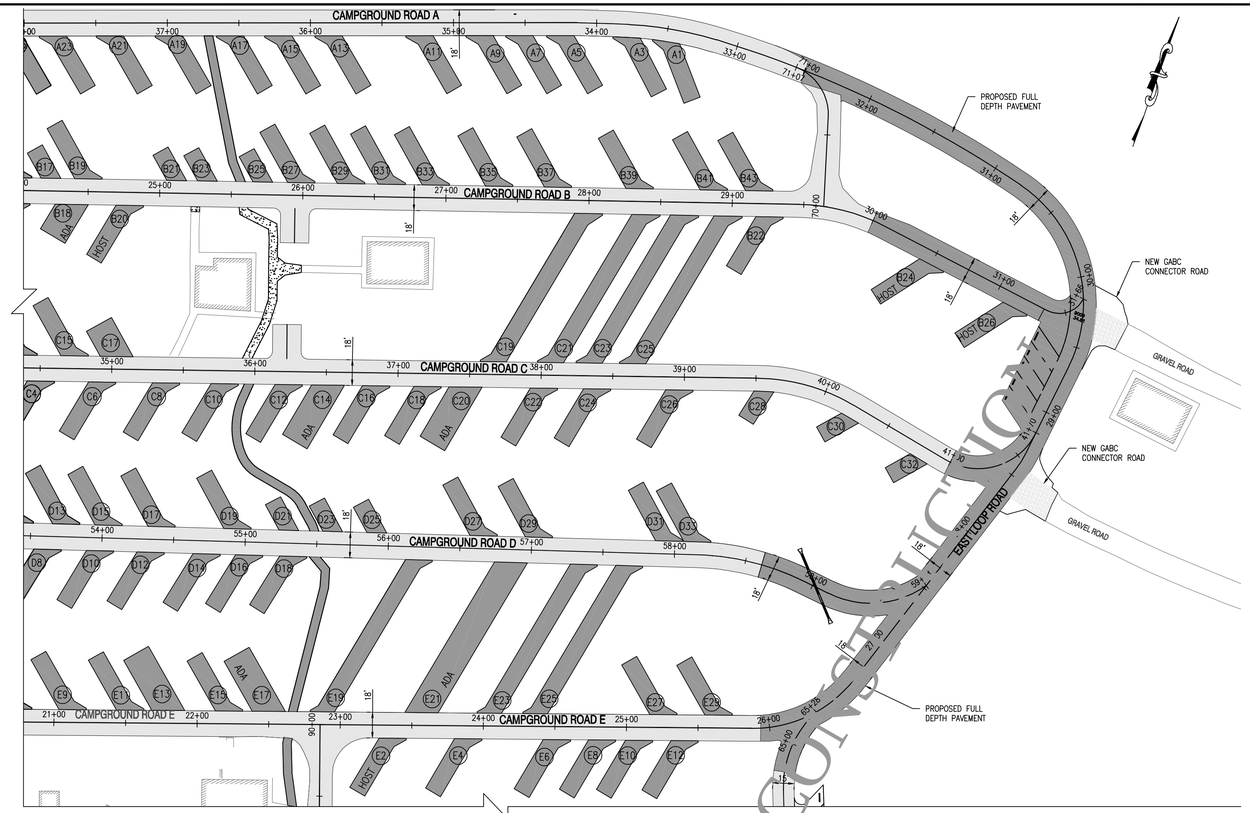
CIVIL ENGINEER:
CENTURY ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901

CEI NO.: 125002.15

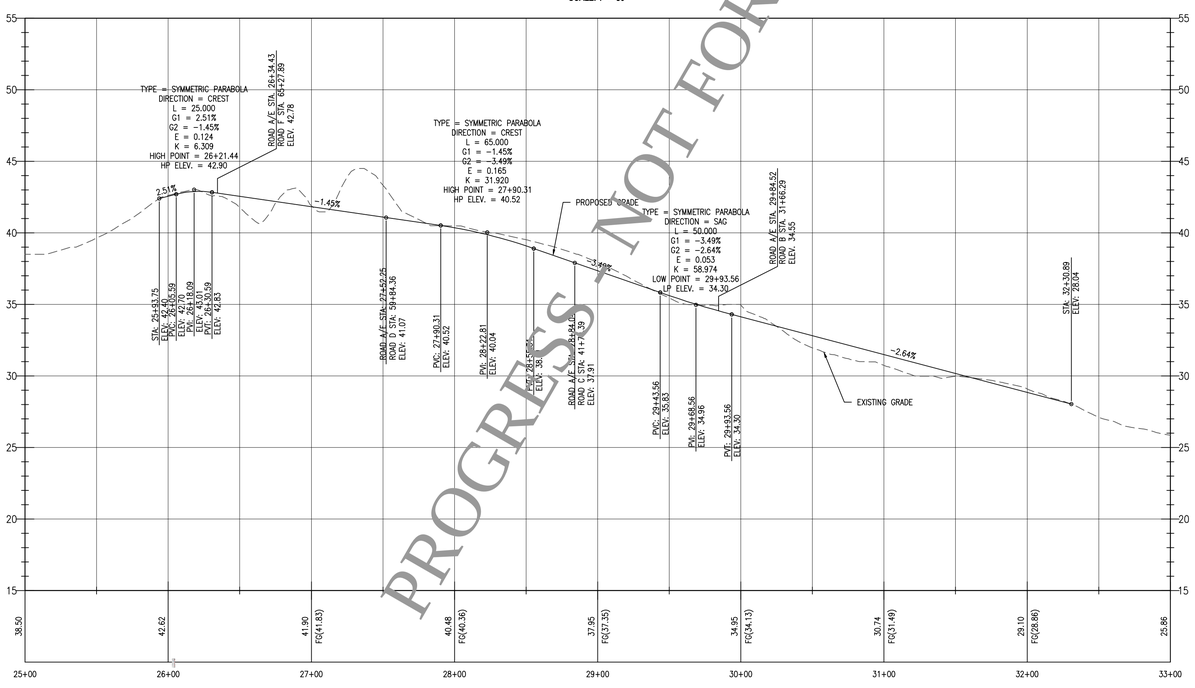
DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH
DRAWN BY: DLD
CHECKED BY: SLR
DATE: APRIL 25, 2016
SCALE: AS SHOWN
SHEET NO.: C3.3
CONTRACT NO.:

G:\PROJECTS\125002.00 (NWRC: Civil Engineering Services – 2012)\125002.15 (Cape Campground Improvements)\CADD FILES\Sheets\Construction Plans\C3-3_AerialControlPlan.dwg, 4/21/2016 2:28 PM



PLAN - EAST LOOP ROAD
STA. 26+18.09 TO STA. 32+30.89
SCALE: 1" = 50'



PROFILE - EAST LOOP ROAD
STA. 26+18.09 TO STA. 32+30.89
SCALE: HORZ. 1" = 50'
VERT. 1" = 5'

0' 50' 100' 150'
SCALE: 1" = 50'

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

ROADWAY PLAN AND PROFILE - EAST LOOP ROAD

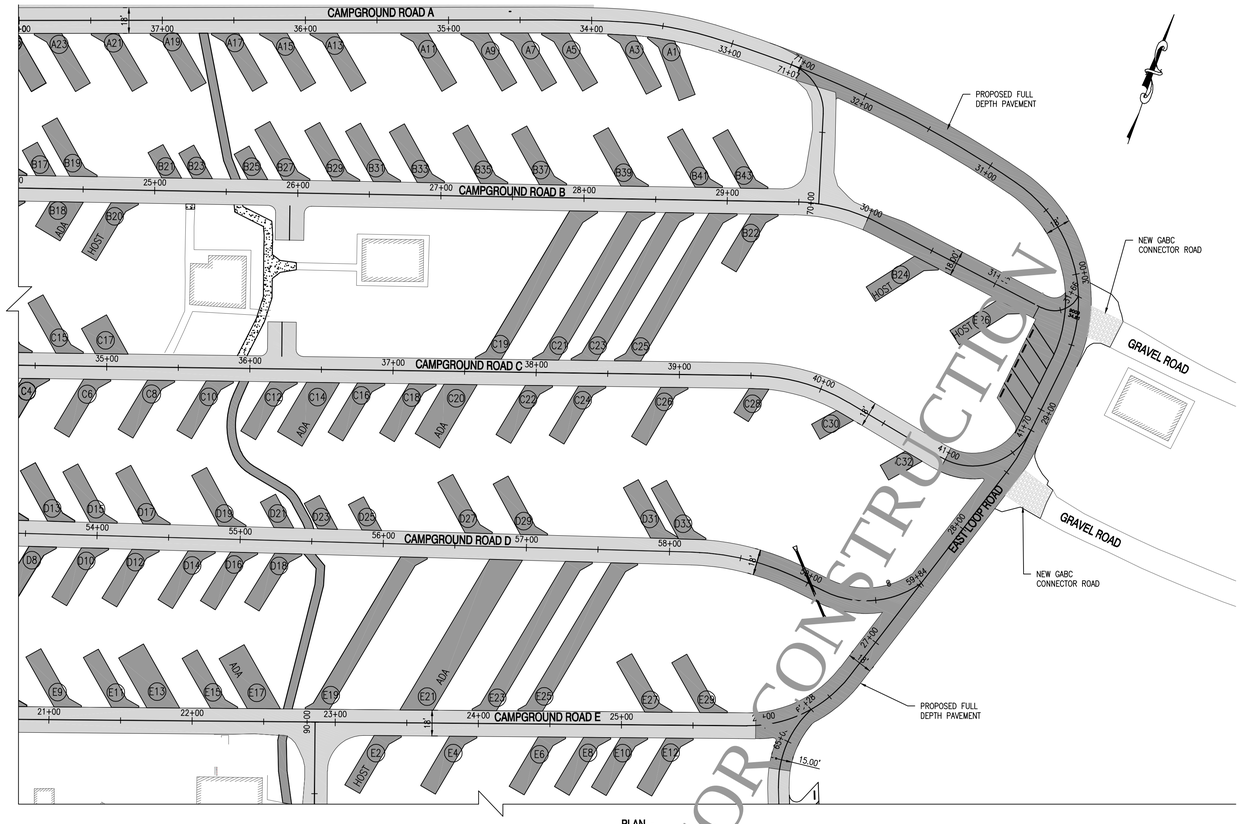
SEAL:

CONSTRUCTION DOCUMENTS SUBMISSION

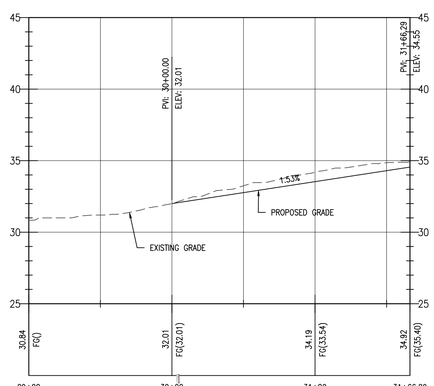
CIVIL ENGINEER:
CENTURY ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901
CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

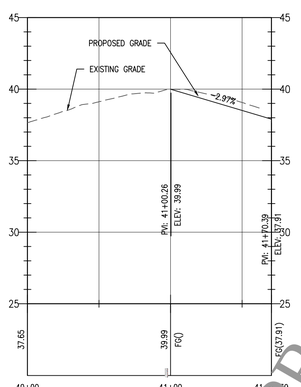
DESIGNED BY: WJH
DRAWN BY: DLD
CHECKED BY: SLR
DATE: APRIL 25, 2016
SCALE: AS NOTED
SHEET NO.: C3.4
CONTRACT NO.:



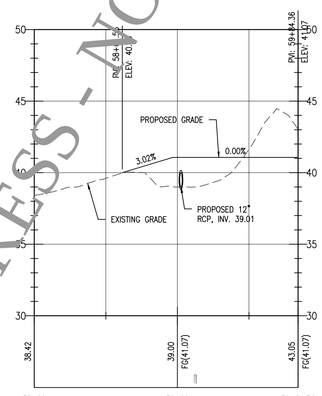
PLAN -
CAMPGROUND ROAD B: STA. 30+00.00 TO STA. 31+66.29
CAMPGROUND ROAD C: STA. 41+00.26 TO STA. 41+70.39
CAMPGROUND ROAD D: STA. 58+61.53 TO STA. 59+84.36
CAMPGROUND ROAD F: STA. 64+79.61 TO STA. 65+27.89
SCALE: 1" = 50'



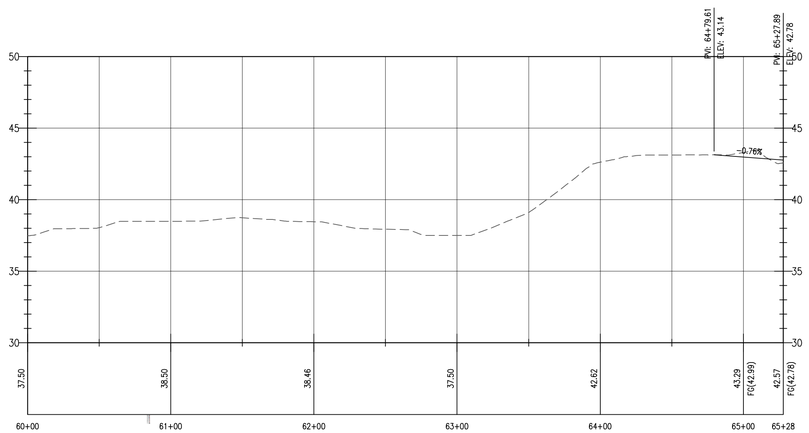
PROFILE -
CAMPGROUND B
STA. 30+00.00 TO STA. 31+66.29
SCALE: HORZ. 1" = 50'
VERT. 1" = 5'



PROFILE -
CAMPGROUND C
STA. 41+00.26 TO STA. 41+70.39
SCALE: HORZ. 1" = 50'
VERT. 1" = 5'



PROFILE -
CAMPGROUND D
STA. 58+61.53 TO STA. 59+84.36
SCALE: HORZ. 1" = 50'
VERT. 1" = 5'



PROFILE -
CAMPGROUND F
STA. 64+79.61 TO STA. 65+27.89
SCALE: HORZ. 1" = 50'
VERT. 1" = 5'

0' 50' 100' 150'
SCALE: 1" = 50'

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

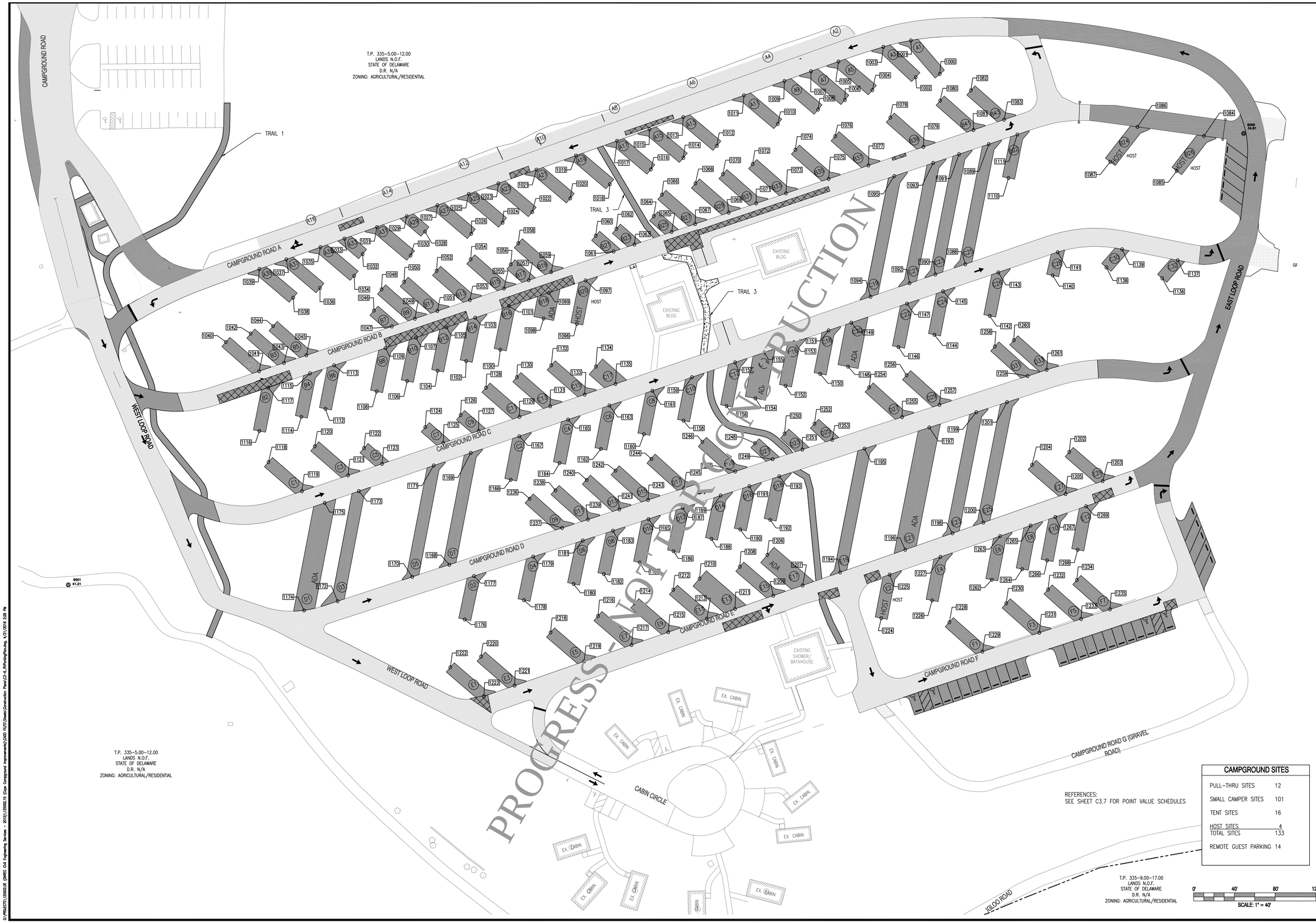
ROADWAY PLAN AND PROFILE - CAMPGROUND ROAD B, ROAD C & ROAD D

SEAL:
CONSTRUCTION DOCUMENTS SUBMISSION

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

CEI NO.: 125002.15

DESIGNED BY: WJH
DRAWN BY: DLD
CHECKED BY: SLR
DATE: APRIL 25, 2016
SCALE: AS NOTED
SHEET NO.: C3.5
CONTRACT NO.:



REFERENCES:
SEE SHEET C3.7 FOR POINT VALUE SCHEDULES

CAMPGROUND SITES	
PULL-THRU SITES	12
SMALL CAMPER SITES	101
TENT SITES	16
HOST SITES	4
TOTAL SITES	133
REMOTE GUEST PARKING	14

0' 40' 80' 120'
SCALE: 1" = 40'

REVISIONS:
DATE: DESCRIPTION: BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

RV PARKING PLAN

SEAL:
CONSTRUCTION DOCUMENTS SUBMISSION

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH
DRAWN BY: DLD
CHECKED BY: SLR
DATE: APRIL 25, 2016
SCALE: 1" = 40'
SHEET NO.: C3.6
CONTRACT NO.:

G:\PROJECTS\125002.00 (DNREC Civil Engineering Services - 2012)\125002.15 (Cape Campground Improvements)\CADD FILES\Sheets\Construction Plans\C3-6_RVParkingPlan.dwg, 4/21/2016 2:28 PM

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1000	282949.2798	747474.0157
1001	282982.2552	747445.7005
1002	282946.2503	747450.4314
1003	282975.9230	747418.6720
1004	282933.5124	747407.7782
1005	282961.6090	747374.6108
1006	282923.9173	747380.8911
1007	282952.0168	747347.7317
1008	282914.5063	747354.6389
1009	282942.5224	747321.5758
1010	282900.3353	747315.1083
1011	282928.4348	747281.9489
1012	282878.9382	747255.4203
1013	282907.0377	747222.2609
1014	282867.0968	747222.3880
1015	282895.1962	747189.2286
1016	282855.7051	747190.6107
1017	282883.8046	747157.4513
1018	282841.2777	747150.3648
1019	282869.3772	747117.2053

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1020	282827.3749	747111.5823
1021	282855.4743	747078.4229
1022	282813.9703	747074.1898
1023	282842.0698	747041.0304
1024	282803.5652	747045.1644
1025	282831.6478	747012.0212
1026	282792.5500	747014.4370
1027	282820.6486	746981.2752
1028	282794.6885	746969.0153
1029	282809.8428	746951.1321
1030	282771.2108	746954.9106
1031	282799.1377	746921.9424
1032	282772.7684	746907.8715
1033	282787.9244	746889.9898
1034	282751.3781	746899.5864
1035	282779.4776	746866.4270
1036	282739.3736	746866.0994
1037	282767.4731	746832.9400
1038	282729.9425	746839.7910
1039	282758.0420	746806.6316

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1040	282686.4469	746773.7118
1041	282657.7409	746806.3475
1042	282694.6915	746798.1176
1043	282665.9855	746830.7534
1044	282702.1189	746820.1045
1045	282673.4129	746852.7402
1046	282717.2424	746918.9864
1047	282701.7439	746936.6066
1048	282738.0328	746926.4180
1049	282709.3268	746959.0537
1050	282745.5266	746948.6016
1051	282716.8206	746981.2374
1052	282756.2728	746980.4127
1053	282727.5668	747013.0485
1054	282767.5694	747013.9259
1055	282738.8811	747046.5415
1056	282762.5723	747053.2437
1057	282747.1770	747070.7476
1058	282783.3335	747060.5189
1059	282754.9422	747092.8006

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1180	282449.1636	747114.7943
1181	282491.6894	747123.7769
1182	282458.8485	747144.4728
1183	282501.3743	747153.4554
1184	282470.1469	747179.6216
1185	282512.7067	747188.1827
1186	282481.1625	747212.8523
1187	282523.6883	747221.8349
1188	282493.2937	747250.0273
1189	282535.8194	747259.0100
1190	282502.5221	747278.3069
1191	282545.0478	747287.2896
1192	282512.0812	747307.6001
1193	282554.6069	747316.5827
1194	282460.4670	747376.2844
1195	282581.8689	747400.1247
1196	282482.6811	747440.1396
1197	282602.6122	747463.6910
1198	282498.7822	747486.4226
1199	282617.6472	747509.7647

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1200	282509.3192	747516.7115
1201	282627.4866	747539.9166
1202	282578.4640	747600.9099
1203	282550.0533	747633.8030
1204	282565.7956	747564.4940
1205	282537.3848	747597.3871
1206	282477.5792	747304.8264
1207	282447.6590	747339.4673
1208	282466.0756	747277.8458
1209	282437.6648	747310.7389
1210	282454.5032	747238.4935
1211	282424.5829	747273.1344
1212	282443.3889	747212.6322
1213	282414.9782	747245.5254
1214	282430.2172	747174.7699
1215	282401.8065	747207.6630
1216	282417.6770	747138.7226
1217	282389.2663	747171.6158
1218	282401.4929	747092.2011
1219	282373.0822	747125.0942

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1220	282377.7643	747023.9924
1221	282349.3536	747056.8855
1222	282367.2751	746993.8410
1223	282338.8644	747026.7341
1224	282415.5763	747416.5886
1225	282458.2680	747424.7464
1226	282432.9315	747466.4767
1227	282475.6232	747474.6345
1228	282411.5711	747483.3389
1229	28238[illegible]829	747515.8135
1230	2824[illegible]	[illegible]7539.1660
1231	28240[illegible]1945	747571.6406
1232	2824[illegible]6713	747580.1464
1233	282414.7[illegible]31	747612.6210
12[illegible]4	[illegible].0487	747608.4266
[illegible]235	[illegible]2424.1607	747640.9019
[illegible]236	282532.6835	747071.6554
1237	282504.0272	747103.5629
1238	282540.9627	747097.0264
123[illegible]	282512.3064	747128.9339

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1060	282790.7267	747136.4962
1061	282775.2230	747154.1222
1062	282797.5806	747156.8062
1063	282782.0772	747174.4120
1064	282809.9271	747193.4249
1065	282794.4457	747211.0257
1066	282830.9108	747201.3587
1067	282802.2048	747233.9945
1068	282842.0363	747234.2928
1069	282813.3303	747266.9286
1070	282851.1508	747261.2738
1071	282822.4448	747293.9096
1072	282860.9935	747290.4106
1073	282832.2875	747323.0463
1074	282875.1483	747332.3121
1075	282846.4423	747364.9479
1076	282888.3098	747371.2733
1077	282859.6038	747403.9091
1078	282906.5892	747425.3847
1079	282877.8832	747458.0205

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1080	282923.1461	747474.3968
1081	282894.4401	747507.0326
1082	282933.3061	747504.4729
1083	282904.6001	747537.1086
1084	282888.6021	747733.0789
1085	282854.2569	747706.4418
1086	282897.5301	747667.8695
1087	282863.1849	747641.2324
1088	282762.7121	747498.9877
1089	282880.5395	747522.1261
1090	282752.6787	747469.6657
1091	282870.6433	747492.8310
1092	282744.0285	747444.3863
1093	282862.1115	747467.5748
1094	282730.9125	747406.0556
1095	282849.1748	747429.2793
1096	282704.2689	747117.9360
1097	282746.8853	747126.4783
1098	282709.5215	747085.5074
1099	282734.7925	747090.6808

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1100	282678.9027	747042.8461
1101	282721.5579	747051.5031
1102	282667.6470	747009.5266
1103	282710.3022	747018.1836
1104	282658.1752	746981.4878
1105	282700.8303	746990.1448
1106	282648.1037	746951.6739
1107	282690.7589	746960.3309
1108	282637.9399	746921.5865
1109	282680.5950	746930.2435
1110	282847.3403	747541.4610
1111	282889.9567	747550.0033
1112	282620.9631	746871.3313
1113	282663.5795	746879.8736
1114	282613.0149	746847.8028
1115	282655.6313	746856.3451
1116	282599.1219	746806.6763
1117	282641.7383	746815.2185
1118	282568.6321	746815.5356
1119	282540.0541	746848.2835

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1240	282550.9846	747127.7375
1241	282522.3283	747159.6450
1242	282560.1957	747155.9644
1243	282531.5394	747187.8720
1244	282571.6674	747191.1184
1245	282543.0111	747223.0259
1246	282588.4966	747241.0786
1247	282559.4546	747273.4157
1248	282587.1612	747292.6950
1249	282571.4252	747310.0986
1250	282596.6562	747321.7916
1251	282580.9351	747339.1787
1252	282606.2256	747351.1222
1253	282590.5045	747368.5093
1254	282641.8761	747404.6557
1255	282612.8340	747436.9928
1256	282653.8672	747441.40[illegible]
1257	282624.8251	747473.7[illegible]6
1258	282682.0969	74752[illegible].9091
1259	282653.0548	747[illegible]0.24[illegible]2

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1260	282688.1806	7[illegible]7546.5[illegible]
1261	282659.1385	[illegible]7578.8893
1262	282453.2927	747525.[illegible]65
1263	282495.[illegible]844	7[illegible]7533.1634
1264	28246[illegible].67[illegible]	7475[illegible]4.8521
1265	282506.3[illegible]75	747563.0100
1266	[illegible]2472.1514	747579.2152
1267	282514.[illegible]430	747587.3730
1268	28248[illegible].6100	747609.2790
1269	28252[illegible].3017	747617.4369

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1120	282584.1631	746860.9239
1121	282555.5851	746893.6719
1122	282582.3738	746909.2570
1123	282566.9614	746926.9183
1124	282602.9183	746969.2972
1125	282587.5059	746986.9585
1126	282614.7818	747003.9676
1127	282599.3694	747021.6289
1128	282641.6409	747028.8993
1129	282613.0629	747061.6472
1130	282651.9918	747059.1491
1131	282623.4138	747091.8970
1132	282663.5332	747092.8781
1133	282634.9552	747125.6260
1134	282662.2958	747136.6731
1135	282645.3381	747155.9694
1136	282748.9729	747692.0904
1137	282766.6467	747707.4812
1138	282759.6514	747637.3758
1139	282777.3650	747652.8013

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1140	282751.7482	747584.7554
1141	282774.6299	747589.6007
1142	282712.1259	747523.0164
1143	282754.7755	747531.3917
1144	282693.5610	747468.7616
1145	282736.2105	747477.1369
1146	282681.4944	747433.4977
1147	282724.1439	747441.8730
1148	282662.3242	747384.0101
1149	282705.4150	747387.1389
1150	282655.1875	747356.6173
1151	282697.8370	747364.9926
1152	282643.5546	747322.6210
1153	282686.2041	747330.9963
1154	282631.2143	747293.0933
1155	282676.1743	747301.6846
1156	282623.7761	747264.8194
1157	282666.4256	747273.1947
1158	282609.3149	747222.5575
1159	282651.9644	747230.9328

RV PARKING LAYOUT

POINT NO.	NORTHING	EASTING
1160	282596.0349	747183.7475
1161	282638.6844	747192.1229
1162	282581.5995	747141.5609
1163	282624.2490	747149.9362
1164	282567.7154	747100.9856
1165	282610.3650	747109.3609
1166	282551.3463	747053.1476
1167	282593.9958	747061.5230
1168	282467.9138	746992.8962
1169	282577.7539	747014.0571
1170	282456.0662	746956.5902
1171	282565.2764	746977.5925
1172	282432.1664	746883.3512
1173	282540.1475	746904.1546
1174	282423.0594	746850.3858
1175	282528.7142	746870.7416
1176	282414.3288	747008.0457
1177	282456.8546	747017.0283
1178	282433.2966	747066.1709
1179	282475.8223	747075.153[illegible]

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:
DATE: | DESCRIPTION: | BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

RV PARKING LAYOUT PLAN

SEAL:

CONSTRUCTION DOCUMENTS SUBMISSION

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH

DRAWN BY: DLD

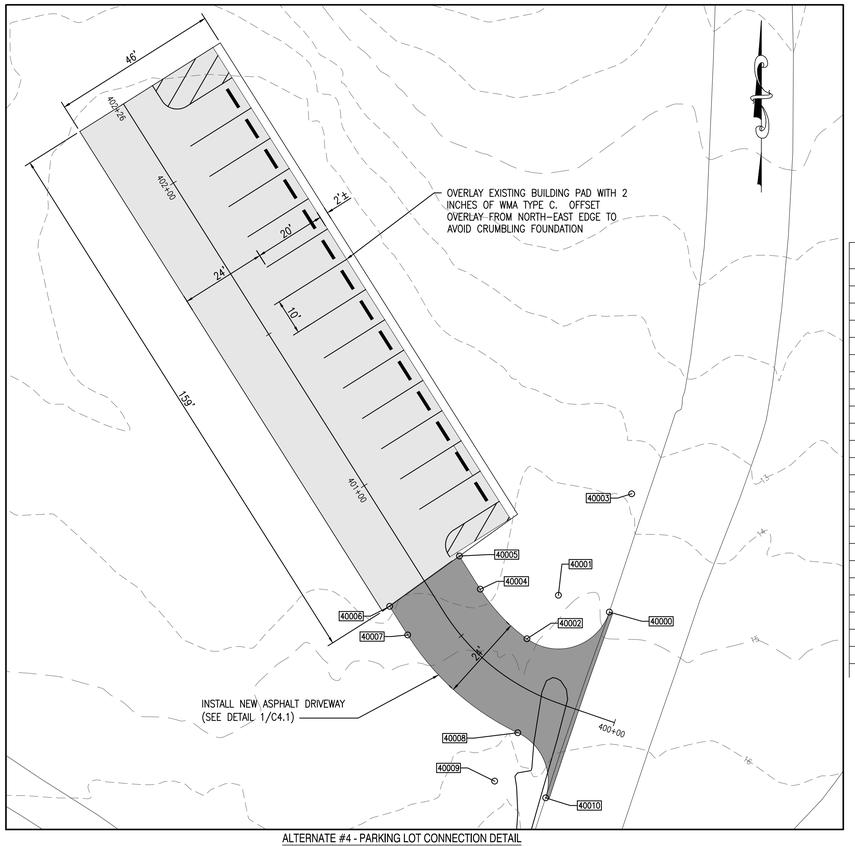
CHECKED BY: SLR

DATE: APRIL 25, 2016

SCALE: NOT TO SCALE

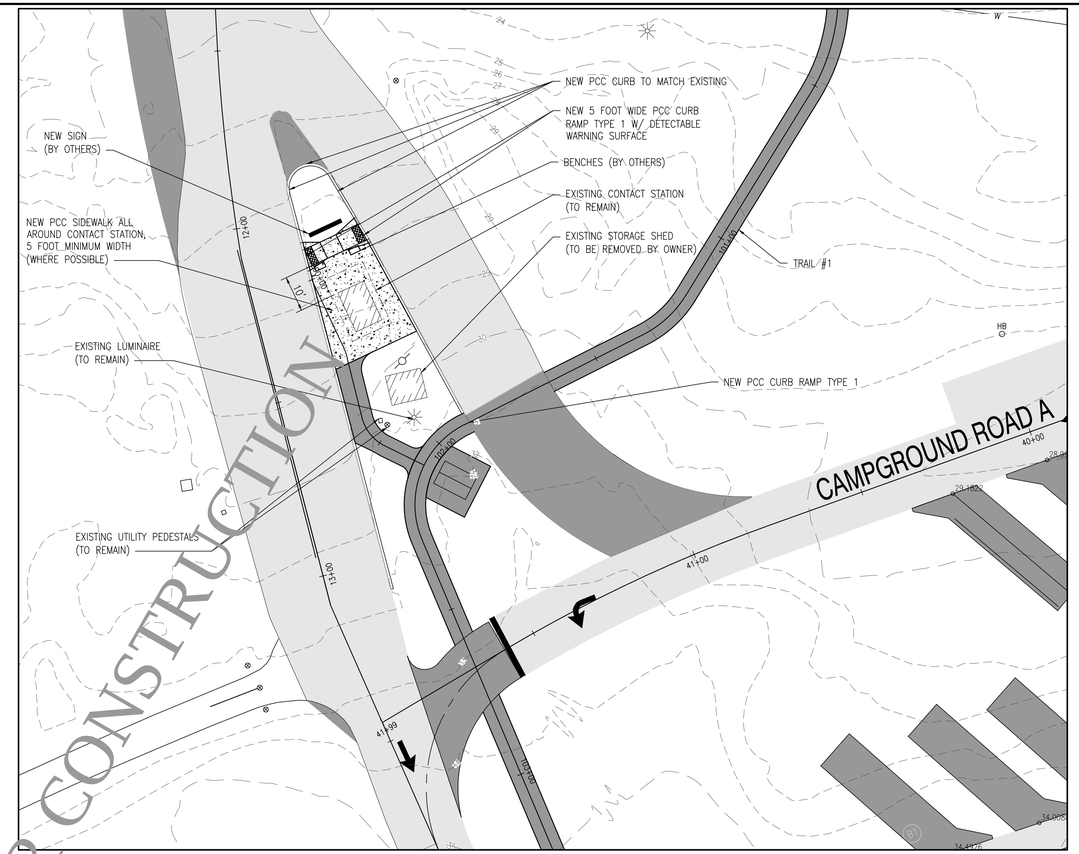
SHEET NO.: C3.7

CONTRACT NO.:

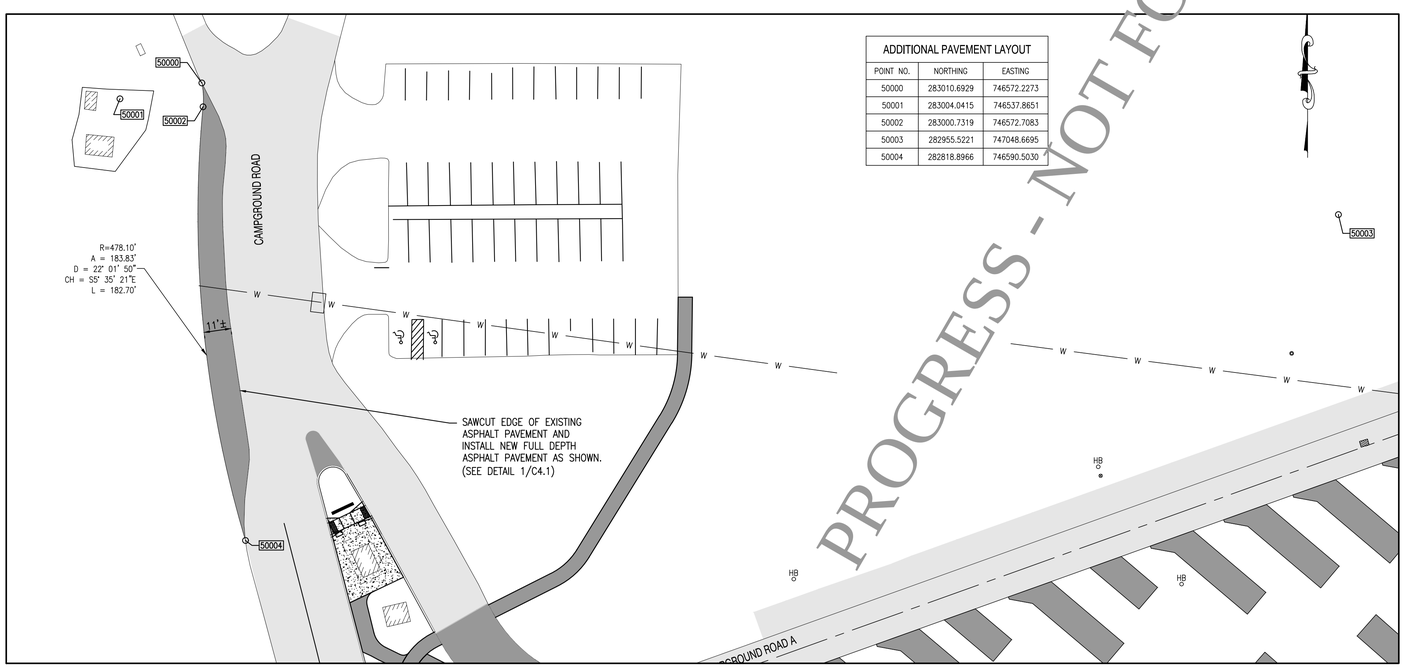


ALTERNATE #4 - PARKING LOT CONNECTION DETAIL
SCALE: 1" = 20'

PARKING LOT CONNECTION LAYOUT		
POINT NO.	NORTHING	EASTING
40000	283185.1051	746657.0184
40000	283185.1051	746657.0184
40001	283189.8007	746642.7723
40001	283189.8007	746642.7723
40002	283177.6375	746633.9942
40002	283177.6375	746633.9942
40003	283218.1817	746663.2545
40003	283218.1817	746663.2545
40004	283191.5073	746620.9641
40004	283191.5073	746620.9641
40005	283200.7737	746615.1195
40005	283200.7737	746615.1195
40006	283186.7205	746595.6081
40006	283186.7205	746595.6081
40007	283178.7037	746600.6647
40007	283178.7037	746600.6647
40008	283151.3838	746631.4106
40008	283151.3838	746631.4106
40009	283137.8436	746624.9558
40009	283137.8436	746624.9558
40010	283133.1913	746639.2161
40010	283133.1913	746639.2161
50000	283010.6929	746572.2273



CONTACT STATION CURB & SIDWALK IMPROVEMENTS DETAIL
SCALE: 1" = 20'



ADDITIONAL PAVEMENT LAYOUT		
POINT NO.	NORTHING	EASTING
50000	283010.6929	746572.2273
50001	283004.0415	746537.8651
50002	283000.7319	746572.7083
50003	282955.5221	747048.6695
50004	282818.8966	746590.5030

ENTRANCE WIDENING PAVEMENT DETAIL
SCALE: 1" = 30'

PROGRESS - NOT FOR CONSTRUCTION

NOTES:
1. REFER TO SHEET C1.1 – PROJECT NOTES & LEGEND, FOR CONSTRUCTION NOTES FOR PAVING EXISTING BUILDING PAD.

REVISIONS:
DATE: DESCRIPTION: BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

PARKING AREAS LAYOUT PLAN

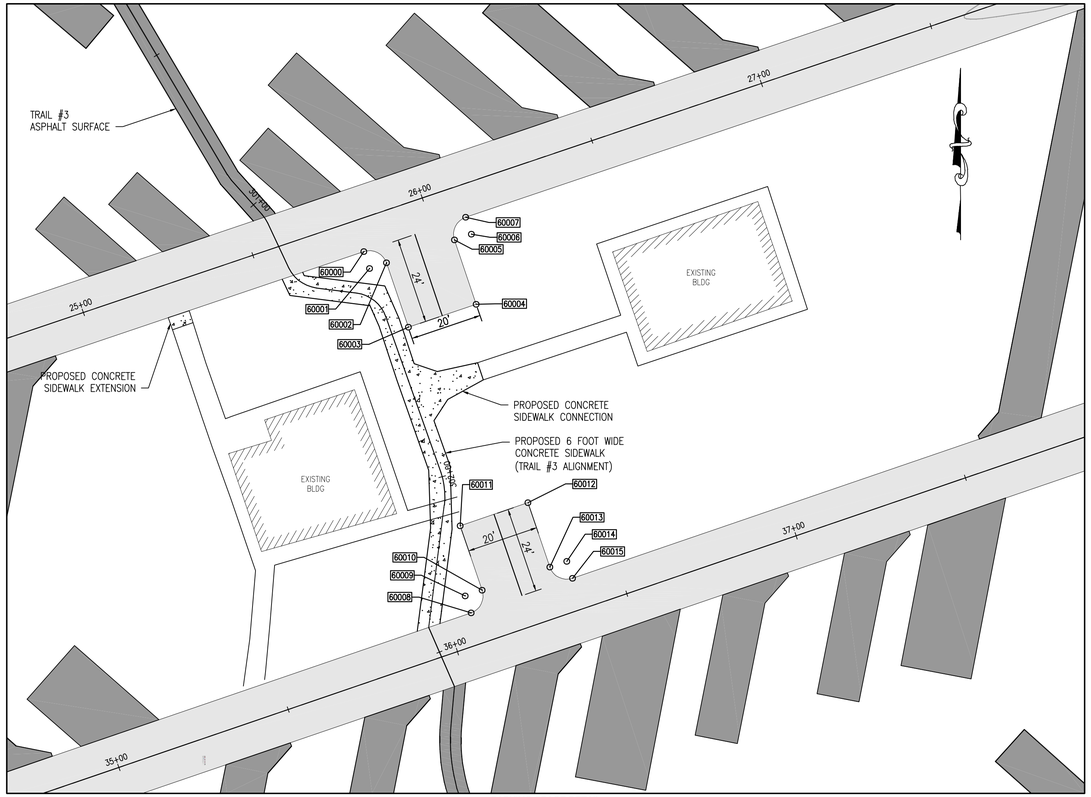
SEAL:
WALTER J. HOHS, III
REGISTERED
NO. 11204
DELAWARE
PROFESSIONAL ENGINEER

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

CEI NO.: 125002.15

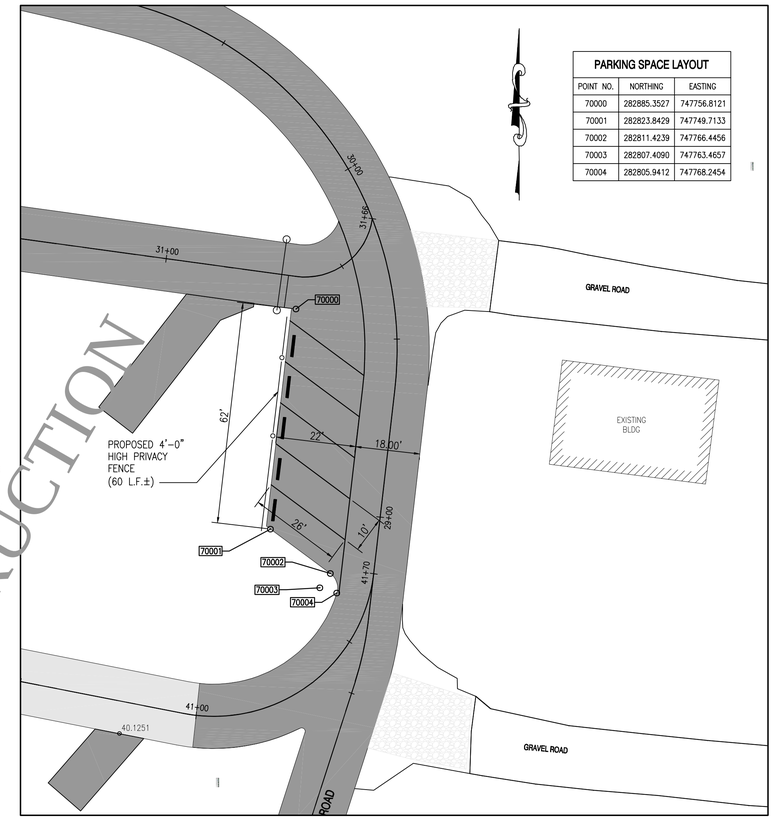
DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH
DRAWN BY: DLD
CHECKED BY: SLR
DATE: APRIL 25, 2016
SCALE: AS NOTED
SHEET NO.: C3.8
CONTRACT NO.:



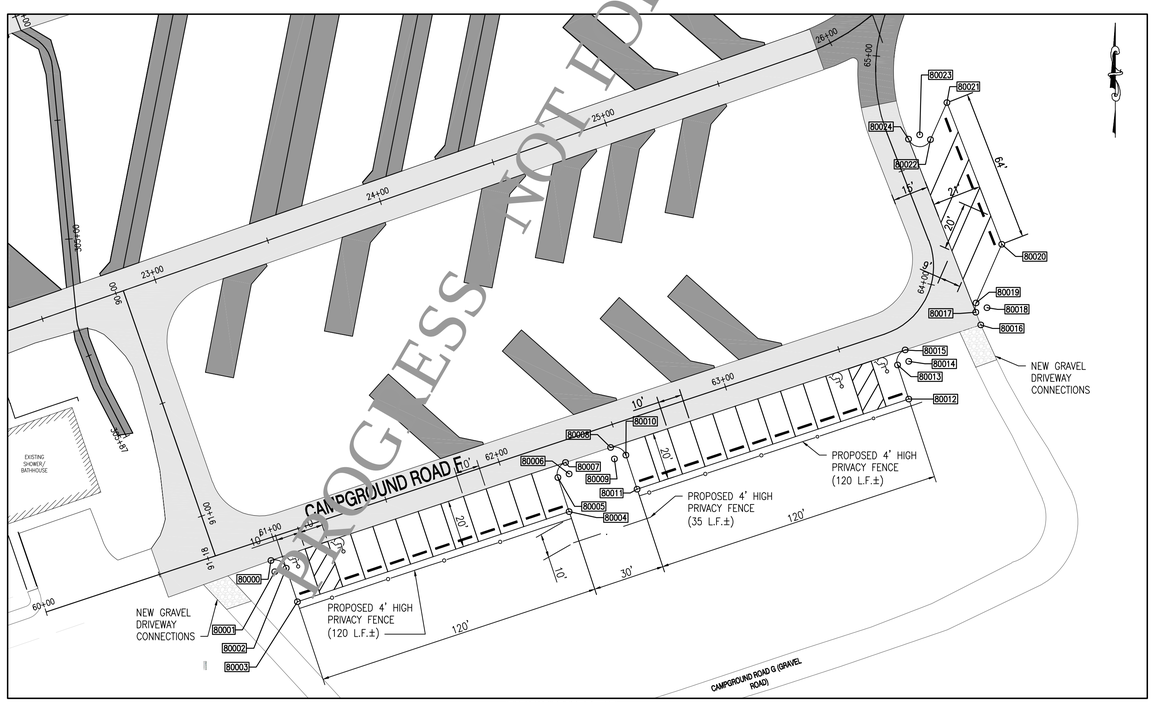
PARKING SPACE DETAIL
SCALE: 1" = 20'

PARKING SPACE LAYOUT		
POINT NO.	NORTHING	EASTING
60000	282779.8807	747224.1524
60001	282775.1437	747225.7526
60002	282776.7439	747230.4896
60003	282758.7432	747236.5704
60004	282765.1441	747255.5185
60005	282783.1448	747249.4376
60006	282784.7450	747254.1747
60007	282789.4820	747252.5744
60008	282678.9122	747254.0878
60009	282683.6429	747252.4691
60010	282685.2617	747257.1998
60011	282703.2384	747251.0485
60012	282709.7134	747269.9714
60013	282691.7367	747276.1226
60014	282693.3555	747280.8533
60015	282688.6248	747282.4721



PARKING SPACE DETAIL
SCALE: 1" = 20'

PARKING SPACE LAYOUT		
POINT NO.	NORTHING	EASTING
70000	282885.3527	747756.8121
70001	282823.8429	747749.7133
70002	282811.4239	747766.4456
70003	282807.4090	747763.4657
70004	282805.9412	747768.2454



PARKING SPACE DETAIL
SCALE: 1" = 30'

PARKING SPACE LAYOUT		
POINT NO.	NORTHING	EASTING
80000	282337.8363	747438.1352
80001	282333.1283	747439.8191
80002	282334.7020	747444.5650
80003	282320.5763	747449.2489
80004	282358.3447	747563.1504
80005	282372.5823	747558.4294
80006	282374.1560	747563.1753
80007	282378.9019	747561.6016
80008	282385.1967	747580.5852
80009	282380.4508	747582.1589
80010	282382.0244	747586.9047
80011	282367.7868	747591.6258
80012	282405.5552	747705.5273
80013	282419.7928	747700.8062
80014	282421.3665	747705.5521
80015	282426.1124	747703.9784
80016	282436.6306	747735.6990
80017	282441.9712	747733.6222
80018	282443.7834	747738.2822
80019	282445.7971	747733.7057
80020	282470.4454	747744.5513
80021	282529.7582	747721.4862
80022	282514.2630	747714.6681
80023	282516.2767	747710.0915
80024	282514.4646	747705.4315

REFERENCES:
1. REFER TO SHEET C7.3 FOR FENCE DETAILS.
2. REFER TO SHEET C7.1 FOR ADDITIONAL PARKING DETAILS.

PROGRESS NOT FOR CONSTRUCTION

REVISIONS:
DATE: DESCRIPTION: BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

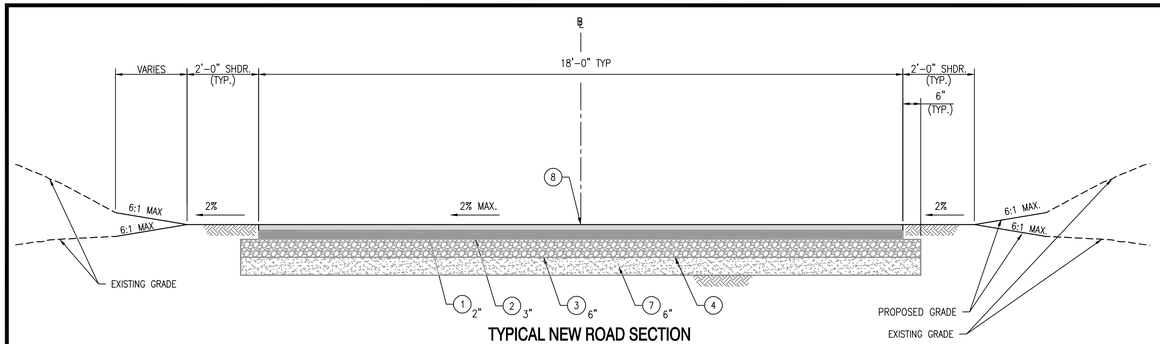
PARKING AREAS LAYOUT PLAN

SEAL:
CONSTRUCTION DOCUMENTS SUBMISSION

CIVIL ENGINEER:
CENTURY ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901
CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

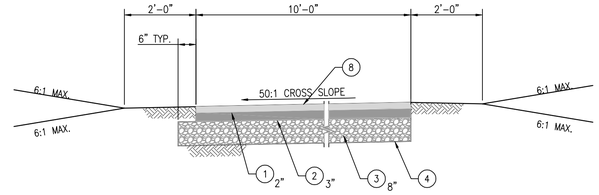
DESIGNED BY: WJH
DRAWN BY: DLD
CHECKED BY: SLR
DATE: APRIL 25, 2016
SCALE: AS NOTED
SHEET NO.: C3.9
CONTRACT NO.:



TYPICAL NEW ROAD SECTION

EAST LOOP ROAD STA. 26+18.09 TO STA. 32+30.89
CAMPGROUND B STA. 30+00.00 TO STA. 31+66.29
CAMPGROUND C - STA. 41+00.26 TO STA. 41+70.39
CAMPGROUND D STA. 58+61.53 TO STA. 59+84.36
CAMPGROUND F STA. 64+79.61 TO STA. 65+27.89
SCALE: 1/2"= 1'-0"

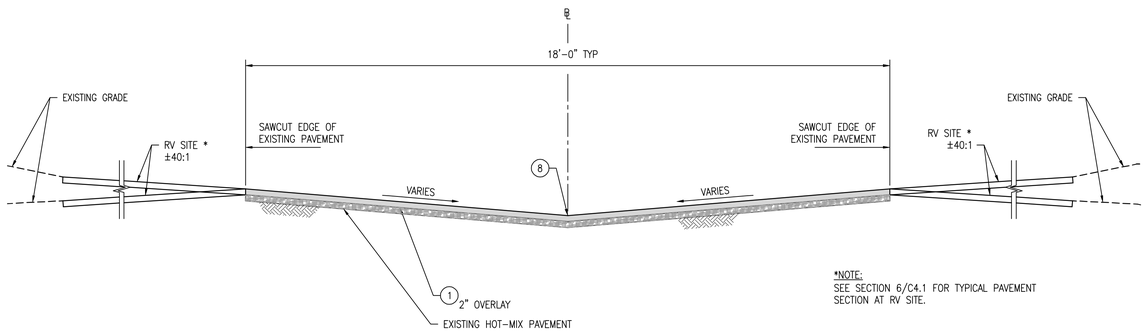
1 / C4.1



TYPICAL RV/CAMP SITE CROSS SECTION

SCALE: 1/2"= 1'-0"

5 / C4.1

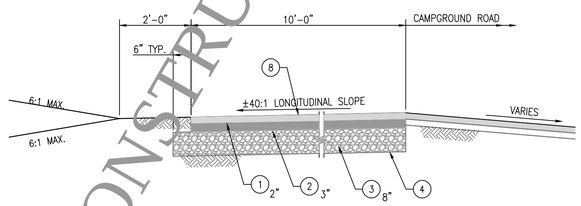


*NOTE:
SEE SECTION 6/C4.1 FOR TYPICAL PAVEMENT SECTION AT RV SITE.

TYPICAL CAMPGROUND ROAD SECTION

WEST LOOP ROAD STA. 10+00 TO STA. 19+00
ROAD E STA. 19+00 TO STA. 25+93.72
ROAD A STA. 32+49.56 TO STA. 41+59.27
ROAD B STA. 20+61.47 TO STA. 30+00.00
ROAD C 30+89.27 TO STA. 41+00.00
ROAD D STA. 50+00.00 TO STA. 58+61.53
ROAD F STA. 60+50.42 TO STA. 64+79.61
SPUR 5 STA. 70+00.00 TO STA. 71+06.72
SPUR 7 STA. 90+00.00 TO STA. 91+17.71
SCALE: 1/2"= 1'-0"

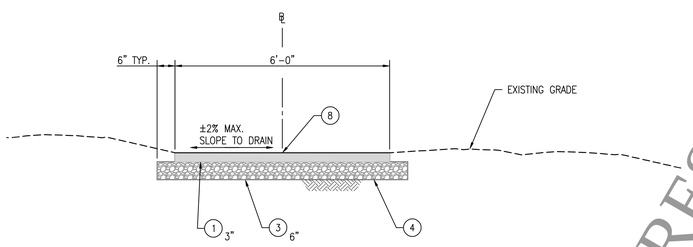
3 / C4.1



TYPICAL RV/CAMP SITE LONGITUDINAL SECTION

SCALE: 1/2"= 1'-0"

6 / C4.1

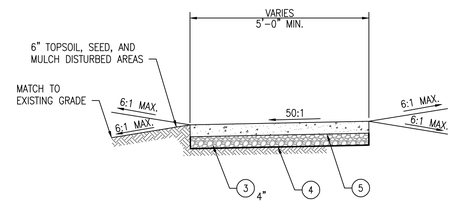


NOTE:
1. PLACE TYPE C WMA IN 1 LIFT.

TYPICAL TRAIL SECTION

SCALE: 1/2"= 1'-0"

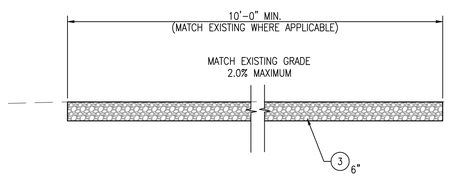
4 / C4.1



TYPICAL PCC SIDEWALK SECTION

SCALE: 1/2"= 1'-0"

7 / C4.1



TYPICAL GRAVEL DRIVE SECTION

SCALE: 1/2"= 1'-0"

8 / C4.1

LEGEND

1. WMA, SUPERPAVE,TYPE C, 160 GYRATIONS, PG 64-22 (CARBONATE STONE); (ITEM 401801)
2. WMA, SUPERPAVE, TYPE B, 160 GYRATIONS, PG 64-22; (ITEM 732002)
3. GRADED AGGREGATE BASE COURSE, TYPE B; (ITEM 302005)
4. GEOTEXTILES SEPARATION: (ITEM 713002)
5. 4" P.C.C. SIDEWALK; (ITEM 705001)
   CONSTRUCTION & EXPANSION JOINTS:
   1. PLACE CONSTRUCTION JOINTS TRAVERSE TO DIRECTION OF TRAVEL.
   2. SIDEWALKS SHALL HAVE CONSTRUCTION JOINTS AT SPACING EQUAL TO THE WIDTH OF THE SIDEWALK
   3. PROVIDE ADDITIONAL EXPANSION JOINTS WHERE SIDEWALK ABUTS INTERSECTING SIDEWALKS, OR FIXED STRUCTURES.
   4. THE SURFACE EDGES OF THE SLAB SHALL BE ROUNDED TO A 1/4" RADIUS WITH AN APPROVED FINISHING TOOL.
   5. PROVIDE 1/2" JOINT CORK FILLER AT EXPANSION JOINTS.
   6. SIDEWALK SHALL HAVE BROOM FINISH TRANSVERSE TO DIRECTION OF TRAVEL.
   7. SLOPE SIDEWALK CROSS SLOPE TO DRAIN WITH EXISTING GRADE.
6. TOPSOIL, 6" DEPTH; (ITEM 732002)
   VEGETATIVE STABILIZATION – PERMANENT SEEDING;
   STABILIZATION MATTING – SLOPE (SM-S)
7. BORROW, TYPE F: (ITEM 209006)
8. PROFILE GRADE APPLICATION

NOTES:

1. SEE CROSS SECTION SHEETS C5.1 TO C5.3 FOR SPECIFIC CROSS SLOPES TO BE CONSTRUCTED.
2. CROSS SLOPE ON EXISTING PAVEMENT SHALL BE AS FOUND IN THE FIELD AND/OR SHOWN ON THE SECTIONS EXCEPT MINIMUM CROSS SLOPE OF THE PAVED PATH SHALL BE 50:1 TO PROVIDE POSITIVE DRAINAGE AND NOT TRAP SURFACE RUNOFF.
3. 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.
4. DETAIL 1/C4.1 SHALL BE USED FOR HOT-MIX PATCHING OF EXISTING PAVEMENT. TYPE C WMA, SUPERPAVE SHALL BE PLACED AS PART OF THE OVERLAY OPERATION AND NOT INCLUDED IN THE PATCHING OPERATION.

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:
DATE: DESCRIPTION: BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

TYPICAL SECTIONS

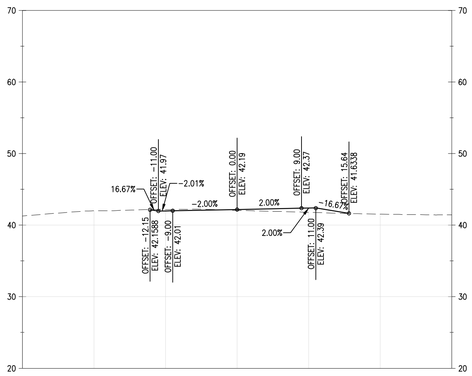
SEAL:
CONSTRUCTION DOCUMENTS SUBMISSION

CIVIL ENGINEER:
CENTURY ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901
CEI NO.: 125002.15

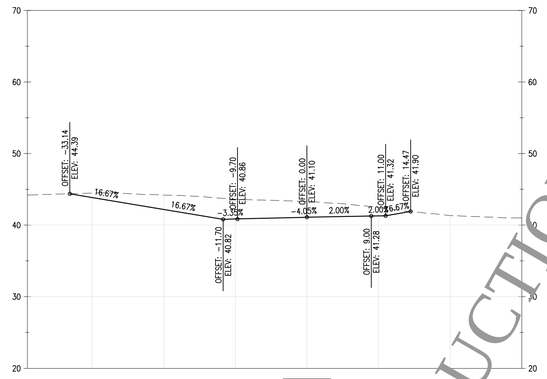
DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH
DRAWN BY: DLD
CHECKED BY: SLR
DATE: APRIL 25, 2016
SCALE: 1/2"= 1'-0"
SHEET NO.: C4.1
CONTRACT NO.:

G:\PROJECTS\125002.0E (DNREC Civil Engineering Services – 2012)\125002.15 (Cape Campground Improvements)\CADD FILES\Sheets\Construction Plans\C4-1_TypicalSections.dwg, 4/21/2016 2:33 PM



26+75.00



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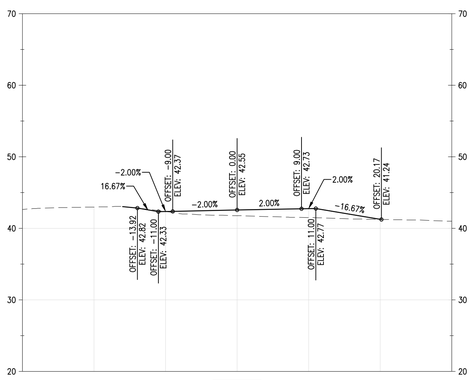

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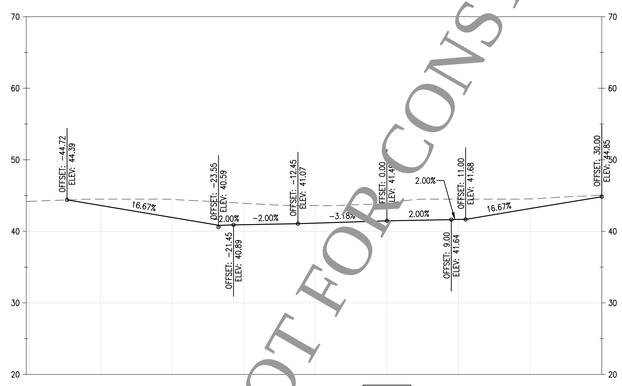

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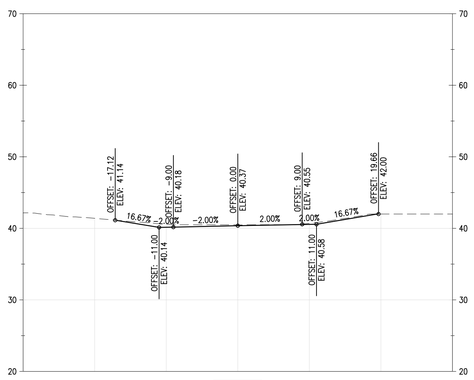

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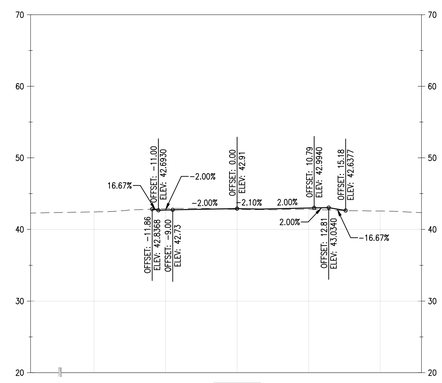

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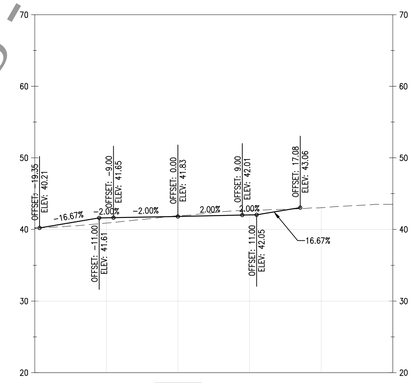

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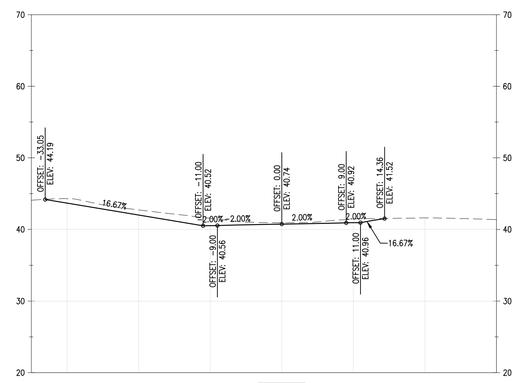


27+75.00

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

CROSS SECTIONS

SEAL:

CONSTRUCTION DOCUMENTS SUBMISSION

CIVIL ENGINEER:
CENTURY ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901
CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH

DRAWN BY: DLD

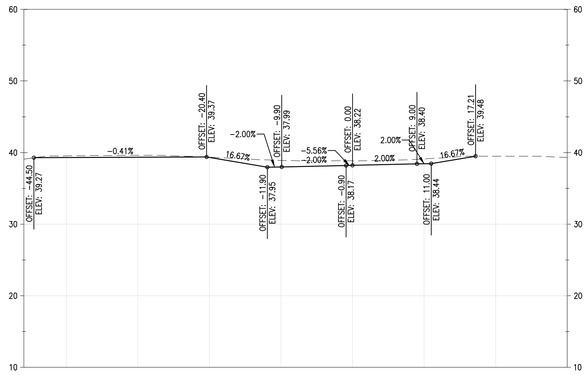
CHECKED BY: SLR

DATE: APRIL 25, 2016

SCALE: 1" = 10'

SHEET NO.: C5.1

CONTRACT NO.:



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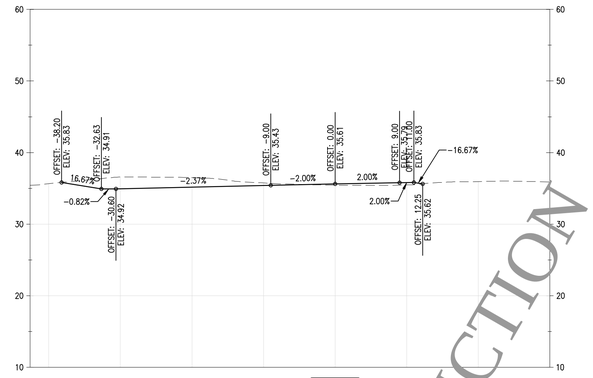

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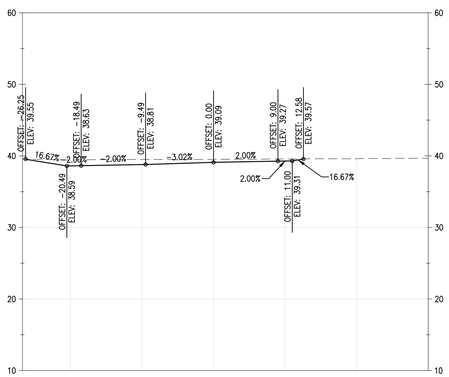

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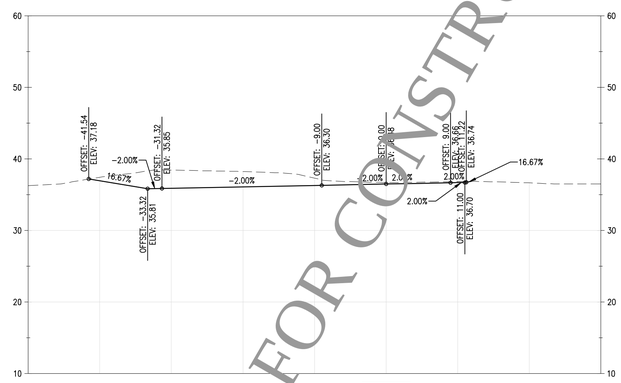

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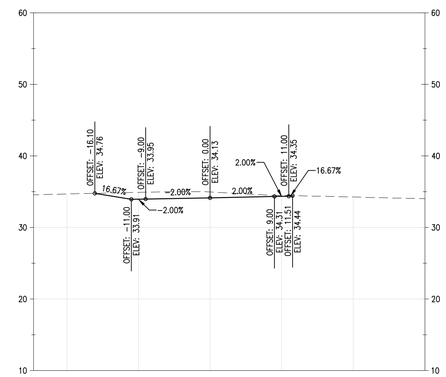

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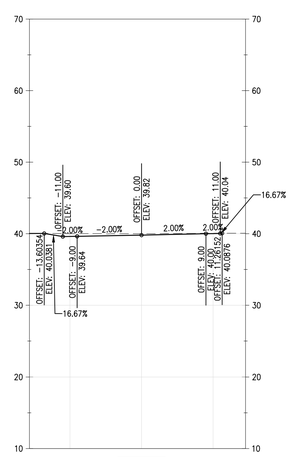

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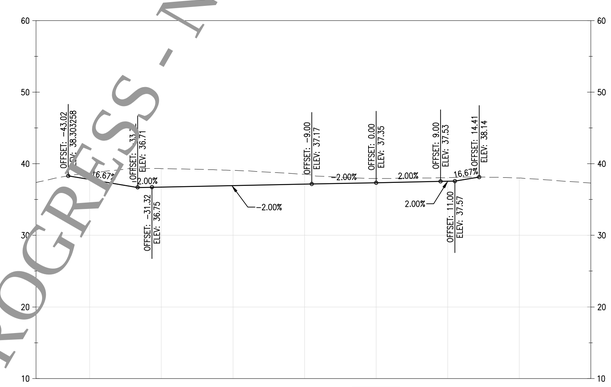

29+00.00

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

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CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

CROSS SECTIONS

SEAL:

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CIVIL ENGINEER:

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

CEI NO.: 125002.15

DESIGNED BY: WJH

DRAWN BY: DLD

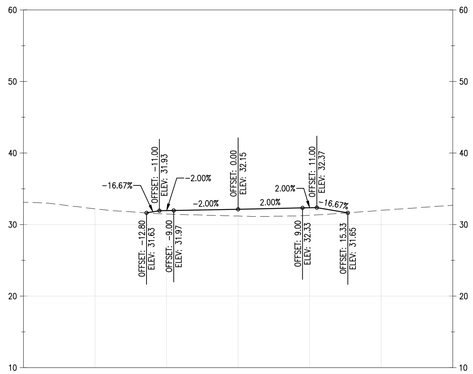
CHECKED BY: SLR

DATE: APRIL 25, 2016

SCALE: 1" = 10'

SHEET NO.: C5.2

CONTRACT NO.:



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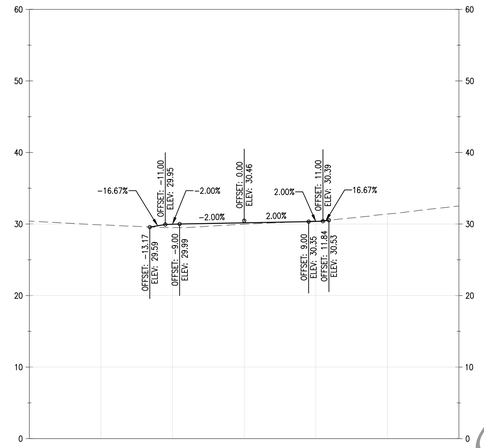

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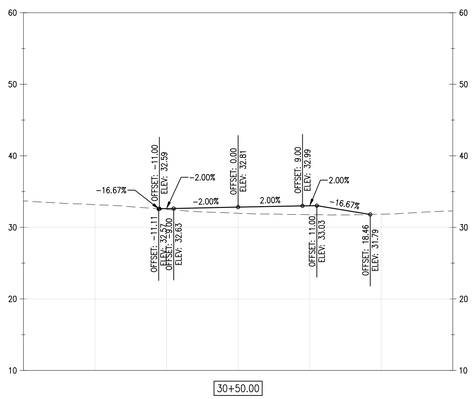

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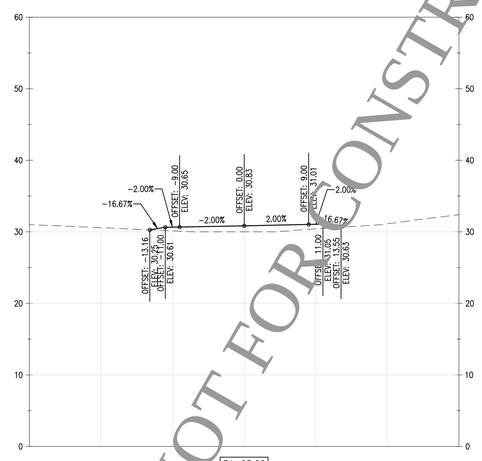

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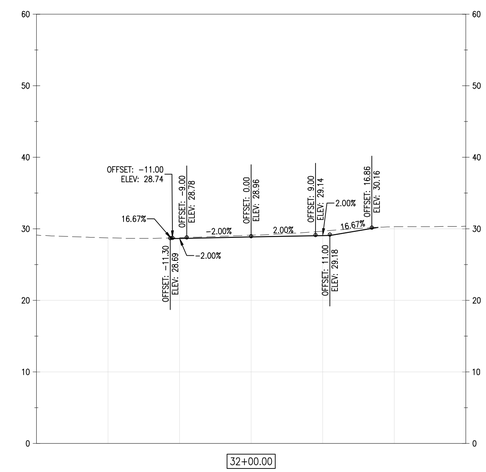

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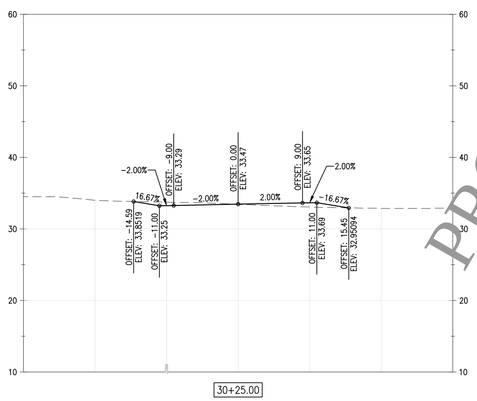

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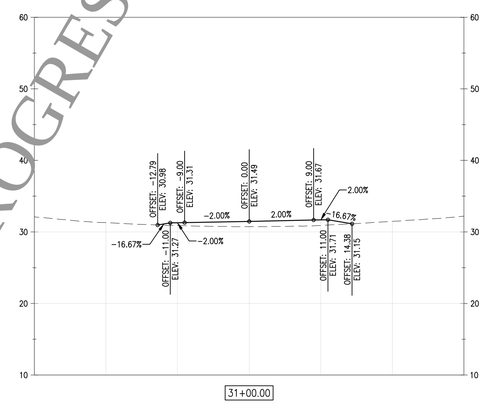

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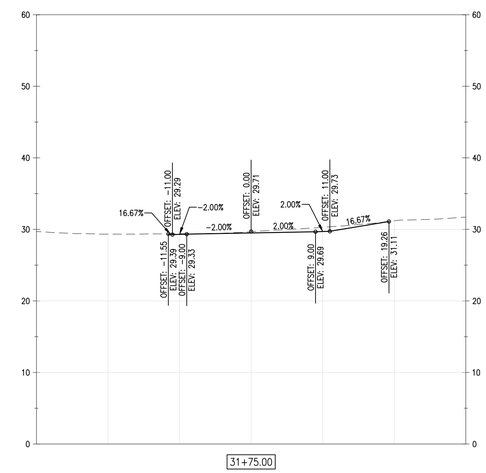

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PROGRESS - NOT FOR CONSTRUCTION

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DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

CROSS SECTIONS

SEAL:

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CIVIL ENGINEER:

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CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH

DRAWN BY: DLD

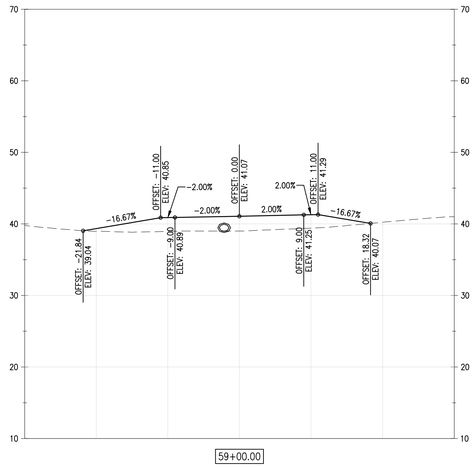
CHECKED BY: SLR

DATE: APRIL 25, 2016

SCALE: 1" = 10'

SHEET NO.: C5.2

CONTRACT NO.:



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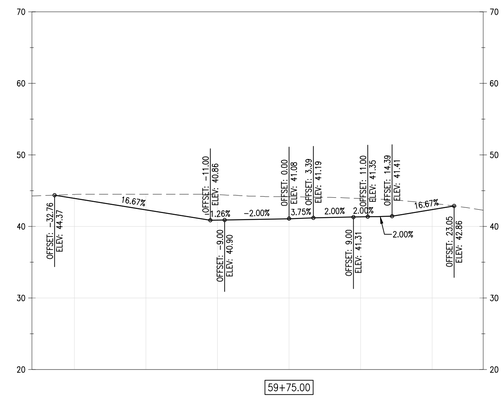

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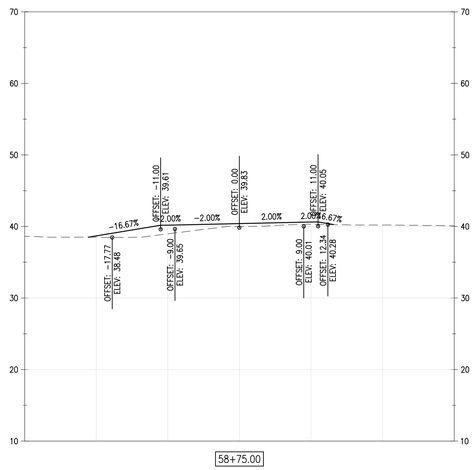

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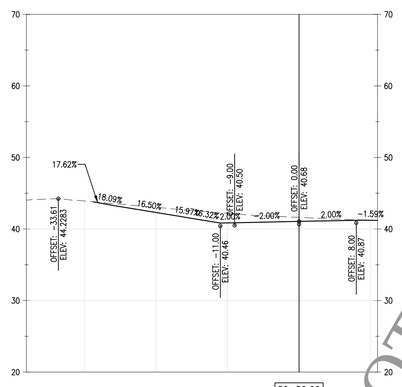

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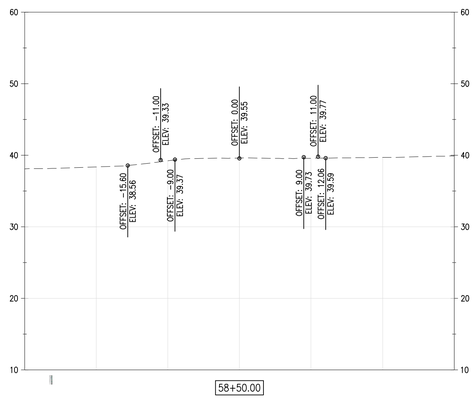

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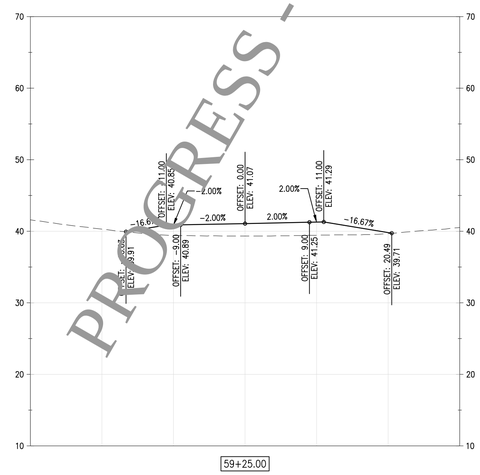

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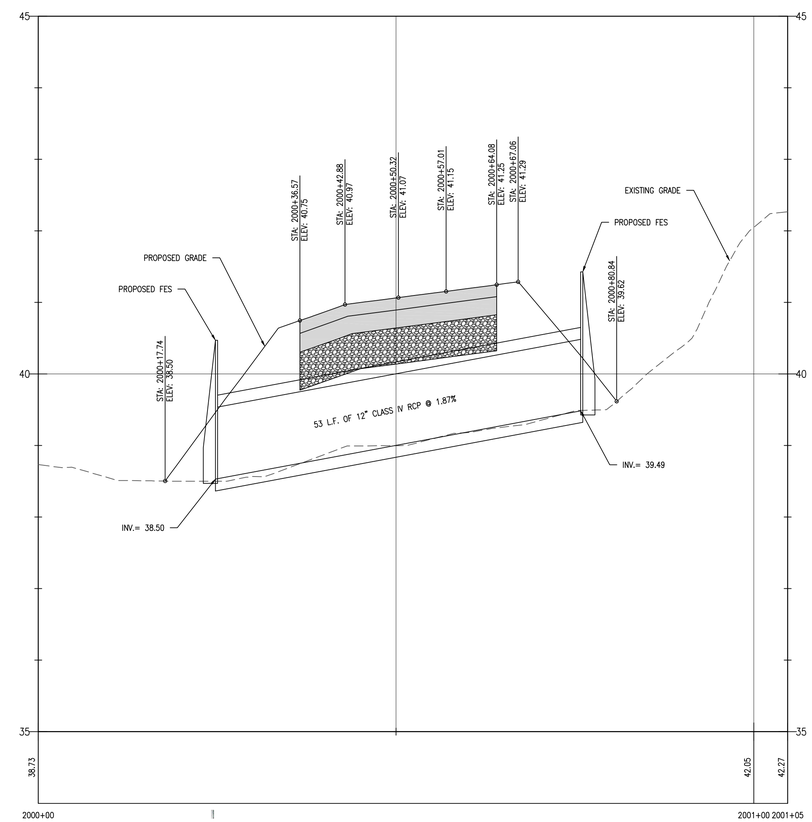


STORM SEWER PROFILE
STA. 2000+00 TO STA. 2001+04.72
SCALE: HORZ. 1" = 10'
VERT. 1" = 1"

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

CROSS SECTIONS

SEAL:

CONSTRUCTION DOCUMENTS SUBMISSION

CIVIL ENGINEER:

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

CEI NO.: 125002.15

DESIGNED BY: WJH

DRAWN BY: DLD

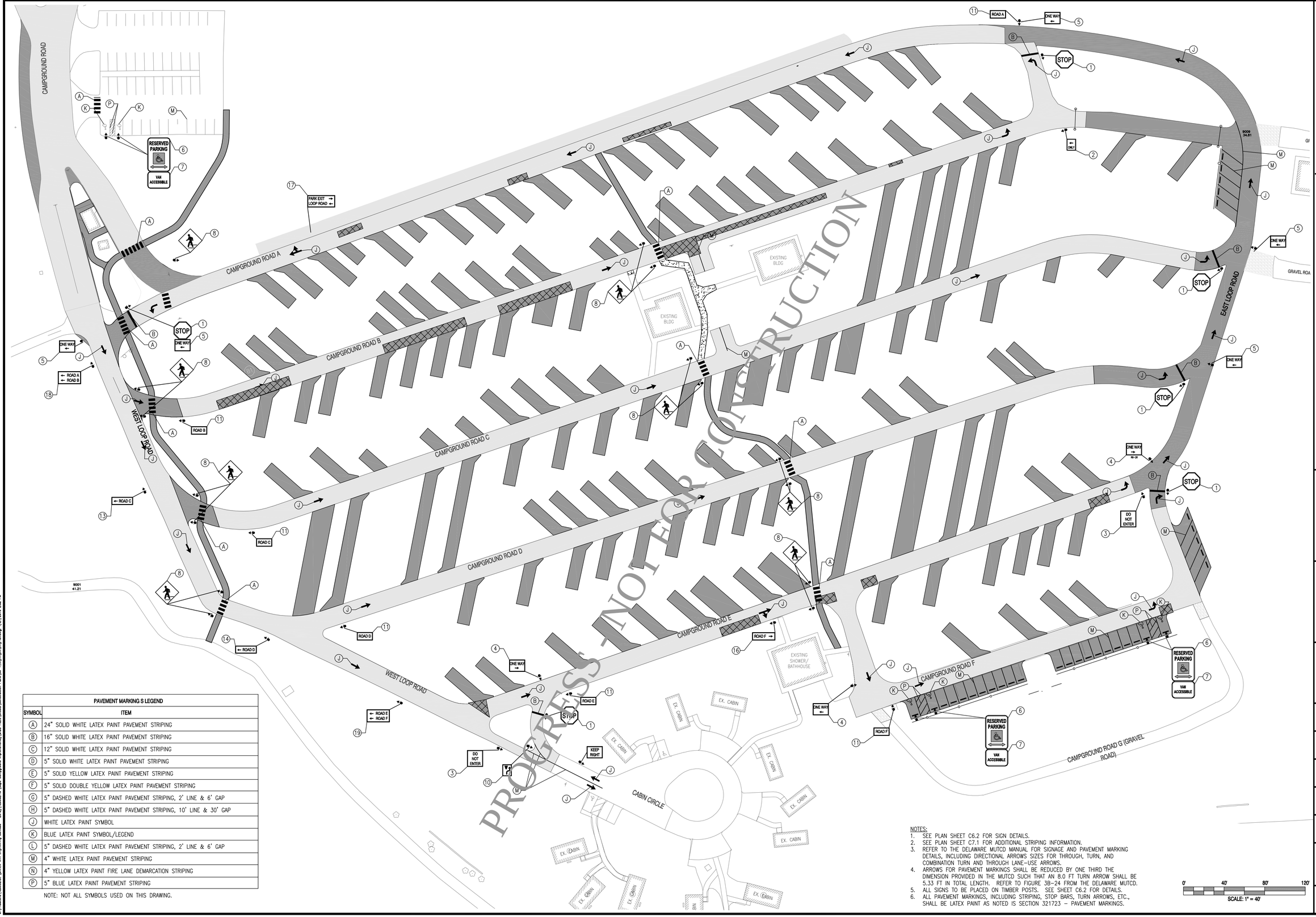
CHECKED BY: SLR

DATE: APRIL 25, 2016

SCALE: 1" = 10'

SHEET NO.: C5.4

CONTRACT NO.:



PAVEMENT MARKING S LEGEND	
SYMBOL	ITEM
(A)	24" SOLID WHITE LATEX PAINT PAVEMENT STRIPING
(B)	16" SOLID WHITE LATEX PAINT PAVEMENT STRIPING
(C)	12" SOLID WHITE LATEX PAINT PAVEMENT STRIPING
(D)	5" SOLID WHITE LATEX PAINT PAVEMENT STRIPING
(E)	5" SOLID YELLOW LATEX PAINT PAVEMENT STRIPING
(F)	5" SOLID DOUBLE YELLOW LATEX PAINT PAVEMENT STRIPING
(G)	5" DASHED WHITE LATEX PAINT PAVEMENT STRIPING, 2' LINE & 6' GAP
(H)	5" DASHED WHITE LATEX PAINT PAVEMENT STRIPING, 10' LINE & 30' GAP
(J)	WHITE LATEX PAINT SYMBOL
(K)	BLUE LATEX PAINT SYMBOL/LEGEND
(L)	5" DASHED WHITE LATEX PAINT PAVEMENT STRIPING, 2' LINE & 6' GAP
(M)	4" WHITE LATEX PAINT PAVEMENT STRIPING
(N)	4" YELLOW LATEX PAINT FIRE LANE DEMARCATION STRIPING
(P)	5" BLUE LATEX PAINT PAVEMENT STRIPING

NOTE: NOT ALL SYMBOLS USED ON THIS DRAWING.

NOTES:
1. SEE PLAN SHEET C6.2 FOR SIGN DETAILS.
2. SEE PLAN SHEET C7.1 FOR ADDITIONAL STRIPING INFORMATION.
3. REFER TO THE DELAWARE MUTCD MANUAL FOR SIGNAGE AND PAVEMENT MARKING DETAILS, INCLUDING DIRECTIONAL ARROWS SIZES FOR THROUGH, TURN, AND COMBINATION TURN AND THROUGH LANE–USE ARROWS.
4. ARROWS FOR PAVEMENT MARKINGS SHALL BE REDUCED BY ONE THIRD THE DIMENSION PROVIDED IN THE MUTCD SUCH THAT AN 8.0 FT TURN ARROW SHALL BE 5.33 FT IN TOTAL LENGTH. REFER TO FIGURE 3B–24 FROM THE DELAWARE MUTCD.
5. ALL SIGNS TO BE PLACED ON TIMBER POSTS. SEE SHEET C6.2 FOR DETAILS.
6. ALL PAVEMENT MARKINGS, INCLUDING STRIPING, STOP BARS, TURN ARROWS, ETC., SHALL BE LATEX PAINT AS NOTED IS SECTION 321723 – PAVEMENT MARKINGS.

0' 40' 80' 120'
SCALE: 1" = 40'

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

SIGNING AND STRIPING PLAN

SEAL:

CONSTRUCTION DOCUMENTS SUBMISSION

CIVIL ENGINEER:

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH

DRAWN BY: DLD

CHECKED BY: SLR

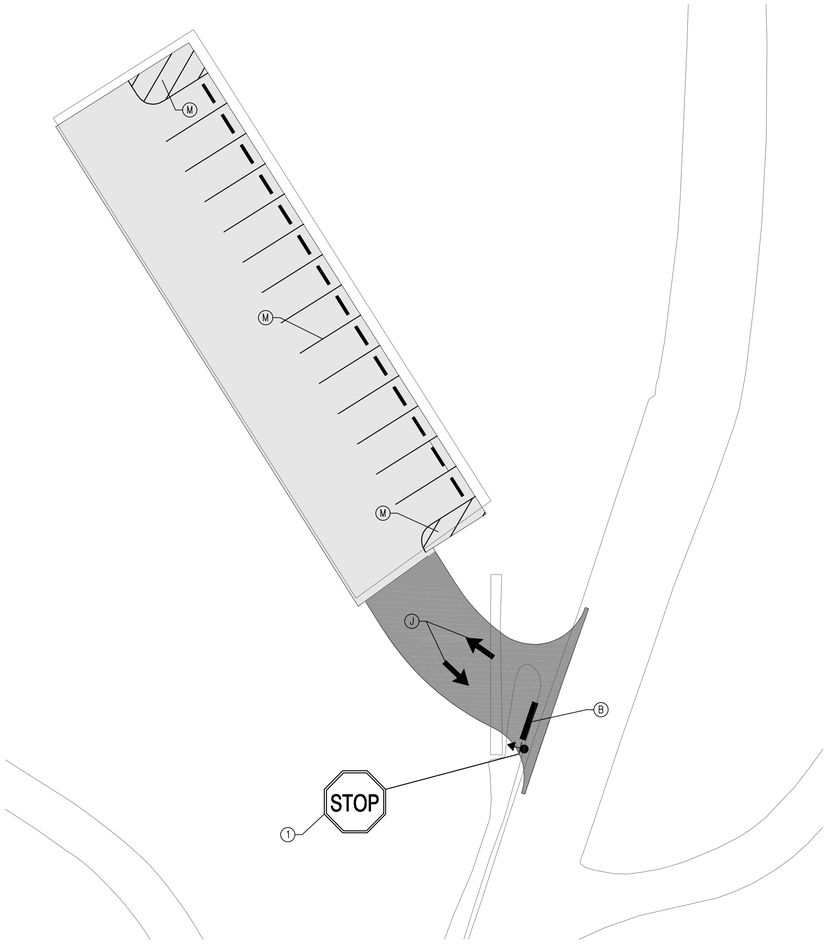
DATE: APRIL 25, 2016

SCALE: 1" = 40'

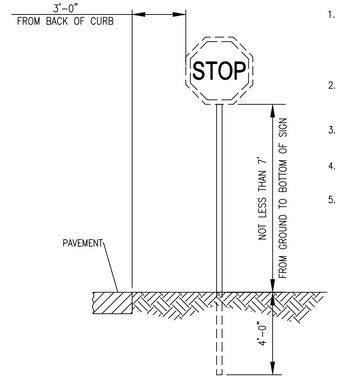
SHEET NO.: C6.1

CONTRACT NO.:

G:\PROJECTS\125002.00 (DNREC Civil Engineering Services - 2012)\125002.15 (Cape Campground Improvements)\CADD FILES\Sheets\Construction Plans\C6-1_SigningStripingPlan.dwg, 4/21/2016 2:32 PM



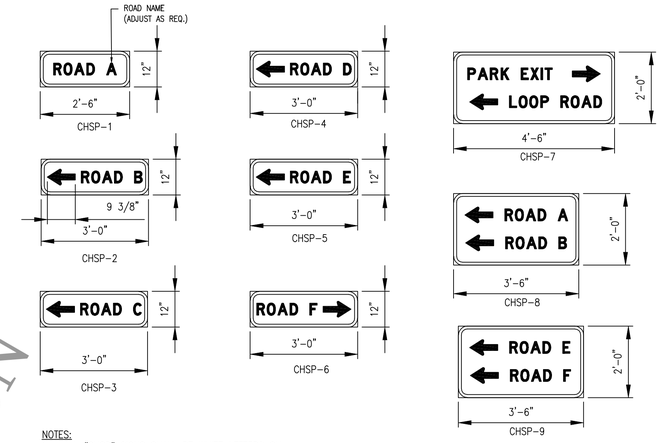
1 C6.2 OVERFLOW PARKING LOT SIGNING AND STRIPING
SCALE: 1"=20'



2 C6.2 SIGN POST DETAIL
SCALE: 1/2" = 1'-0"

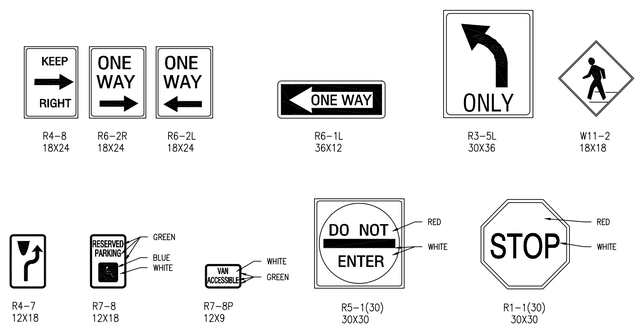
NOTES:

1. DESIGN, FABRICATION AND INSTALLATION OF ALL PERMANENT SIGNING SHALL BE AS OUTLINED IN THE 'GUIDE FOR FABRICATION AND INSTALLATION OF TRAFFIC CONTROL DEVICES' LATEST EDITION.
2. SIGNS TO BE INSTALLED WOODEN, 4"x4" SOUTHERN YELLOW PINE PRESSURE TREATED POST, ACQ 0.4 PCF.
3. SIGNS GREATER THAN 36 INCHES IN WIDTH SHALL BE INSTALLED ON TWO (2) POSTS.
4. IF NO CURB, PLACE SIGN 4'-0" FROM EDGE OF PAVEMENT.
5. ALL SIGNS SHALL BE INSTALLED ON TIMBER POSTS USING A MINIMUM OF TWO (2) 5/16" GALVANIZED BOLTS WITH TWO (2) GALVANIZED WASHERS AND LOCK NUTS.



NOTES:

1. ALL "CHSP" SIGNS SHALL BE WHITE LETTERS ON BROWN BACKGROUND, UNLESS NOTED OTHERWISE.
2. TEXT HEIGHT SHALL 4 INCHES.
3. FONT SHALL BE DELDOT STANDARD "HIGHWAY GOTHIC, TYPE B", OR APPROVED EQUAL.



3 C6.2 SIGN DETAILS
SCALE: 1/2"= 1'-0"

PAVEMENT MARKING S LEGEND	
SYMBOL	ITEM
(A)	24" SOLID WHITE LATEX PAINT PAVEMENT STRIPING
(B)	16" SOLID WHITE LATEX PAINT PAVEMENT STRIPING
(C)	12" SOLID WHITE LATEX PAINT PAVEMENT STRIPING
(D)	5" SOLID WHITE LATEX PAINT PAVEMENT STRIPING
(E)	5" SOLID YELLOW LATEX PAINT PAVEMENT STRIPING
(F)	5" SOLID DOUBLE YELLOW LATEX PAINT PAVEMENT STRIPING
(G)	5" DASHED WHITE LATEX PAINT PAVEMENT STRIPING, 2' LINE & 6' GAP
(H)	5" DASHED WHITE LATEX PAINT PAVEMENT STRIPING, 10' LINE & 30' GAP
(J)	WHITE LATEX PAINT SYMBOL
(K)	LATEX PAINT SYMBOL/LEGEND
(L)	5" DASHED WHITE LATEX PAINT PAVEMENT STRIPING, 2' LINE & 6' GAP
(M)	4" WHITE LATEX PAINT PAINT PAVEMENT STRIPING
(N)	4" YELLOW LATEX PAINT FIRE LANE DEMARCATION STRIPING
(P)	YELLOW PAINTED CURB

NOTE: NOT ALL SYMBOLS USED ON THIS DRAWING.

SIGN SCHEDULE

#	SHEET NO.	PLAN INDICATOR	CODE	QTY.	DESCRIPTION	ASSEMBLY NO.	SIGN WIDTH (IN)	SIGN HEIGHT (IN)	SIGN AREA (SF)	ITEM 749687 SINGLE POST (EACH)			ITEM 749690 MULTI POST (POST NEEDED)			POST INSTALLATION TYPE	Code X11 12' Post (W/ Basepost)	ITEM 749688 4" HOLE, 0-6" (EACH)	ITEM 749689 4" HOLE, >6" (EACH)	REMARKS
										SIGN DISPOSTION	REMOVE	INSTALL	SIGN DISPOSTION	REMOVE	INSTALL					
3	C6-1, C6-2	1	R1-1(30)	7	STOP		30"	30"	6.25	NEW						SOIL	0	0	0	TIMBER POST
125	C6-1	2	R3-5a	1	MANDATORY MOVEMENT LANE CONTROL (Ahead)		30"	36"	7.5	NEW						SOIL	0	0	0	"
309	C6-1	12	R4-7(12)	1	KEEP RIGHT (Symbol) - 12x18		12"	18"	1.5	NEW						SOIL	0	0	0	"
318	C6-1	3	R5-1(30)	2	DO NOT ENTER - 30x30		30"	30"	6.25	NEW						SOIL	0	0	0	"
39	C6-1	4	R6-2_R(18)	2	ONE WAY (RIGHT ARROW) - 18x24		18"	24"	3	NEW						SOIL	0	0	0	"
401	C6-1	5	R6-2_L(18)	6	ONE WAY (LEFT ARROW) - 18x24		18"	24"	3	NEW						SOIL	0	0	0	"
4[illegible]9	C6-1	5	R7-8	6	RESERVED PARKING (Disabilities - symbols)		12"	18"	1.5	NEW						SOIL	0	0	0	"
4[illegible]	C6-1	4	R7-8P	6	VAN ACCESSIBLE (plaque)		12"	9"	0.75	NEW						SOIL	0	0	0	"
457	C6-1	5	W11-2(18)	16	PEDESTRIAN (Symbol) - 18x18		18"	18"	2.25	NEW						SOIL	0	0	0	"
																SOIL	0	0	0	"
	C6-1	11	CHSP-1	6	ONE EACH - ROAD (A, B, C, D, E, F)		30"	12"	2.5	NEW						SOIL				"
	C6-1	12	CHSP-2	1	ROAD B (LEFT ARROW)		36"	12"	3	NEW						SOIL				"
	C6-1	13	CHSP-3	1	ROAD B (LEFT ARROW)		36"	12"	3	NEW						SOIL				"
	C6-1	13	CHSP-4	1	ROAD D (LEFT ARROW)		36"	12"	3	NEW						SOIL				"
	C6-1	13	CHSP-5	1	ROAD E (LEFT ARROW)		36"	12"	3	NEW						SOIL				"
	C6-1	16	CHSP-6	1	ROAD F (RIGHT ARROW)		36"	12"	3	NEW						SOIL				"
	C6-1	17	CHSP-7	1	PARK EXIT/LOOP ROAD (LEFT AND RIGHT ARROWS)		54"	24"	3	NEW						SOIL				"
	C6-1	12	CHSP-8	1	ROAD A & ROAD B (LEFT ARROWS)		42"	24"	7	NEW						SOIL				"
	C6-1	13	CHSP-9	1	ROAD E & ROAD F (LEFT ARROWS)		42"	24"	7	NEW						SOIL				"

0' 20' 40' 60'
SCALE: 1" = 20'

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

SIGNING AND STRIPING PLAN

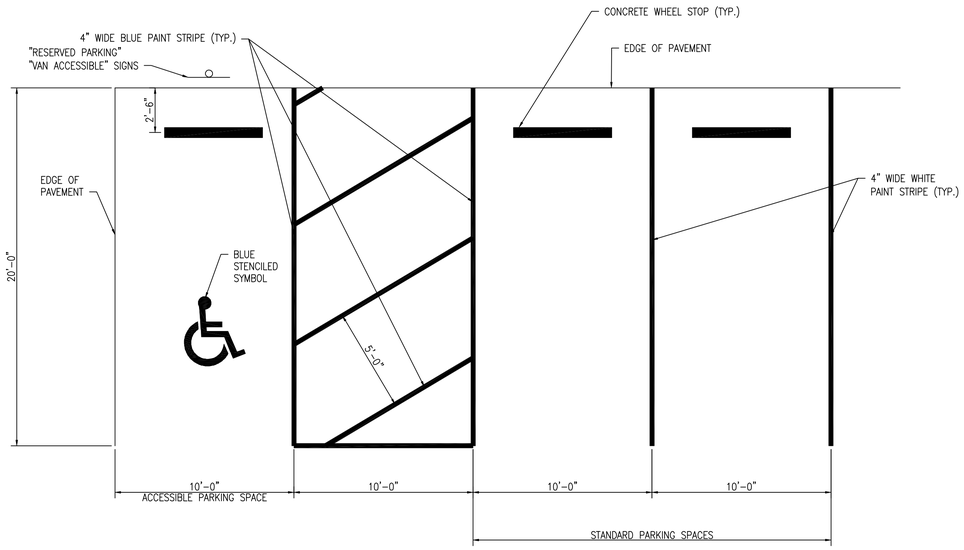
SEAL:

CONSTRUCTION DOCUMENTS SUBMISSION

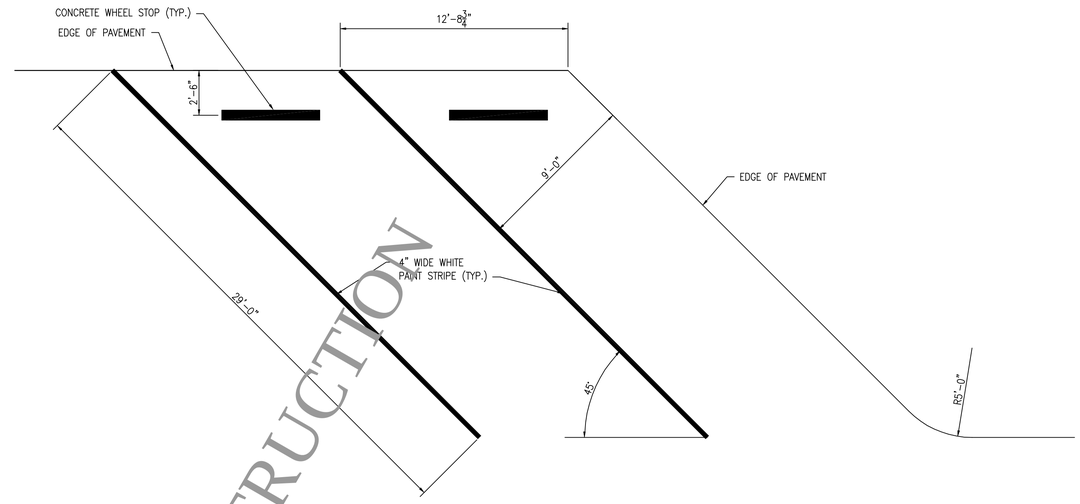
CIVIL ENGINEER:
CENTURY ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901
CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

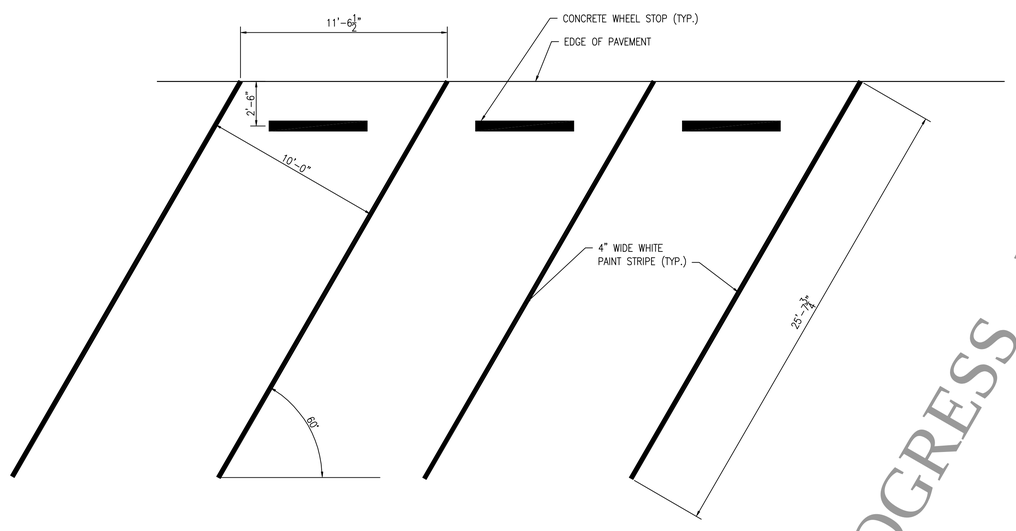
DESIGNED BY: WJH
DRAWN BY: DLD
CHECKED BY: SLR
DATE: APRIL 25, 2016
SCALE: 1" = 20'
SHEET NO.: C6.2
CONTRACT NO.:



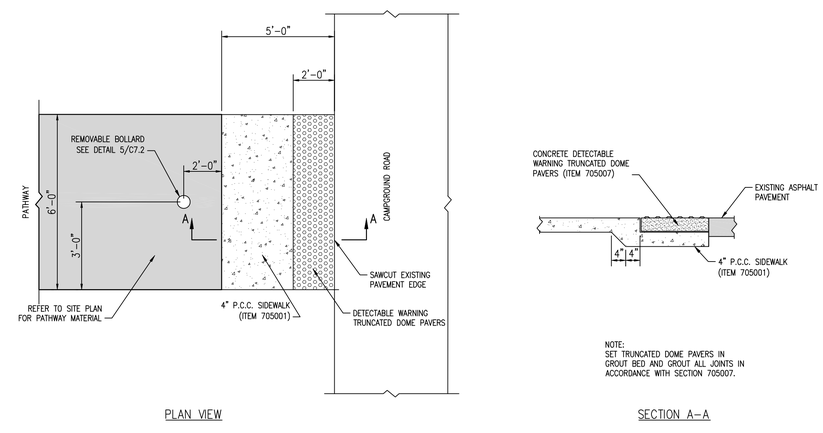
1 / C7.4 ACCESSIBLE PARKING SPACE DETAIL
SCALE: 1/4" = 1'-0"



3 / C7.4 ROAD F DIAGONAL PARKING DETAIL
SCALE: 1/4" = 1'-0"



2 / C7.4 EAST LOOP DIAGONAL PARKING DETAIL
SCALE: 1/4" = 1'-0"



NOTE:
SET TRUNCATED DOME PAVERS IN GROUT BED AND GROUT ALL JOINTS IN ACCORDANCE WITH SECTION 705007.

4 / C7.4 PATHWAY INTERSECTION DETAIL
SCALE: NOT TO SCALE

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

TYPICAL CONSTRUCTION DETAILS

SEAL:

CONSTRUCTION DOCUMENTS SUBMISSION

CIVIL ENGINEER:
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4134 N. DUPONT HWY.
DOVER, DELAWARE 19901
CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH
DRAWN BY: DLD
CHECKED BY: SLR
DATE: APRIL 25, 2016
SCALE:
SHEET NO.: C7.1
CONTRACT NO.:

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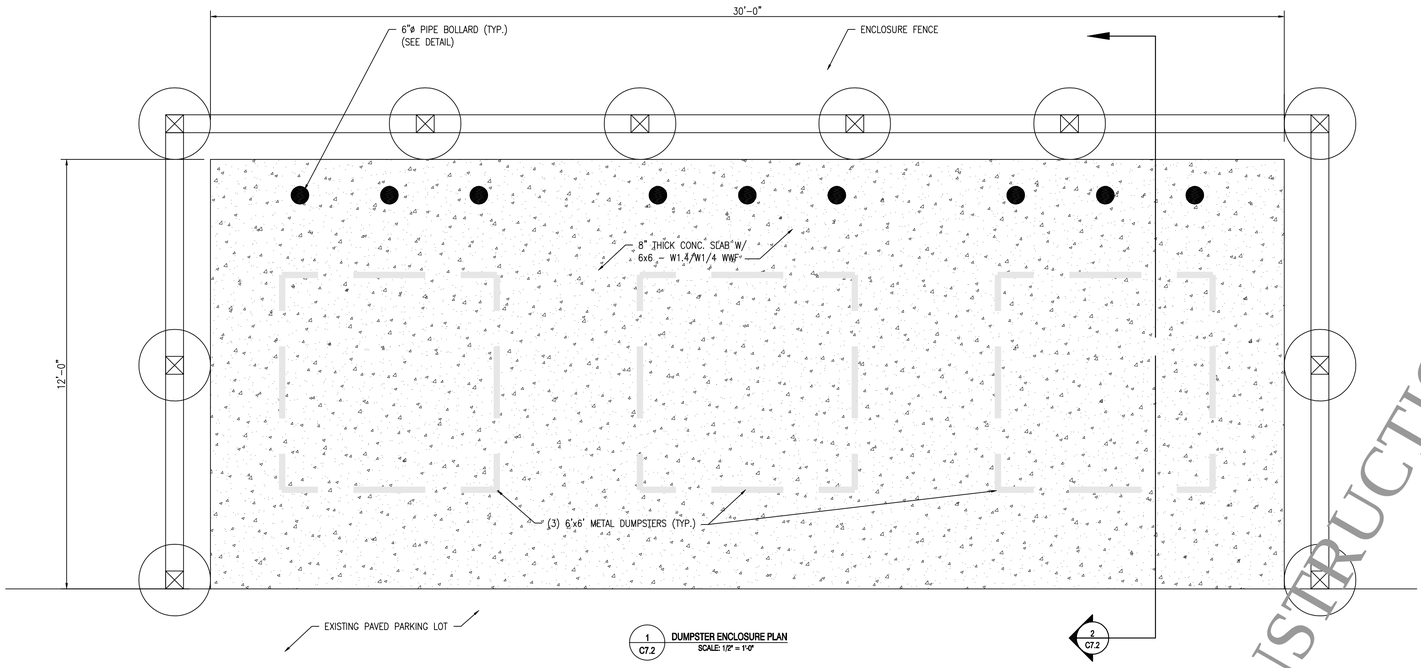
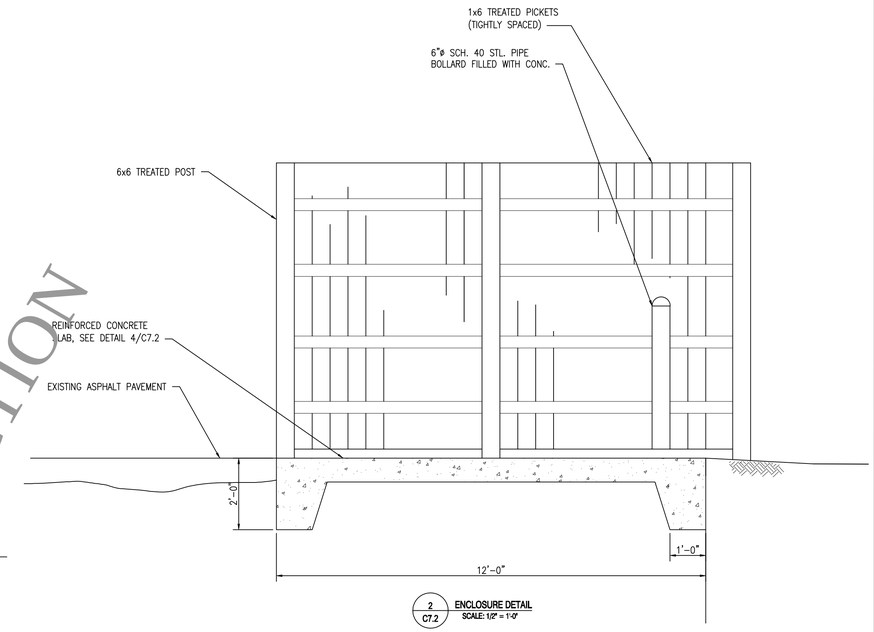
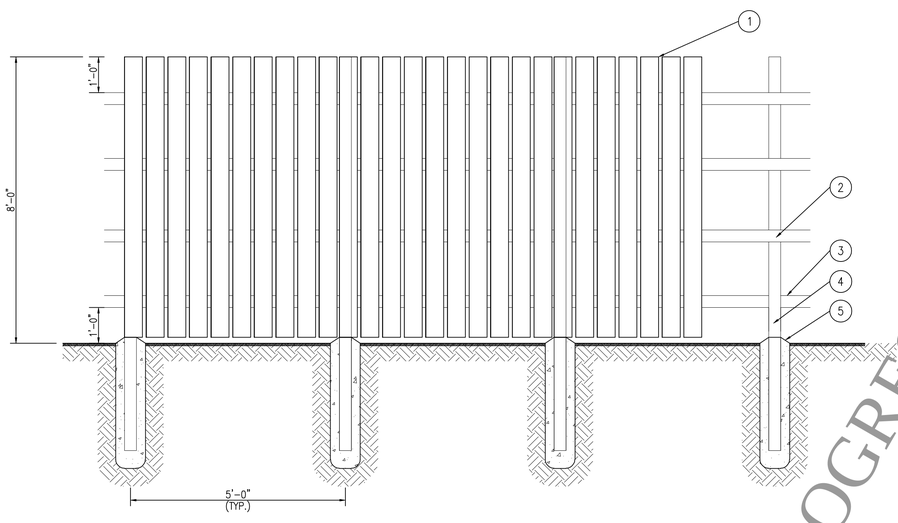


1 / C7.2 DUMPSTER ENCLOSURE PLAN
SCALE: 1/2" = 1'-0"

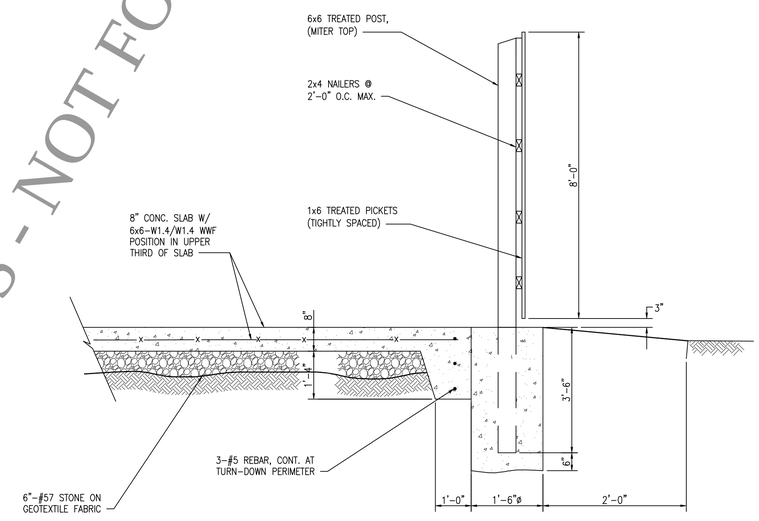


2 / C7.2 ENCLOSURE DETAIL
SCALE: 1/2" = 1'-0"

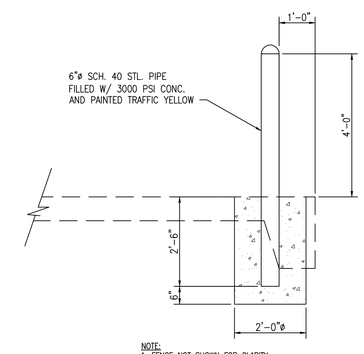


NOTES:
1. WOOD PICKET 1x6 S4S SOUTHERN YELLOW PINE, NO.2, TREATED WITH CHROMATED COPPER (ARSENATE (CCA) WITH A MINIMUM RETENTION OF 2.5 LBS/FT3) 6d GALVANIZED NAILS OR #10 STAINLESS STEEL SCREW.
2. ALL NAILS AND CONNECTORS SHALL BE GALVANIZED.
3. WOOD RAILS MAXIMUM DISTANCE FROM TOP AND BOTTOM 6 INCHES, 24" MAXIMUM ELSEWHERE. MINIMUM RAIL SIZE 2"x4" WITH 2 RAILS REQUIRED ATTACHED WITH A MINIMUM OF FOUR (4) 10d NAILS TO WOOD POST.
4. WOOD POST NO.2 GRADE WOOD OR BETTER, MINIMUM SIZE 6"x 6".
5. CONCRETE FOOTING AT EACH POST MINIMUM DIAMETER OF 1'-6".
6. CONTRACTOR SHALL PROVIDE CONSTRUCTION DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

3 / C7.2 DUMPSTER ENCLOSURE FENCE ELEVATION
SCALE: 1/2" = 1'-0"



4 / C7.2 DUMPSTER ENCLOSURE FENCE DETAIL
SCALE: 1/2" = 1'-0"



NOTE:
1. FENCE NOT SHOWN FOR CLARITY.

5 / C7.2 DUMPSTER BOLLARD DETAIL
SCALE: 1/2" = 1'-0"

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

TYPICAL CONSTRUCTION DETAILS

SEAL:

CONSTRUCTION DOCUMENTS SUBMISSION

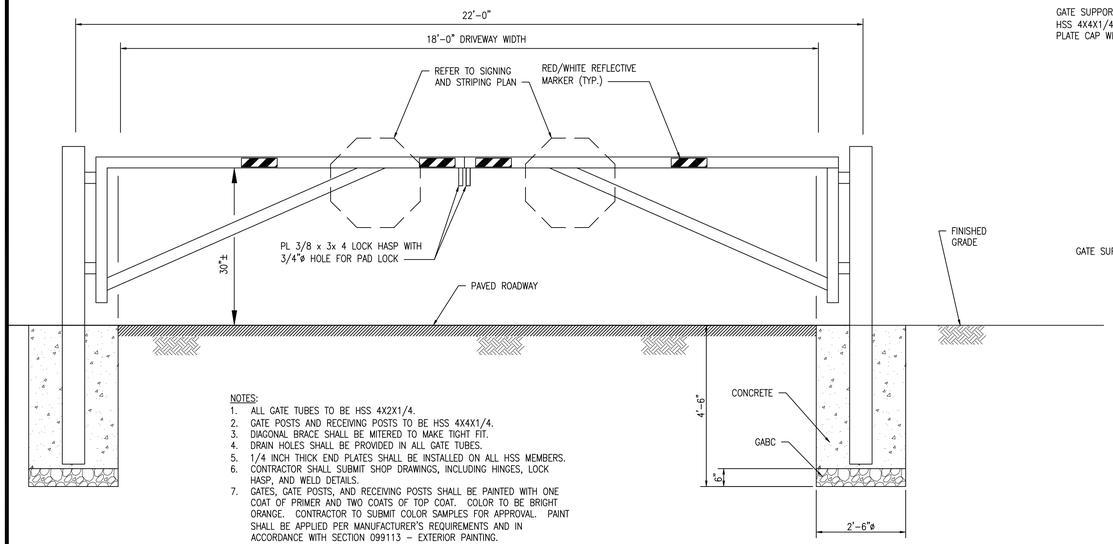
CIVIL ENGINEER:
CENTURY ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

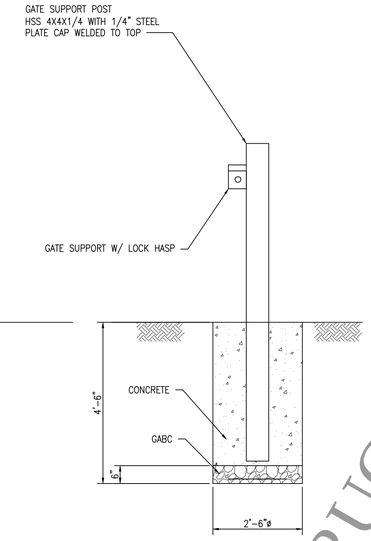
DESIGNED BY: WJH
DRAWN BY: DLD
CHECKED BY: SLR
DATE: APRIL 25, 2016
SCALE:
SHEET NO.: C7.2
CONTRACT NO.:

O:\PROJECTS\125002.0E (DNREC Civil Engineering Services - 2012)\125002.15 (Cape Campground Improvements)\CADD FILES\Sheets\Construction Plans\C7-2_ConstructionDetails.dwg, 4/21/2016 2:33 PM

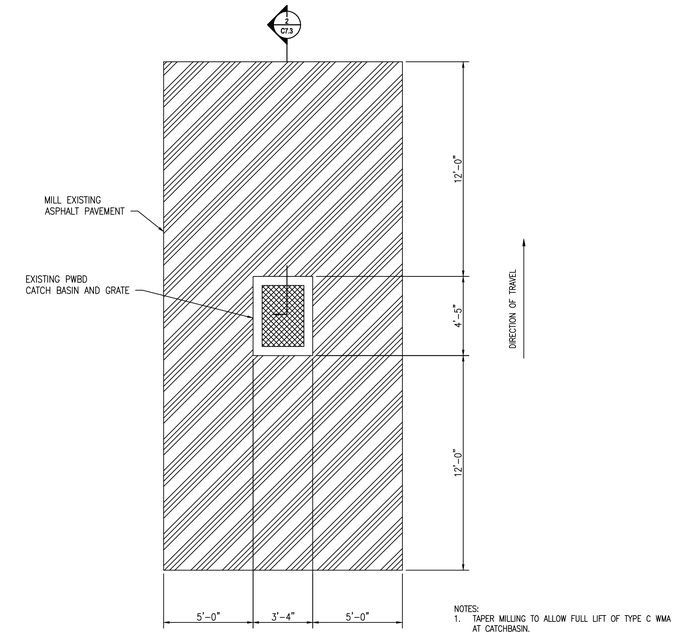


NOTES:
1. ALL GATE TUBES TO BE HSS 4X2X1/4.
2. GATE POSTS AND RECEIVING POSTS TO BE HSS 4X4X1/4.
3. DIAGONAL BRACE SHALL BE MITERED TO MAKE TIGHT FIT.
4. DRAIN HOLES SHALL BE PROVIDED IN ALL GATE TUBES.
5. 1/4 INCH THICK END PLATES SHALL BE INSTALLED ON ALL HSS MEMBERS.
6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, INCLUDING HINGES, LOCK HASP, AND WELD DETAILS.
7. GATES, GATE POSTS, AND RECEIVING POSTS SHALL BE PAINTED WITH ONE COAT OF PRIMER AND TWO COATS OF TOP COAT. COLOR TO BE BRIGHT ORANGE. CONTRACTOR TO SUBMIT COLOR SAMPLES FOR APPROVAL. PAINT SHALL BE APPLIED PER MANUFACTURER'S REQUIREMENTS AND IN ACCORDANCE WITH SECTION 099113 – EXTERIOR PAINTING.
8. PLACE (2) 3 INCH BY 12 INCH RED/WHITE DIAGONAL ADHESIVE REFLECTIVE STICKERS ON EACH SIDE OF TOP RAIL OF EACH GATE.

1 / C7.3 **GATE DETAIL**
SCALE: 1/2" = 1'-0"

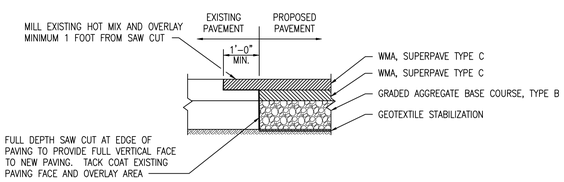


GATE SUPPORT POST
(INSTALL ONE AT EACH GATE LEAF)

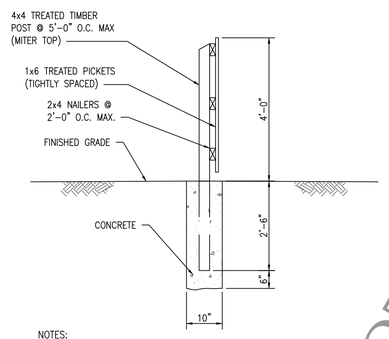


NOTES:
1. TAPER MILLING TO ALLOW FULL LIFT OF TYPE C WMA AT CATCHBASIN.

2 / C7.3 **SECTION AT CATCH BASIN MILLING**
SCALE: N.T.S.

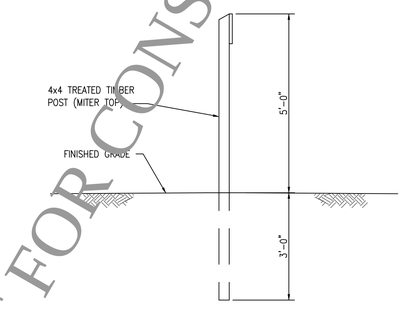


3 / C7.3 **SAWCUT DETAIL**
SCALE: 1/2" = 1'-0"



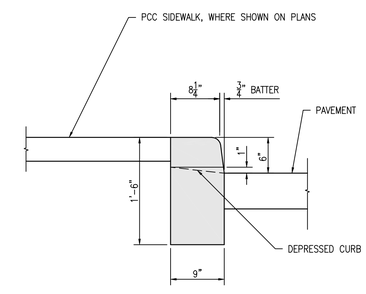
NOTES:
1. WOOD PICKET 1x6 S4S SOUTHERN YELLOW PINE, NO.2, TREATED WITH CHROMATED COPPER (ARSENATE (CCA) WITH A MINIMUM RETENTION OF 2.5 LBS/FT3) 6d GALVANIZED NAILS OR #10 GALVANIZED SCREW.
2. ALL NAILS AND CONNECTORS SHALL BE GALVANIZED.
3. WOOD POST NO.2 GRADE WOOD OR BETTER, MINIMUM SIZE 4"x 4".
4. CONCRETE FOOTING AT EACH POST MINIMUM DIAMETER OF 10".
5. CONTRACTOR SHALL PROVIDE CONSTRUCTION DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION

5 / C7.3 **PRIVACY FENCE DETAIL**
SCALE: 1/2" = 1'-0"

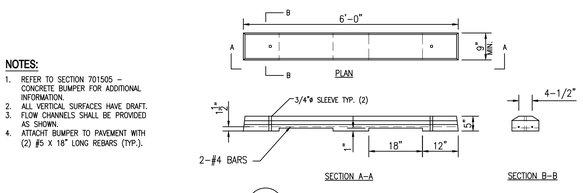


NOTE:
1. SIGN PANEL PROVIDED BY OWNER.

6 / C7.3 **PRIVACY FENCE DETAIL**
SCALE: 1/2" = 1'-0"

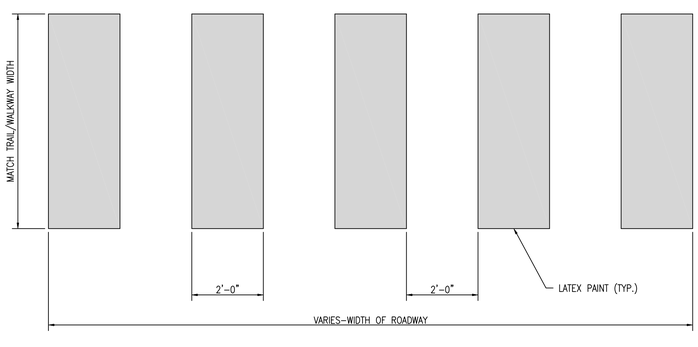


7 / C7.3 **PCC CURB TYPE 1 -6**
SCALE: 1" = 1'-0"

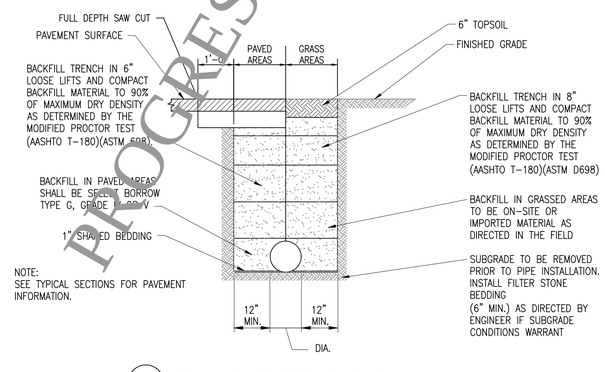


NOTES:
1. REFER TO SECTION 701505 – CONCRETE BUMPER FOR ADDITIONAL INFORMATION.
2. ALL VERTICAL SURFACES HAVE DRAFT.
3. FLOW CHANNELS SHALL BE PROVIDED AS SHOWN.
4. ATTACHT BUMPER TO PAVEMENT WITH (2) #5 X 18" LONG REBARS (TYP.).

4 / C7.3 **PARKING BUMPER DETAIL**
SCALE: 1/2" = 1'-0"

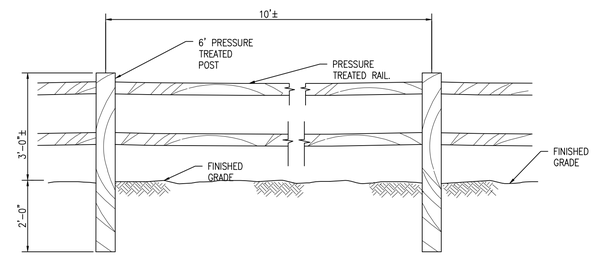


8 / C7.3 **CROSSWALK STRIPING DETAIL**
SCALE: 1/2" = 1'-0"



NOTE:
SEE TYPICAL SECTIONS FOR PAVEMENT INFORMATION.

9 / C7.3 **PERMANENT CROSS-ROAD OR LONGITUDINAL PATCH DETAIL (WMA)**
SCALE: 1/2" = 1'-0"



10 / C7.3 **SPLIT RAIL FENCE DETAIL**
SCALE: 1/2" = 1'-0"

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

TYPICAL CONSTRUCTION DETAILS

SEAL:
CONSTRUCTION DOCUMENTS SUBMISSION

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

CEI NO.: 125002.15

DESIGNED BY: WJH
DRAWN BY: DLD
CHECKED BY: SLR
DATE: APRIL 25, 2016
SCALE: AS NOTED
SHEET NO.: C7.3
CONTRACT NO.:

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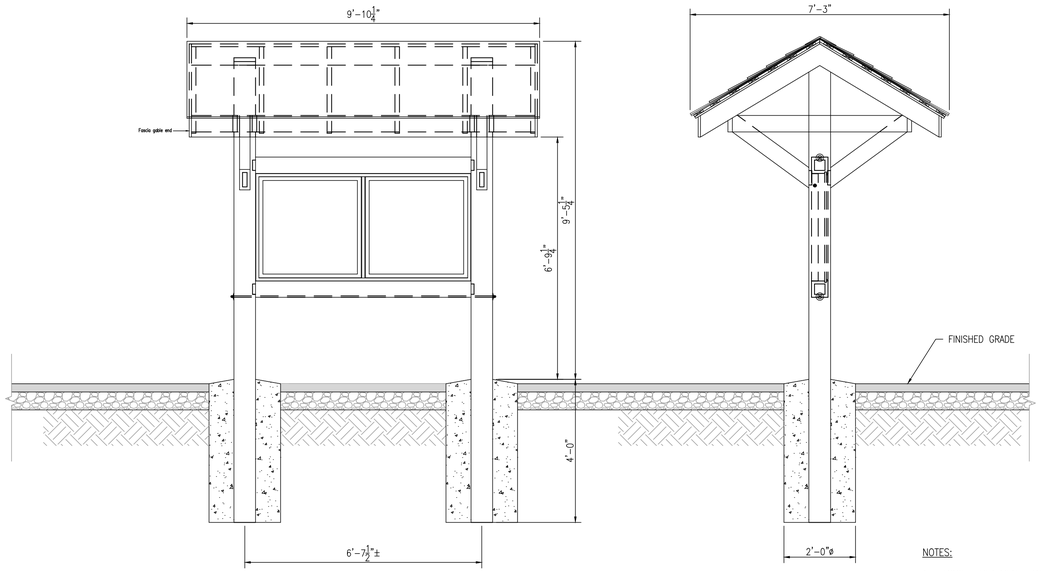


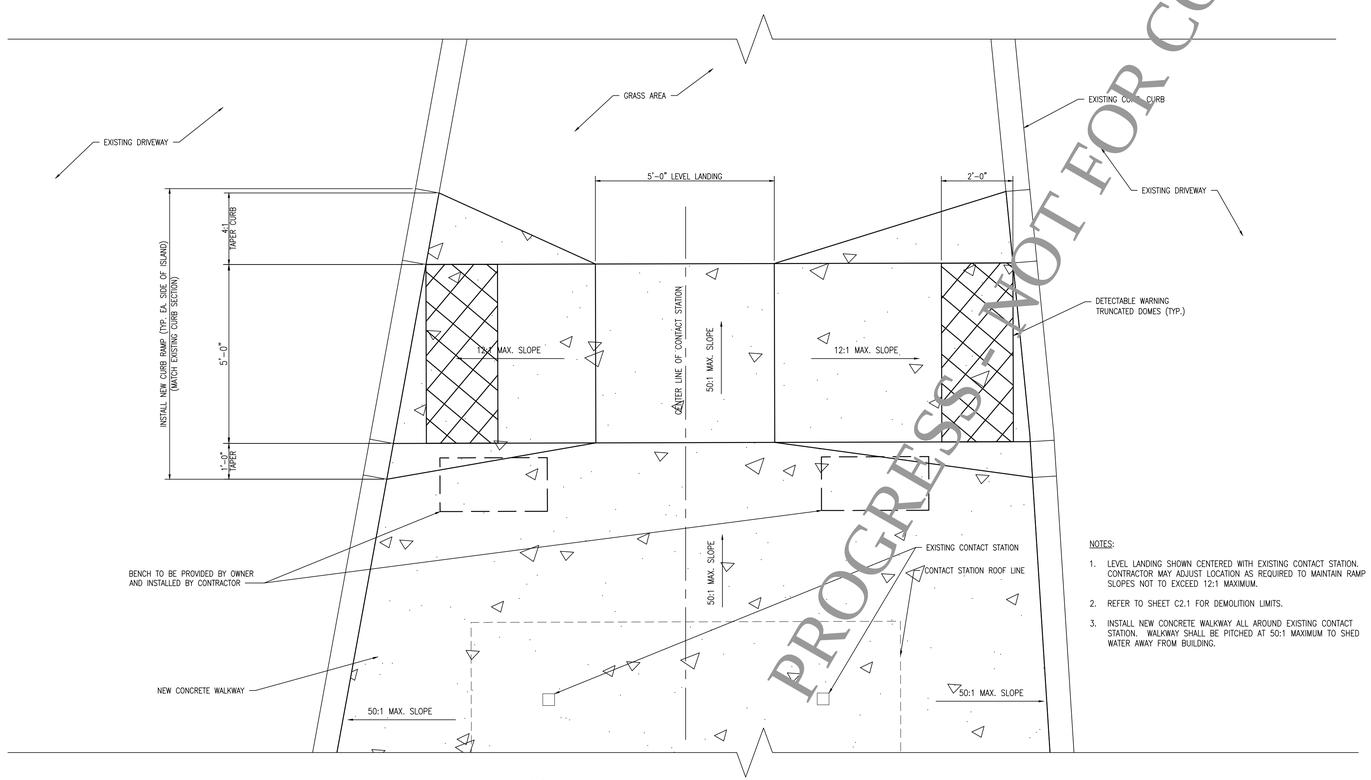
FRONT ELEVATION

SIDE ELEVATION

NOTES:

1. ROOF TREATMENT AND DETAIL OF CABINET OPENING BACK ARE NOT SHOWN FOR CLARITY.
2. COMPLETE TRAILHEAD KIOSK & SIGNAGE ASSEMBLY SHALL BE PROVIDED BY THE OWNER. CONTRACTOR SHALL COORDIANTE WITH THE OWNER TO VERIFY EXACT DIMENSIONS OF THE ASSEMBLY PRIOR TO DELIVERY AND INSTALLATION. CONTRACTOR OWNS INSTALLATION COMPLETE, AS SHOWN ABOVE.

1 / C7.4 DOUBLE TRAIL HEAD INFORMATION CENTER INSTALLATION DETAIL
SCALE:1/2"= 1'-0"



NOTES:

1. LEVEL LANDING SHOWN CENTERED WITH EXISTING CONTACT STATION. CONTRACTOR MAY ADJUST LOCATION AS REQUIRED TO MAINTAIN RAMP SLOPES NOT TO EXCEED 12:1 MAXIMUM.
2. REFER TO SHEET C2.1 FOR DEMOLITION LIMITS.
3. INSTALL NEW CONCRETE WALKWAY ALL AROUND EXISTING CONTACT STATION. WALKWAY SHALL BE PITCHED AT 50:1 MAXIMUM TO SHED WATER AWAY FROM BUILDING.

2 / C7.4 NEW CONTACT STATION CURB RAMP DETAIL
SCALE:1/2"= 1'-0"

PROGRESS NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

TYPICAL CONSTRUCTION DETAILS

SEAL:

WALTER J. HOGE, III · REGISTERED · NO. 11204 · DELAWARE · PROFESSIONAL ENGINEER

CIVIL ENGINEER:

CENTURY ENGINEERING
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4134 N. DUPONT HWY.
DOVER, DELAWARE 19901

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: WJH

DRAWN BY: DLD

CHECKED BY: SLR

DATE: APRIL 25, 2016

SCALE: AS NOTED

SHEET NO.: C7.4

CONTRACT NO.:

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ELECTRICAL LEGEND

Symbol	Description
T	SERVICE TRANSFORMER
Ø	ELECTRIC UTILITY POLE
	ELECTRIC UTILITY METER
	RV POWER CENTER
—OH—	OVERHEAD ELECTRIC
—E—	UNDERGROUND ELECTRIC

ELECTRICAL ABBREVIATIONS (NOT ALL USED)

A	AMPERE(S)	NTS	NOT TO SCALE
AFF	ABOVE FINISHED FLOOR	OH	OVERHEAD
AIC	AMPERES INTERRUPTING CAPACITY	ø	PHASE
AL	ALUMINUM	P	POLE
AWG	AMERICAN WIRE GAUGE	PNL	PANELBOARD
BPW	LEWES BOARD OF PUBLIC WORKS	PRI	PRIMARY
C	CONDUIT	PVC	POLYVINYL CHLORIDE
CB	CIRCUIT BREAKER	R	RECESSED
CKT	CIRCUIT	RL	RELOCATE EXISTING
CU	COPPER	RLA	RUNNING LOAD AMPERES
DWG	DRAWING	RMS	ROOT MEAN SQUARE
EX	EXISTING	S	SURFACE
FLA	FULL LOAD AMPERES	SEC	SECONDARY
G	GROUND	S/N	SOLID NEUTRAL
HP	HORSEPOWER	TYP	TYPICAL
HV	HIGH VOLTAGE	UE	UNDERGROUND ELECTRIC
HZ	HERTZ	UG	UNDERGROUND
Isc	SHORT CIRCUIT INTERRUPTING CAPACITY (RMS SYMMETRICAL AMPERES)	UNO	UNLESS NOTED OTHERWISE
		V	VOLTS
JB	JUNCTION BOX	VA	VOLT–AMPERE
Kcmil	THOUSAND CIRCULAR MILLS	W	WIRE, WATTS
KV	KILOVOLTS	WP	WEATHERPROOF
KVA	KILO–VOLT–AMPERES	Y	WYE CONNECTED
KW	KILOWATTS	XFMR	TRANSFORMER
LV	LOW VOLTAGE	XP	EXPLOSION–PROOF
MCB	MAIN CIRCUIT BREAKER	1P	SINGLE POLE
MISC	MISCELLANEOUS	2P	DOUBLE POLE
MLO	MAIN LUGS ONLY	3P	THREE POLE
NEC	NATIONAL ELECTRICAL CODE	4P	FOUR POLE

GENERAL NOTES – ELECTRICAL WORK

1. THE ELECTRICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF ALL OTHER TRADES. ALL OTHER TRADE'S DRAWINGS AND SPECIFICATIONS SHALL BE CONSULTED AND COORDINATED WITH PRIOR TO ROUGH–IN.
2. WHEREVER POSSIBLE, THE CONTRACTOR SHALL OBTAIN ACTUAL ROUGH–IN DRAWINGS FOR THE ACTUAL ITEM OF EQUIPMENT TO BE INSTALLED PRIOR TO ROUGH–IN. THIS SHALL APPLY TO ALL EQUIPMENT, WHETHER IT IS TO BE INSTALLED BY THE CONTRACTOR OR BY THE OWNER.
3. PROVIDE TYPED CIRCUIT DIRECTORIES FOR ALL PANELBOARDS TO INDICATE TYPE OF LOAD SERVED AND AREA SERVED (E.G. RV POWER POST A1).
4. UNLESS NOTED OTHERWISE, EVERY CONDUIT CONTAINING 120V OR GREATER WIRING SHALL CONTAIN A SEPARATE INSULATED GROUND WIRE RATED FOR 600V.
5. PROVIDE SEPARATE UNSHARED NEUTRAL CONDUCTOR(S) FOR ALL FEEDERS REQUIRING A NEUTRAL (I.E. 1 PHASE – 3 WIRE). SHARING OF NEUTRAL CONDUCTORS BETWEEN ANY CIRCUIT (FEEDER) IS NOT PERMITTED. MULTIWIRE FEEDER CIRCUITS ARE NOT PERMITTED.
6. CENTER EQUIPMENT OR DEVICES LOCATED ABOVE OPENINGS SUCH AS DOORS, LOUVER, ETC. ABOVE THE OPENING. THIS NOTE REFERS TO, BUT IS NOT LIMITED TO, CLOCKS, EXITS LIGHTS, EXTERIOR LIGHT FIXTURES, ETC.
7. CONFIRM ALL EQUIPMENT LOCATIONS PRIOR TO INSTALLATION.
8. PROVIDE WARNING LABELS FOR ALL PANELBOARDS AND METER SOCKET ENCLOSURES. WARNING LABELS SHALL READ AS FOLLOWS: "CAUTION. POTENTIAL ELECTRIC ARC FLASH HAZARD. WEAR PROPER PROTECTIVE CLOTHING WHILE EXAMINING, ADJUSTING, SERVICING OR MAINTAINING ENERGIZED EQUIPMENT." INSTALL WARNING LABELS ON EXTERIOR FRONT FACE OF ALL PANELBOARDS AND METER SOCKET ENCLOSURES LOCATED IN UNFINISHED/UTILITY TYPE SPACES. INSTALL WARNING LABELS ON INTERIOR FRONT FACE OF ALL PANELBOARDS LOCATED IN FINISHED SPACES. ENTIRE INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE 2011 NEC, ARTICLE 110.16 (FLASH PROJECTION).
9. PROVIDE PANELBOARD WITH THE NUMBER OF POLES INDICATED. EACH SPACE SHALL BE A FULLY PREPARED SPACE (I.E. COMPLETE WITH ALL PROVISIONS INCLUDING ALL HARDWARE REQUIRED TO MOUNT A FUTURE CIRCUIT BREAKER INCLUDING BUS CONNECTIONS, CIRCUIT BREAKER MOUNTING BRACKET, CIRCUIT BREAKER COVER AND COVER KNOCKOUTS, ETC.). PANELBOARDS SHALL BE NEMA 3R, LOCKABLE WITH THE SAME KEYING.
10. COORDINATE UNDERGROUND RUNS WITH EXISTING CONDITION AND TREE LOCATIONS.
11. VERIFY ELECTRICAL SYSTEM PHASING AND ROTATION WITH UTILITY COMPANY.
12. COMPLY WITH LEWES BOARD OF PUBLIC WORKS' ELECTRIC UTILITY SPECIFICATION FOR DEVELOPER DOCUMENT. COORDINATE PRIMARY, TRANSFORMER, SECONDARY, AND METERING WORKS WITH LEWES BOARD OF PUBLIC WORKS.
13. COMPLY WITH CURRENT NATIONAL, STATE, AND LOCAL ADOPTED CODES.
14. ALL DISTURBED AREAS SHALL BE RESTORED TO THE ORIGINAL CONDITIONS.
15. SAW CUT PAVED AREAS IN ACCORDANCE WITH CONSTRUCTION DETAILS.
16. RESTORE DISTURBED PAVED AREAS IN ACCORDANCE WITH CONSTRUCTION DETAILS.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY POWER (PORTABLE GENERATORS, TEMPORARY SERVICES, ETC.).
18. ALL CONDUITS SHALL BE SCHEDULE 80 PVC, UNLESS NOTED OTHERWISE.
19. UNLESS OTHERWISE INDICATED, ALL CABLES/CONDUCTORS SHALL BE COPPER TYPE. ALUMINUM CABLES/CONDUCTORS SHALL ONLY BE ALLOW FOR USE FOR PRIMARY AND SECONDARY RUNS IN ACCORDANCE WITH LEWES BOARD OF PUBLIC WORKS' REQUIREMENTS.
20. UTILITY SERVICE POLE, FUSE CUTOUTS, OVERHEAD LINES UPSTREAM OF UTILITY SERVICE POLE, AND METERS TO BE PROVIDED BY LEWES BOARD OF PUBLIC WORKS' ELECTRIC DEPARTMENT.
21. FURNISH AND INSTALL TREATED LUMBER BOARDS ON BACK OF EXISTING METER STANDS TO ALLOW FOR INSTALLATION OF NEW PANELBOARDS. RUN SERVICE ENTRANCE WIRING AND CONDUITS AS INDICATED FROM EXISTING METERS TO NEW PANELBOARDS. COORDINATE WITH LEWES BOARD OF PUBLIC WORKS FOR INSTALLATION OF NEW METERS.

OIL–FILLED, PAD–MOUNTED MEDIUM–VOLTAGE TRANSFORMER SCHEDULE

ID	RATING			OIL TYPE	PRIMARY CIRCUIT	SECONDARY CIRCUIT	SERVES	PAD TYPE	REMARKS
	KVA	PRIMARY VOLTS, PH	SECONDARY VOLTS, PH						
T1	75	7200V SINGLE–PHASE LOOP FEED	120/240V, SINGLE–PHASE THREADED STUD PADMOUNT ADAPTER CONNECTORS	COOPER ENVIRONTEMP FR–3 FLUID	#1/0 SOLID ALUMINUM WITH CONCENTRIC COPPER WIRES DIRECT BURIED	2 SETS OF 3 #4/0 ALUMINUM DIRECT BURIED CABLES WITH 3–1/2"C RISERS	PANEL A1	NORDIC FIBERGLASS BOX PAD	COMPLY WITH LEWES BOARD OF PUBLIC WORKS' ELECTRIC UTILITY SPECIFICATION FOR DEVELOPERS, SECTION 700
T2	167	7200V SINGLE–PHASE LOOP FEED	120/240V, SINGLE–PHASE THREADED STUD PADMOUNT ADAPTER CONNECTORS	COOPER ENVIRONTEMP FR–3 FLUID	#1/0 SOLID ALUMINUM WITH CONCENTRIC COPPER WIRES DIRECT BURIED	4 SETS OF 3 #4/0 ALUMINUM DIRECT BURIED CABLES WITH 3–1/2"C RISERS	PANELS A2 AND A3	NORDIC FIBERGLASS BOX PAD	COMPLY WITH LEWES BOARD OF PUBLIC WORKS' ELECTRIC UTILITY SPECIFICATION FOR DEVELOPERS, SECTION 700
T3	167	7200V SINGLE–PHASE LOOP FEED	120/240V, SINGLE–PHASE THREADED STUD PADMOUNT ADAPTER CONNECTORS	COOPER ENVIRONTEMP FR–3 FLUID	#1/0 SOLID ALUMINUM WITH CONCENTRIC COPPER WIRES DIRECT BURIED	4 SETS OF 3 #4/0 ALUMINUM DIRECT BURIED CABLES WITH 3–1/2"C RISERS	PANELS B1 AND B2	NORDIC FIBERGLASS BOX PAD	COMPLY WITH LEWES BOARD OF PUBLIC WORKS' ELECTRIC UTILITY SPECIFICATION FOR DEVELOPERS, SECTION 700
T4	75	7200V SINGLE–PHASE LOOP FEED	120/240V, SINGLE–PHASE THREADED STUD PADMOUNT ADAPTER CONNECTORS	COOPER ENVIRONTEMP FR–3 FLUID	#1/0 SOLID ALUMINUM WITH CONCENTRIC COPPER WIRES DIRECT BURIED	2 SETS OF 3 #4/0 ALUMINUM DIRECT BURIED CABLES WITH 3–1/2"C RISERS	PANEL B3	NORDIC FIBERGLASS BOX PAD	COMPLY WITH LEWES BOARD OF PUBLIC WORKS' ELECTRIC UTILITY SPECIFICATION FOR DEVELOPERS, SECTION 700
T5	75	7200V SINGLE–PHASE LOOP FEED	120/240V, SINGLE–PHASE THREADED STUD PADMOUNT ADAPTER CONNECTORS	COOPER ENVIRONTEMP FR–3 FLUID	#1/0 SOLID ALUMINUM WITH CONCENTRIC COPPER WIRES DIRECT BURIED	2 SETS OF 3 #4/0 ALUMINUM DIRECT BURIED CABLES WITH 3–1/2"C RISERS	PANEL C3	NORDIC FIBERGLASS BOX PAD	COMPLY WITH LEWES BOARD OF PUBLIC WORKS' ELECTRIC UTILITY SPECIFICATION FOR DEVELOPERS, SECTION 700
T6	167	7200V SINGLE–PHASE LOOP FEED	120/240V, SINGLE–PHASE THREADED STUD PADMOUNT ADAPTER CONNECTORS	COOPER ENVIRONTEMP FR–3 FLUID	#1/0 SOLID ALUMINUM WITH CONCENTRIC COPPER WIRES DIRECT BURIED	4 SETS OF 3 #4/0 ALUMINUM DIRECT BURIED CABLES WITH 3–1/2"C RISERS	PANELS D1 AND D2	NORDIC FIBERGLASS BOX PAD	COMPLY WITH LEWES BOARD OF PUBLIC WORKS' ELECTRIC UTILITY SPECIFICATION FOR DEVELOPERS, SECTION 700
T7	75	7200V SINGLE–PHASE LOOP FEED	120/240V, SINGLE–PHASE THREADED STUD PADMOUNT ADAPTER CONNECTORS	COOPER ENVIRONTEMP FR–3 FLUID	#1/0 SOLID ALUMINUM WITH CONCENTRIC COPPER WIRES DIRECT BURIED	2 SETS OF 3 #4/0 ALUMINUM DIRECT BURIED CABLES WITH 3–1/2"C RISERS	PANEL D3	NORDIC FIBERGLASS BOX PAD	COMPLY WITH LEWES BOARD OF PUBLIC WORKS' ELECTRIC UTILITY SPECIFICATION FOR DEVELOPERS, SECTION 700
T8	167	7200V SINGLE–PHASE LOOP FEED	120/240V, SINGLE–PHASE THREADED STUD PADMOUNT ADAPTER CONNECTORS	COOPER ENVIRONTEMP FR–3 FLUID	#1/0 SOLID ALUMINUM WITH CONCENTRIC COPPER WIRES DIRECT BURIED	6 SETS OF 3 #4/0 ALUMINUM DIRECT BURIED CABLES WITH 3–1/2"C RISERS	PANELS E1, E2 AND E3	NORDIC FIBERGLASS BOX PAD	COMPLY WITH LEWES BOARD OF PUBLIC WORKS' ELECTRIC UTILITY SPECIFICATION FOR DEVELOPERS, SECTION 700
T9	100	7200V SINGLE–PHASE LOOP FEED	120/240V, SINGLE–PHASE THREADED STUD PADMOUNT ADAPTER CONNECTORS	COOPER ENVIRONTEMP FR–3 FLUID	#1/0 SOLID ALUMINUM WITH CONCENTRIC COPPER WIRES DIRECT BURIED	PROVIDE PADMOUNT ADDAPTER CONNECTORS. REUSE EXISTING CABIN'S SERVICE WIRES. PROVIDE 3#3/0 IN 2" CONDUIT FOR BATH HOUSE. PROVIDE ADDITIONAL CONDUITS TO EXTEND TO NEW TRANSFORMER.	EXISTING BATH HOUSE AND CABINS	NORDIC FIBERGLASS BOX PAD	COMPLY WITH LEWES BOARD OF PUBLIC WORKS' ELECTRIC UTILITY SPECIFICATION FOR DEVELOPERS, SECTION 700
T10	167	7200V SINGLE–PHASE LOOP FEED	120/240V, SINGLE–PHASE THREADED STUD PADMOUNT ADAPTER CONNECTORS	COOPER ENVIRONTEMP FR–3 FLUID	#1/0 SOLID ALUMINUM WITH CONCENTRIC COPPER WIRES DIRECT BURIED	4 SETS OF 3 #4/0 ALUMINUM DIRECT BURIED CABLES WITH 3–1/2"C RISERS	PANELS F1 AND F2	NORDIC FIBERGLASS BOX PAD	COMPLY WITH LEWES BOARD OF PUBLIC WORKS' ELECTRIC UTILITY SPECIFICATION FOR DEVELOPERS, SECTION 700
T11	167	7200V SINGLE–PHASE LOOP FEED	120/240V, SINGLE–PHASE THREADED STUD PADMOUNT ADAPTER CONNECTORS	COOPER ENVIRONTEMP FR–3 FLUID	#1/0 SOLID ALUMINUM WITH CONCENTRIC COPPER WIRES DIRECT BURIED	4 SETS OF 3 #4/0 ALUMINUM DIRECT BURIED CABLES WITH 3–1/2"C RISERS	PANELS B4 AND C6	NORDIC FIBERGLASS BOX PAD	COMPLY WITH LEWES BOARD OF PUBLIC WORKS' ELECTRIC UTILITY SPECIFICATION FOR DEVELOPERS, SECTION 700

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

ELECTRICAL NOTES LEGEND & ABBREVIATIONS

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 NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: SDT

DRAWN BY: SDT

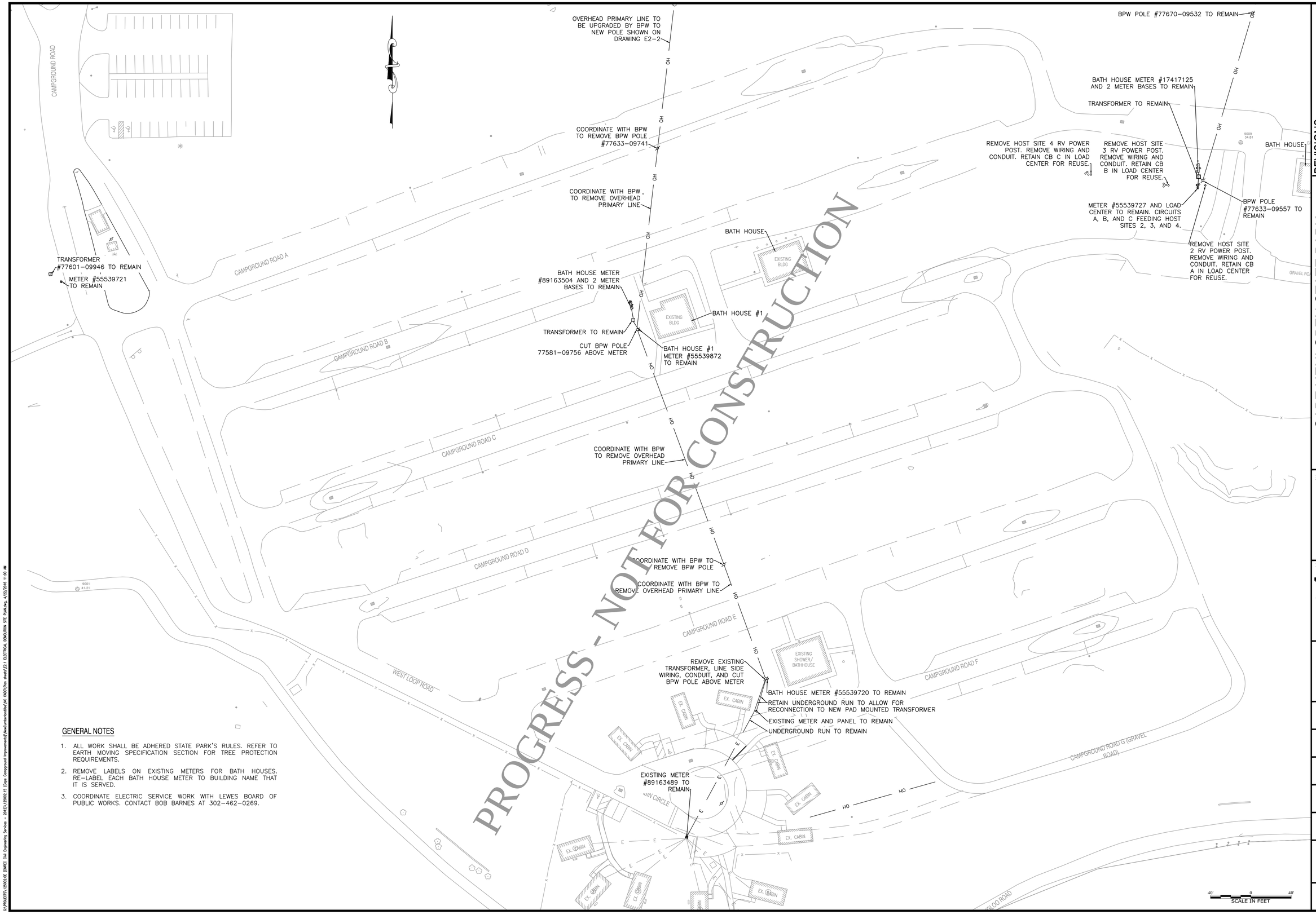
CHECKED BY: SGH

DATE: APRIL 25, 2016

SCALE: N/A

SHEET NO.: E1.1

CONTRACT NO.:



GENERAL NOTES

1. ALL WORK SHALL BE ADHERED STATE PARK'S RULES. REFER TO EARTH MOVING SPECIFICATION SECTION FOR TREE PROTECTION REQUIREMENTS.
2. REMOVE LABELS ON EXISTING METERS FOR BATH HOUSES. RE-LABEL EACH BATH HOUSE METER TO BUILDING NAME THAT IT IS SERVED.
3. COORDINATE ELECTRIC SERVICE WORK WITH LEWES BOARD OF PUBLIC WORKS. CONTACT BOB BARNES AT 302-462-0269.

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

ELECTRICAL DEMOLITION SITE PLAN

SEAL:

WALTER J. HOEY, III
REGISTERED
NO. 11204
DELAWARE
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CIVIL ENGINEER:

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4134 N. DUPONT HWY.
DOVER, DELAWARE 19901

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: SDT

DRAWN BY: SDT

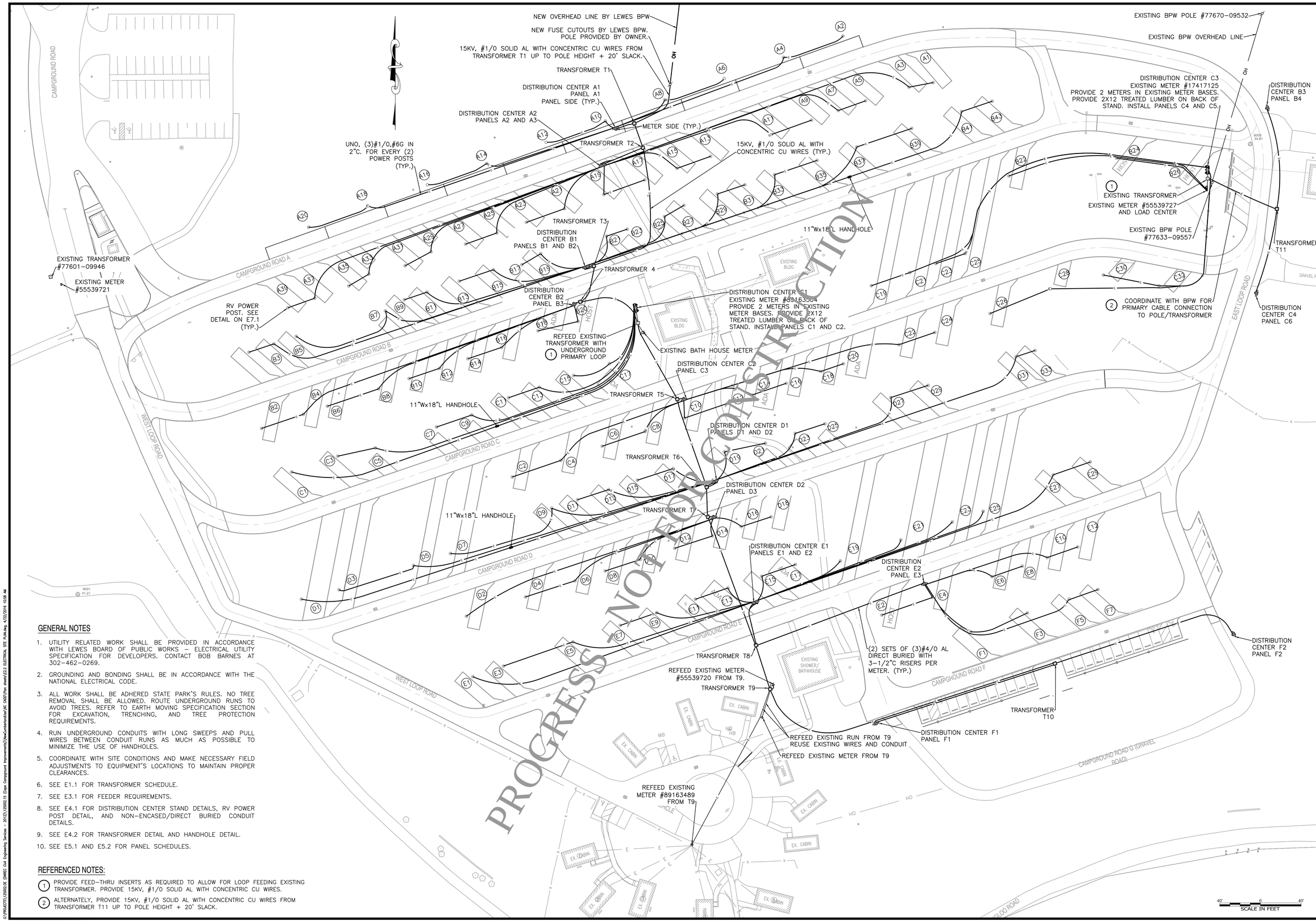
CHECKED BY: SGH

DATE: APRIL 25, 2016

SCALE: 1"=40'

SHEET NO.: E2.1

CONTRACT NO.:



GENERAL NOTES

1. UTILITY RELATED WORK SHALL BE PROVIDED IN ACCORDANCE WITH LEWES BOARD OF PUBLIC WORKS – ELECTRICAL UTILITY SPECIFICATION FOR DEVELOPERS. CONTACT BOB BARNES AT 302-462-0269.
2. GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
3. ALL WORK SHALL BE ADHERED STATE PARK'S RULES. NO TREE REMOVAL SHALL BE ALLOWED. ROUTE UNDERGROUND RUNS TO AVOID TREES. REFER TO EARTH MOVING SPECIFICATION SECTION FOR EXCAVATION, TRENCHING, AND TREE PROTECTION REQUIREMENTS.
4. RUN UNDERGROUND CONDUITS WITH LONG SWEEPS AND PULL WIRES BETWEEN CONDUIT RUNS AS MUCH AS POSSIBLE TO MINIMIZE THE USE OF HANDHOLES.
5. COORDINATE WITH SITE CONDITIONS AND MAKE NECESSARY FIELD ADJUSTMENTS TO EQUIPMENT'S LOCATIONS TO MAINTAIN PROPER CLEARANCES.
6. SEE E1.1 FOR TRANSFORMER SCHEDULE.
7. SEE E3.1 FOR FEEDER REQUIREMENTS.
8. SEE E4.1 FOR DISTRIBUTION CENTER STAND DETAILS, RV POWER POST DETAIL, AND NON-ENCASED/DIRECT BURIED CONDUIT DETAILS.
9. SEE E4.2 FOR TRANSFORMER DETAIL AND HANDHOLE DETAIL.
10. SEE E5.1 AND E5.2 FOR PANEL SCHEDULES.

REFERENCED NOTES:

1. PROVIDE FEED-THRU INSERTS AS REQUIRED TO ALLOW FOR LOOP FEEDING EXISTING TRANSFORMER. PROVIDE 15KV, #1/0 SOLID AL WITH CONCENTRIC CU WIRES.
2. ALTERNATELY, PROVIDE 15KV, #1/0 SOLID AL WITH CONCENTRIC CU WIRES FROM TRANSFORMER T11 UP TO POLE HEIGHT + 20' SLACK.

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

ELECTRICAL SITE PLAN

SEAL: WALTER J. HOEY III REGISTERED NO. 11204 DELAWARE PROFESSIONAL ENGINEER

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4134 N. DUPONT HWY.
DOVER, DELAWARE 19901

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: SDT
DRAWN BY: SDT
CHECKED BY: SGH
DATE: APRIL 25, 2016
SCALE: 1"=40'
SHEET NO.: E2.2
CONTRACT NO.:

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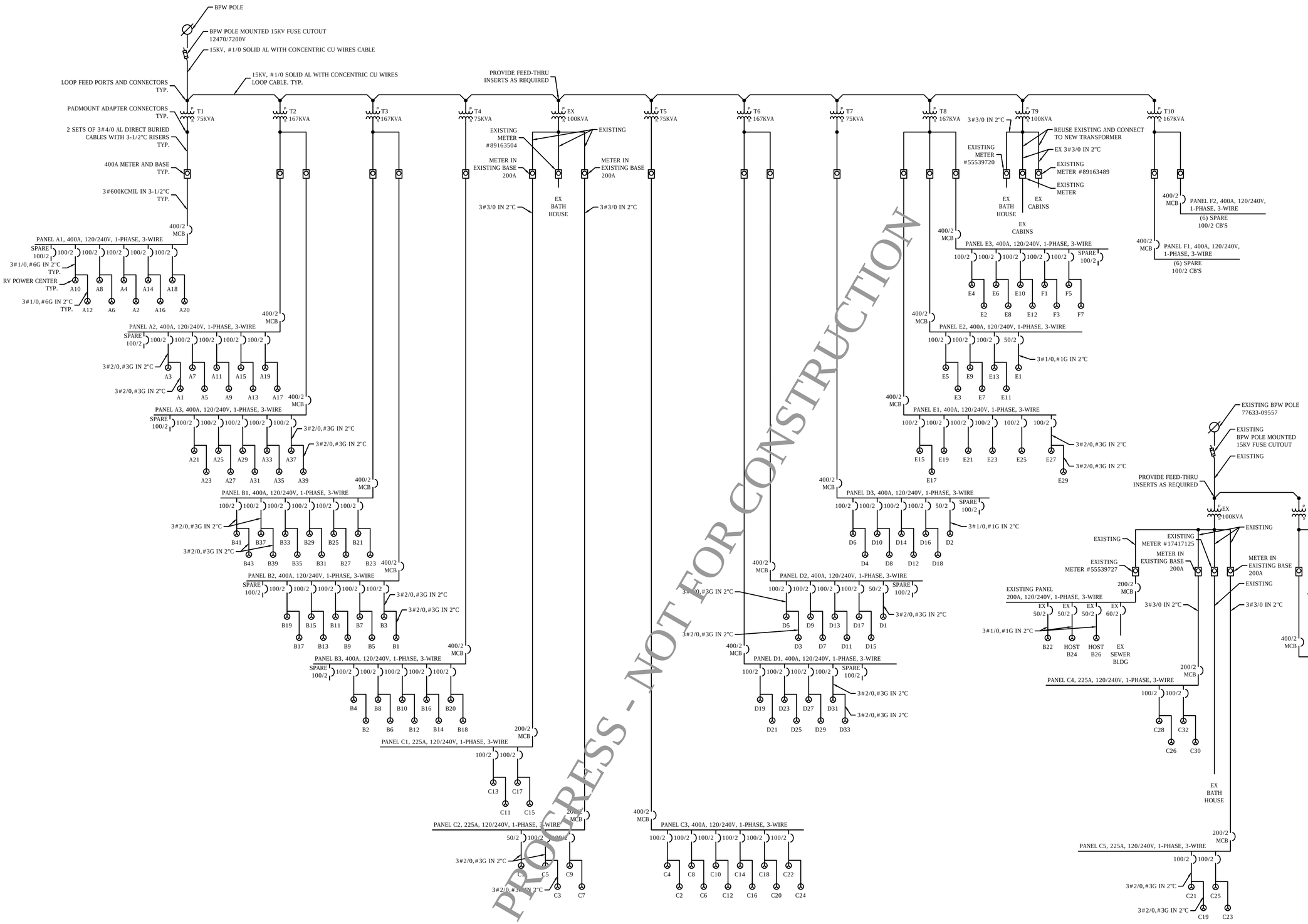

ONE-LINE DIAGRAMS

NO SCALE

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

ELECTRICAL ONE-LINE DIAGRAMS

SEAL:

WALTER J. HOEY III
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NO. 11204
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CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: SDT

DRAWN BY: SDT

CHECKED BY: SGH

DATE: APRIL 25, 2016

SCALE: N/A

SHEET NO.: E3.1

CONTRACT NO.:

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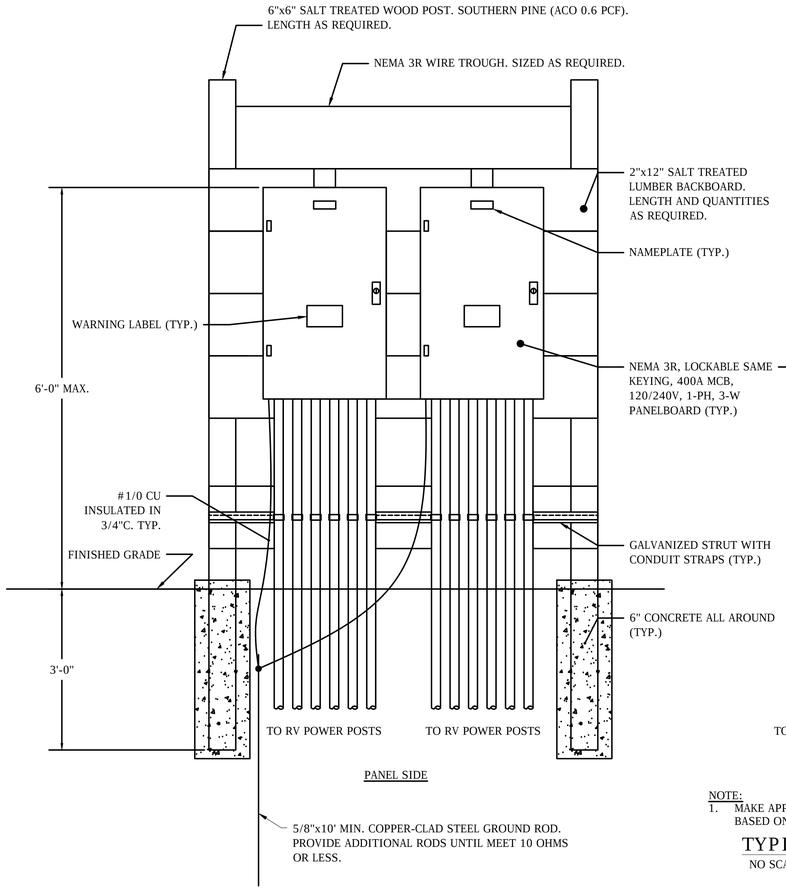
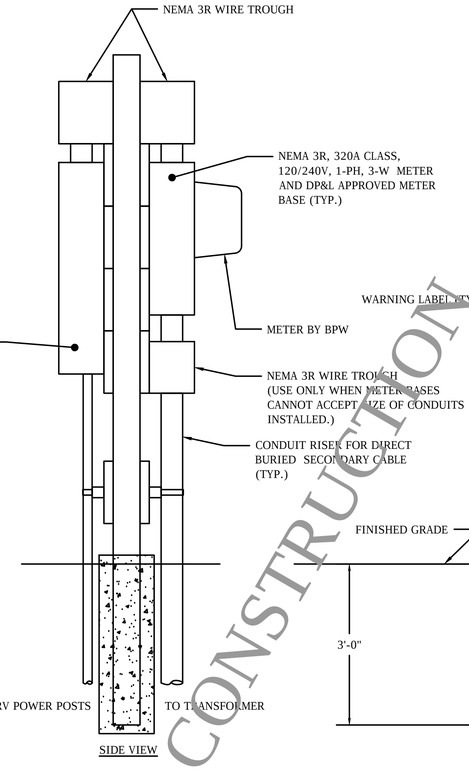
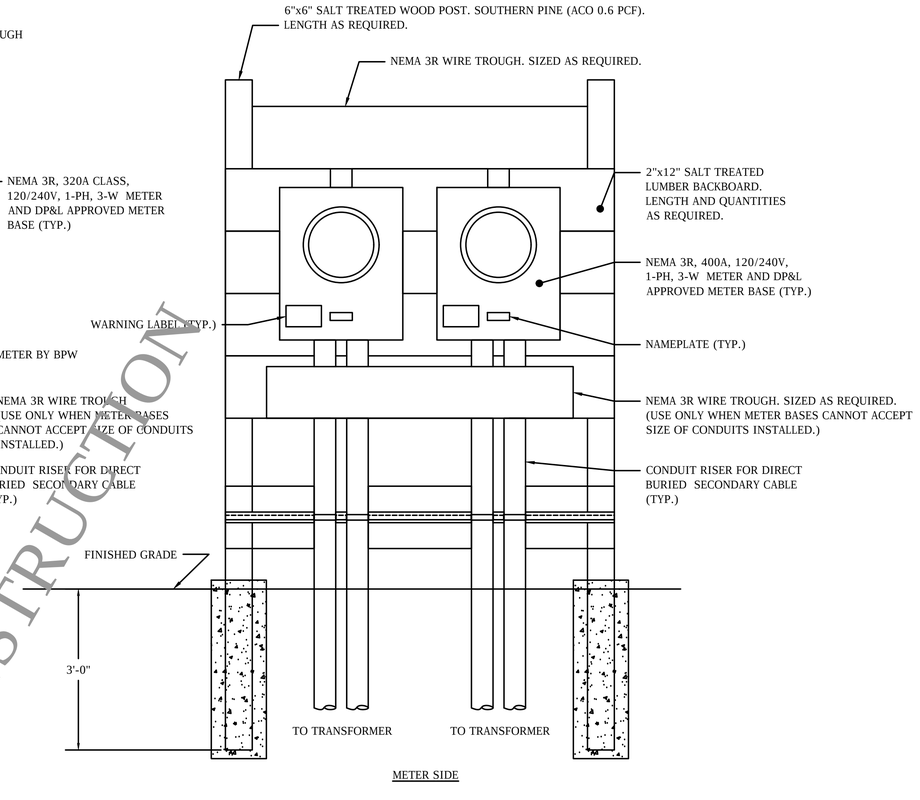


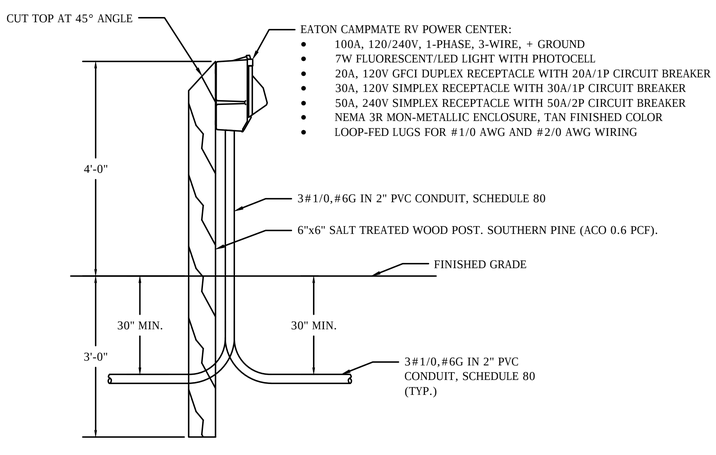




NOTE:
1. MAKE APPROPRIATE ADJUSTMENTS FOR DIFFERENT QUANTITY OF METERS AND PANELS BASED ON CLEARANCES AND SPACING SHOWN.

TYPICAL DISTRIBUTION CENTER DETAILS

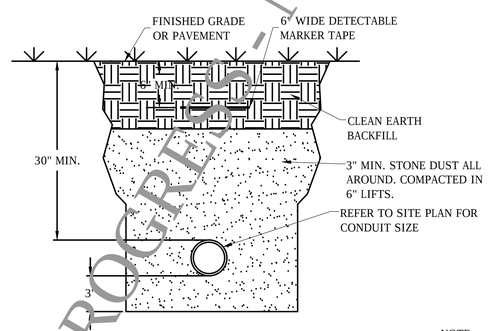
NO SCALE

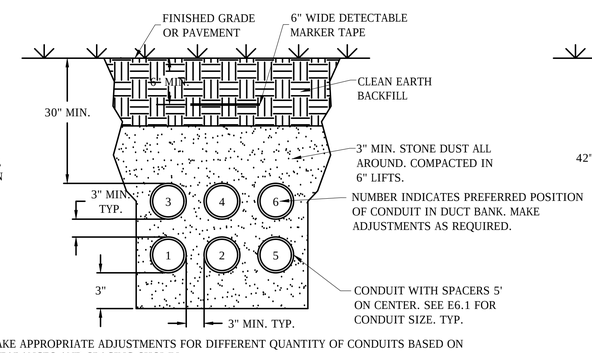


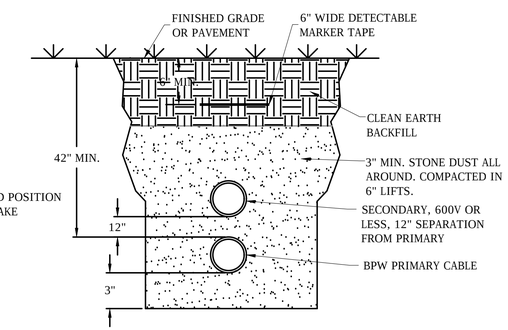
NOTES:
1. MATERIAL AND SIZE OF ATTACHMENT CLAMPS AND SCREWS SHALL BE APPROVED BY THE ENGINEER.
2. SEE PLAN FOR LOCATION OF POWER POSTS.

TYPICAL POWER POST DETAIL

NO SCALE







NOTE:
1. MAKE APPROPRIATE ADJUSTMENTS FOR DIFFERENT QUANTITY OF CONDUITS BASED ON CLEARANCES AND SPACING SHOWN.

TYPICAL DIRECT-BURIED CONDUIT DETAILS

NO SCALE

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

ELECTRICAL DETAILS

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

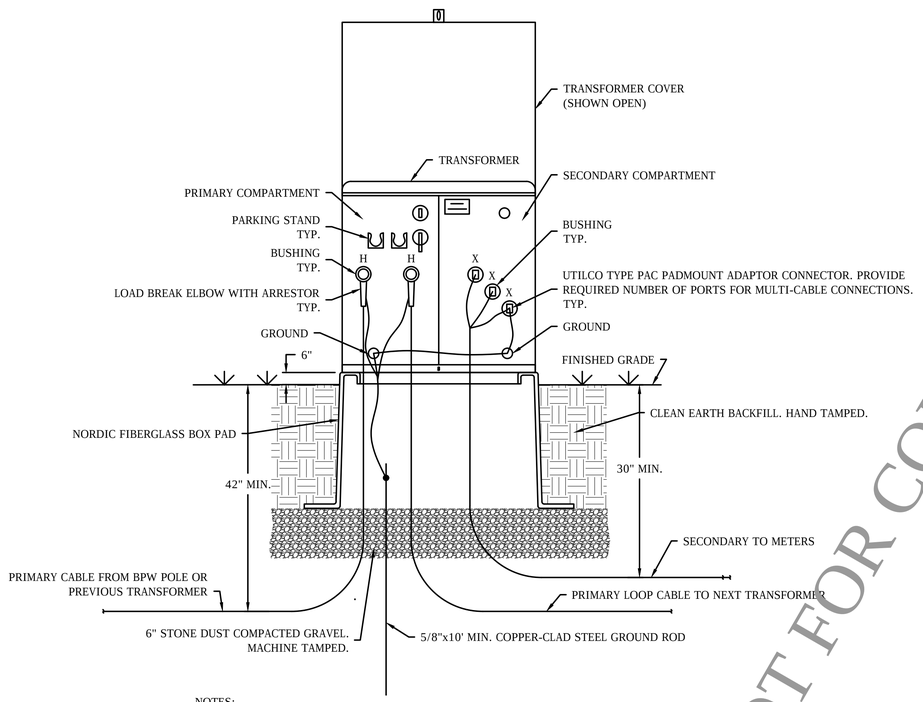
CIVIL ENGINEER:
CENTURY ENGINEERING
CONSULTING ENGINEERS, SURVEYORS
4134 N. DUPONT HWY.
DOVER, DELAWARE 19901

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: SDT
DRAWN BY: SDT
CHECKED BY: SGH
DATE: APRIL 25, 2016
SCALE: N/A
SHEET NO.: E4.1
CONTRACT NO.:

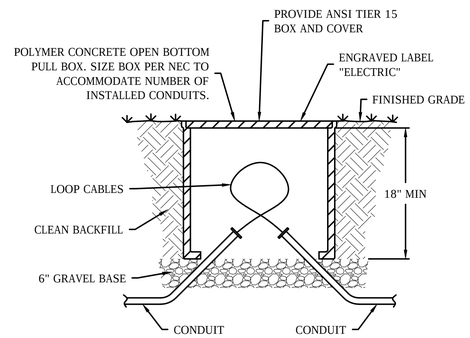
G:\PROJECTS\125002.02 (DNREC Civil Engineering Services - 2017)\125002.15 (Cape Campground Improvements)\NewCumberland\AC CADD\Plan sheets\E4.1 ELECTRICAL DETAILS.dwg, 4/22/2016 10:58 AM



NOTES:
1. TRANSFORMER CONNECTION PORTS SHOWN FOR ILLUSTRATIONAL PURPOSE ONLY. COMPLY WITH MANUFACTURER'S SHOP DRAWINGS AND INSTALLATION INSTRUCTIONS.
2. SEE PLAN FOR LOCATION OF TRANSFORMERS.

TYPICAL TRANSFORMER LOOP-FEED INSTALLATION DETAIL

NO SCALE



HANDHOLE / PULL BOX DETAIL

NO SCALE

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

ELECTRICAL DETAILS

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 NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: SDT

DRAWN BY: SDT

CHECKED BY: SGH

DATE: APRIL 25, 2016

SCALE: N/A

SHEET NO.: E4.2

CONTRACT NO.:

G:\PROJECTS\125002.0E (DNREC Civil Engineering Services - 2012)\125002.15 (Cape Campground Improvements)\NewCumberlandsw\NC CADD\Plan sheets\E4.2 ELECTRICAL DETAILS.dwg, 4/22/2016 10:58 AM

A1

PANEL NAME

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL

LOCATION: DISTRIBUTION CENTER STAND A1
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	POWER POSTS	100/2	12000		12000		100/2	POWER POSTS	2
3	A10, A12			12000		12000		A14, A16	4
5	POWER POSTS	100/2	12000		12000		100/2	POWER POSTS	6
7	A6, A8			12000		12000		A18, A20	8
9	POWER POSTS	100/2	12000				100/2	SPARE	10
11	A2, A4			12000					12
13	SPACE							SPACE	14
15	SPACE							SPACE	16
17	SPACE							SPACE	18
19	SPACE							SPACE	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
			36000	36000	24000	24000			

CONNECTED LOAD:
AØ 60.00 KVA
BØ 60.00 KVA
TOTAL 120.00 KVA
DMD 60.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

A2

PANEL NAME

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL

LOCATION: DISTRIBUTION CENTER STAND A2
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	POWER POSTS	100/2	12000				100/2	SPARE	2
3	A21, A23			12000					4
5	POWER POSTS	100/2	12000					SPACE	6
7	A25, A27			12000				SPACE	8
9	POWER POSTS	100/2	12000					SPACE	10
11	A29, A31			12000				SPACE	12
13	POWER POSTS	100/2	12000					SPACE	14
15	A33, A35			12000				SPACE	16
17	POWER POSTS	100/2	12000					SPACE	18
19	A37, A39			12000				SPACE	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
			60000	60000					

CONNECTED LOAD:
AØ 60.00 KVA
BØ 60.00 KVA
TOTAL 120.00 KVA
DMD 60.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

A3

PANEL NAME

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL

LOCATION: DISTRIBUTION CENTER STAND A2
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	SPARE	100/2			12000		100/2	POWER POSTS	2
3						12000		A17, A19	4
5	SPACE				12000		100/2	POWER POSTS	6
7	SPACE					12000		A13, A15	8
9	SPACE				12000		100/2	POWER POSTS	10
11	SPACE					12000		A9, A11	12
13	SPACE				12000		100/2	POWER POSTS	14
15	SPACE					12000		A5, A7	16
17	SPACE				12000		100/2	POWER POSTS	18
19	SPACE					12000		A1, A3	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
					60000	60000			

CONNECTED LOAD:
AØ 60.00 KVA
BØ 60.00 KVA
TOTAL 120.00 KVA
DMD 60.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

B1

PANEL NAME

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL

LOCATION: DISTRIBUTION CENTER STAND B1
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	POWER POSTS	100/2	12000					SPACE	2
3	B21, B23			12000				SPACE	4
5	POWER POSTS	100/2	12000					SPACE	6
7	B25, B27			12000				SPACE	8
9	POWER POSTS	100/2	12000					SPACE	10
11	B29, B31			12000				SPACE	12
13	POWER POSTS	100/2	12000					SPACE	14
15	B33, B35			12000				SPACE	16
17	POWER POSTS	100/2	12000					SPACE	18
19	B37, B39			12000				SPACE	20
21	POWER POSTS	100/2	12000					SPACE	22
23	B41, B43			12000				SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
			72000	72000					

CONNECTED LOAD:
AØ 72.00 KVA
BØ 72.00 KVA
TOTAL 144.00 KVA
DMD 72.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

B2

PANEL NAME

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL

LOCATION: DISTRIBUTION CENTER STAND B1
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	SPARE	100/2			12000		100/2	POWER POSTS	2
3						12000		B17, B19	4
5	SPACE				12000		100/2	POWER POSTS	6
7	SPACE					12000		B13, B15	8
9	SPACE				12000		100/2	POWER POSTS	10
11	SPACE					12000		B9, B11	12
13	SPACE				12000		100/2	POWER POSTS	14
15	SPACE							B5, B7	16
17	SPACE				12000		100/2	POWER POSTS	18
19	SPACE					12000		B1, B3	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
					60000	60000			

CONNECTED LOAD:
AØ 60.00 KVA
BØ 60.00 KVA
TOTAL 120.00 KVA
DMD 60.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

B3

PANEL NAME

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL

LOCATION: DISTRIBUTION CENTER STAND B2
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	POWER POSTS	100/2	12000				100/2	SPARE	2
3	B18, B20			12000					4
5	POWER POSTS	100/2	12000					SPACE	6
7	B14, B16			12000				SPACE	8
9	POWER POSTS	100/2	12000					SPACE	10
11	B10, B12			12000				SPACE	12
13	POWER POSTS	100/2	12000					SPACE	14
15	B6, B8			12000				SPACE	16
17	POWER POSTS	100/2	12000					SPACE	18
19	B2, B4			12000				SPACE	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
			60000	60000					

CONNECTED LOAD:
AØ 60.00 KVA
BØ 60.00 KVA
TOTAL 120.00 KVA
DMD 60.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

C1

PANEL NAME

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 225 AMPS
MAIN CIRCUIT BREAKER: 200 AMPS, 22KAIC
ARC-FLASH LABEL

LOCATION: DISTRIBUTION CENTER STAND C1
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	SPACE				12000		100/2	POWER POSTS	2
3	SPACE					12000		C15, C17	4
5	SPACE				12000		100/2	POWER POSTS	6
7	SPACE					12000		C11, C13	8
9	SPACE							SPACE	10
11	SPACE							SPACE	12
13	SPACE							SPACE	14
15	SPACE							SPACE	16
17	SPACE							SPACE	18
19	SPACE							SPACE	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
					24000	24000			

CONNECTED LOAD:
AØ 24.00 KVA
BØ 24.00 KVA
TOTAL 48.00 KVA
DMD 24.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

C2

PANEL NAME

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 225 AMPS
MAIN CIRCUIT BREAKER: 200 AMPS, 22KAIC
ARC-FLASH LABEL

LOCATION: DISTRIBUTION CENTER STAND C1
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	SPACE				12000		100/2	POWER POSTS	2
3	SPACE					12000		C7, C9	4
5	SPACE				12000		100/2	POWER POSTS	6
7	SPACE					12000		C3, C5	8
9	SPACE				6000		50/2	POWER POST	10
11	SPACE					6000		C1	12
13	SPACE							SPACE	14
15	SPACE							SPACE	16
17	SPACE							SPACE	18
19	SPACE							SPACE	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
					30000	30000			

CONNECTED LOAD:
AØ 30.00 KVA
BØ 30.00 KVA
TOTAL 60.00 KVA
DMD 30.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

C3

PANEL NAME

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL

LOCATION: DISTRIBUTION CENTER STAND C2
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	POWER POSTS	100/2	12000		12000		100/2	POWER POSTS	2
3	C6, C8			12000		12000		C10, C12	4
5	POWER POSTS	100/2	12000		12000		100/2	POWER POSTS	6
7	C2, C4			12000		12000		C14, C16	8
9	SPACE				12000		100/2	POWER POSTS	10
11	SPACE					12000		C18, C20	12
13	SPACE				12000		100/2	POWER POSTS	14
15	SPACE					12000		C22, C24	16
17	SPACE							SPACE	18
19	SPACE							SPACE	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
			24000	24000	48000	48000			

CONNECTED LOAD:
AØ 72.00 KVA
BØ 72.00 KVA
TOTAL 144.00 KVA
DMD 72.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

CONSTRUCTION
PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:
DATE: DESCRIPTION: BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

ELECTRICAL SCHEDULES

SEAL:
WALTER J. HOEY II
REGISTERED
NO. 11204
DELAWARE
PROFESSIONAL ENGINEER

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: SDT
DRAWN BY: SDT
CHECKED BY: SGH
DATE: APRIL 25, 2016
SCALE: N/A
SHEET NO.: E5.1
CONTRACT NO.:

O:\PROJECTS\125002.DE (DNREC Civil Engineering Services - 2012)\125002.15 (Cape Campground Improvements)\NewCastle\dwg\NC CADD\Plan sheets\E5.1 ELECTRICAL SCHEDULES.dwg, 4/25/2016 10:58 AM

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS
ELECTRICAL SCHEDULES

PROGRESS NOT FOR CONSTRUCTION

PANEL NAME: C4

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 225 AMPS
MAIN CIRCUIT BREAKER: 200 AMPS, 22KAIC
ARC-FLASH LABEL
LOCATION: DISTRIBUTION CENTER STAND C3
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	POWER POSTS	100/2	12000					SPACE	2
3	C30, C32			12000				SPACE	4
5	POWER POSTS	100/2	12000					SPACE	6
7	C26, C28			12000				SPACE	8
9	SPACE							SPACE	10
11	SPACE							SPACE	12
13	SPACE							SPACE	14
15	SPACE							SPACE	16
17	SPACE							SPACE	18
19	SPACE							SPACE	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
			24000	24000					

CONNECTED LOAD:
AØ 24.00 KVA
BØ 24.00 KVA
TOTAL 48.00 KVA
DMD 24.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

PANEL NAME: D1

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL
LOCATION: DISTRIBUTION CENTER STAND D1
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	POWER POSTS	100/2	12000				100/2	SPARE	2
3	D19, 21			12000					4
5	POWER POSTS	100/2	12000					SPACE	6
7	D23, D25			12000				SPACE	8
9	POWER POSTS	100/2	12000					SPACE	10
11	D27, D29			12000				SPACE	12
13	POWER POSTS	100/2	12000					SPACE	14
15	D31, D33			12000				SPACE	16
17	SPACE							SPACE	18
19	SPACE							SPACE	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
			48000	48000					

CONNECTED LOAD:
AØ 48.00 KVA
BØ 48.00 KVA
TOTAL 96.00 KVA
DMD 48.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

PANEL NAME: E1

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL
LOCATION: DISTRIBUTION CENTER STAND E1
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	POWER POSTS	100/2	12000					SPACE	2
3	E15, E17			12000				SPACE	4
5	POWER POST	100/2	12000					SPACE	6
7	E19			12000				SPACE	8
9	POWER POST	100/2	12000					SPACE	10
11	E21			12000				SPACE	12
13	POWER POST	100/2	12000					SPACE	14
15	E23			12000				SPACE	16
17	POWER POST	100/2	1200					SPACE	18
19	E25			1200				SPACE	20
21	POWER POSTS	100/2	1200					SPACE	22
23	E27, E29			1200				SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
			50400	50400					

CONNECTED LOAD:
AØ 50.40 KVA
BØ 50.40 KVA
TOTAL 100.80 KVA
DMD 50.40 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

PANEL NAME: C5

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 225 AMPS
MAIN CIRCUIT BREAKER: 200 AMPS, 22KAIC
ARC-FLASH LABEL
LOCATION: DISTRIBUTION CENTER STAND C3
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	POWER POSTS	100/2	12000					SPACE	2
3	C23, C25			12000				SPACE	4
5	POWER POSTS	100/2	12000					SPACE	6
7	C19, C21			12000				SPACE	8
9	SPACE							SPACE	10
11	SPACE							SPACE	12
13	SPACE							SPACE	14
15	SPACE							SPACE	16
17	SPACE							SPACE	18
19	SPACE							SPACE	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
			24000	24000					

CONNECTED LOAD:
AØ 24.00 KVA
BØ 24.00 KVA
TOTAL 48.00 KVA
DMD 24.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

PANEL NAME: D2

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL
LOCATION: DISTRIBUTION CENTER STAND D1
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	SPARE	100/2			12000		100/2	POWER POSTS	2
3						12000		D15, D17	4
5	SPACE				12000		100/2	POWER POSTS	6
7	SPACE					12000		D11, D13	8
9	SPACE				12000		100/2	POWER POSTS	10
11	SPACE					12000		D7, D9	12
13	SPACE				12000		100/2	POWER POSTS	14
15	SPACE					12000		D3, D5	16
17	SPACE				6000		50/2	POWER POST	18
19	SPACE					6000		D1	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
					54000	54000			

CONNECTED LOAD:
AØ 54.00 KVA
BØ 54.00 KVA
TOTAL 108.00 KVA
DMD 54.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

PANEL NAME: E2

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL
LOCATION: DISTRIBUTION CENTER STAND E1
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	SPACE				12000		100/2	POWER POSTS	2
3	SPACE					12000		E11, E13	4
5	SPACE				12000		100/2	POWER POSTS	6
7	SPACE					12000		E7, E9	8
9	SPACE				12000		100/2	POWER POSTS	10
11	SPACE					12000		E3, E5	12
13	SPACE				6000		50/2	POWER POST	14
15	SPACE					6000		E1	16
17	SPACE							SPACE	18
19	SPACE							SPACE	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
					42000	42000			

CONNECTED LOAD:
AØ 42.00 KVA
BØ 42.00 KVA
TOTAL 84.00 KVA
DMD 42.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

PANEL NAME: B4, C6, F1, F2

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL
LOCATION: DISTRIBUTION CENTERS B3, C4, F1, F2
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	SPARE	100/2					100/2	SPARE	2
3									4
5	SPARE	100/2					100/2	SPARE	6
7									8
9	SPARE	100/2					100/2	SPARE	10
11									12
13	SPACE							SPACE	14
15	SPACE							SPACE	16
17	SPACE							SPACE	18
19	SPACE							SPACE	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30

CONNECTED LOAD:
AØ
BØ
TOTAL
DMD

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

PANEL NAME: D3

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL
LOCATION: DISTRIBUTION CENTER STAND D2
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	POWER POSTS	100/2	12000		12000		100/2	POWER POSTS	2
3	D12, D14			12000		12000		D16, D18	4
5	POWER POSTS	100/2	12000				100/2	SPARE	6
7	D8, D10			12000					8
9	POWER POSTS	100/2	12000					SPACE	10
11	D4, D6			12000				SPACE	12
13	POWER POST	50/2	6000					SPACE	14
15	D2			6000				SPACE	16
17	SPACE							SPACE	18
19	SPACE							SPACE	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
			42000	42000	12000	12000			

CONNECTED LOAD:
AØ 54.00 KVA
BØ 54.00 KVA
TOTAL 108.00 KVA
DMD 54.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

PANEL NAME: E3

TYPE: SQUARE D TYPE NQ
CIRCUIT BREAKER MOUNTING SPACE: 30
MAIN BUS RATING: 400 AMPS
MAIN CIRCUIT BREAKER: 400 AMPS, 22KAIC
ARC-FLASH LABEL
LOCATION: DISTRIBUTION CENTER STAND E2
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 3R
BRANCH MIN. A. I. C. RATING: 10K

CIR. No.	DESCRIPTION	CIR. BKR.	LOAD - VA AØ	LOAD - VA BØ	LOAD - VA AØ	LOAD - VA BØ	CIR. BKR.	DESCRIPTION	CIR. No.
1	POWER POSTS	100/2	12000		12000		100/2	POWER POSTS	2
3	E2, E4			12000		12000		E6, E8	4
5	POWER POSTS	100/2	12000		12000		100/2	POWER POSTS	6
7	F1, F3			12000		12000		E10, E12	8
9	POWER POSTS	100/2	12000				100/2	SPARE	10
11	F5, F7			12000					12
13	SPACE							SPACE	14
15	SPACE							SPACE	16
17	SPACE							SPACE	18
19	SPACE							SPACE	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
			36000	36000	24000	24000			

CONNECTED LOAD:
AØ 60.00 KVA
BØ 60.00 KVA
TOTAL 120.00 KVA
DMD 60.00 KVA

X ISOLATED NEUTRAL BUS
X EQUIPMENT GROUND BUS
NOTES:
GROUNDING AND BONDING IN COMPLIANCE WITH THE NEC.

REVISIONS:
DATE: DESCRIPTION: BY:

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 NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: SDT
DRAWN BY: SDT
CHECKED BY: SGH
DATE: APRIL 25, 2016
SCALE: N/A
SHEET NO.: E-5.2
CONTRACT NO.:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS
SEDIMENT AND STORMWATER MANAGEMENT PLANS
LEWES & REHOBOTH HUNDRED
NORTH REHOBOTH BAY WATERSHED
LEWES, SUSSEX COUNTY, DELAWARE

PROGRESS - NOT FOR CONSTRUCTION

DATA COLUMN

1. COUNTY TAX MAP: 335-5.00-12.00
2. DNREC PROJECT NUMBER: _____
3. ADDRESS OF SITE: 15099 CAPE HENLOPEN DRIVE, LEWES, DE 19958
4. SITE COORDINATES: LATITUDE: 38.775654 N; LONGITUDE: -75.097487 W
5. ZONING: EXISTING: STATE LANDS; PROPOSED: STATE LANDS
6. LOT AREA: EXISTING: 571.47± ACRES; PROPOSED: 571.47± ACRES
7. SOURCE OF TITLE: N/A
8. EXISTING USE: STATE PARK/CAMPGROUND
9. PROPOSED USE: STATE PARK/CAMPGROUND
10. DATUM: EXISTING VERTICAL – NAVD 88; HORIZONTAL – NAD 83
    BENCHMARK: POINT ID – 9001 / EXISTING PANEL; NORTHING: 283293.891; EASTING: 747175.105; ELEVATION: 9.88'
11. SITE CONDITIONS WITHIN LIMITS OF DISTURBANCE (ACRES)

EXISTING CONDITIONS		PROPOSED CONDITIONS	
BUILDING	0.04 ACRES	BUILDING	0.04 ACRES
PAVEMENT/CONCRETE	2.12 ACRES	PAVEMENT/CONCRETE	2.59 ACRES
TREES	0.17 ACRES	TREES	0.15 ACRES
OPEN SPACE	8.88 ACRES	OPEN SPACE	8.43 ACRES
TOTAL	11.21 ACRES	TOTAL	11.21 ACRES

    IMPERVIOUS CONDITIONS: EXISTING 19.3%; PROPOSED 23.5%
12. FLOOD PLAIN MAP
    PER FIRM MAP NUMBER 10005C0213K AND 10005C0214K, DATED MARCH 16, 2015, THIS SITE LIES WITHIN OPAs AREA (OTHERWISE PROTECTED AREAS).
13. WATER RESOURCE PROTECTION – THE PROJECT AREA IS NOT LOCATED WITHIN ANY WELLHEAD PROTECTION OR RECHARGE AREAS.
14. TOTAL LAND DISTURBANCE
    THE TOTAL LAND DISTURBANCE PROPOSED BY THIS PLAN IS 11.21± ACRES (488,090± S.F.)
15. LIMITS OF CONSTRUCTION
    THE TOTAL LIMITS OF CONSTRUCTION FOR THE SITE IS 571.47± ACRES (24,893,233± S.F.)
16. WETLANDS
    THE TOTAL WETLANDS EXISTING WITHIN THE LIMITS OF DISTURBANCE IS 0.00± ACRES (0± S.F.)
17. PROPOSED DISCHARGE LOCATIONS
    1.) POA 1 – ON SITE SUMP AREA: CONTRIBUTING LOD AREA = 0.41 ACRES
    2.) POA 2 – ON SITE SUMP AREA: CONTRIBUTING LOD AREA = 0.25 ACRES
    3.) POA 3 – ON SITE SUMP AREA: CONTRIBUTING LOD AREA = 9.52 ACRES
    4.) POA 4 – EXISTING CATCH BASIN: CONTRIBUTING LOD AREA = 1.03 ACRES
18. OWNER: STATE OF DELAWARE, DNREC, DIVISION OF PARKS & RECREATION, 89 KINGS HIGHWAY, DOVER, DE 19901, PHONE: 302-739-9210, FAX: 302-739-3817
19. REVIEW AGENCY: DNREC, DIVISION OF WATERSHED STEWARDSHIP, 89 KINGS HIGHWAY, DOVER, DE 19901, PHONE: (302) 739-9921, FAX: (302) 739-6724
20. CIVIL ENGINEER: CENTURY ENGINEERING, INC., 4134 NORTH DUPONT HIGHWAY, DOVER, DE 19901, ALEX SCHMIDT, P.E., PHONE: (302) 734-9188, FAX: (302) 734-4589

GENERAL NOTES

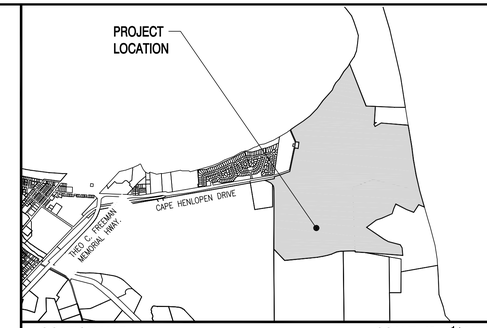
1. THE DNREC SEDIMENT AND STORMWATER MANAGEMENT PROGRAM MUST BE NOTIFIED IN WRITING FIVE (5) DAYS PRIOR TO COMMENCING WITH CONSTRUCTION. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
2. REVIEW AND APPROVAL OF THE SEDIMENT AND STORMWATER MANAGEMENT PLAN SHALL NOT RELIEVE THE CONTRACTOR FROM HIS OR HER RESPONSIBILITIES FOR COMPLIANCE WITH THE REQUIREMENTS OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS, NOR SHALL IT RELIEVE THE CONTRACTOR FROM ERRORS OR OMISSIONS IN THE APPROVED PLAN.
3. IF THE APPROVED PLAN NEEDS TO BE MODIFIED, ADDITIONAL SEDIMENT AND STORMWATER CONTROL MEASURES MAY BE REQUIRED AS DEEMED NECESSARY BY DNREC.
4. FOLLOWING THE SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED FOR ALL PERIMETER SEDIMENT CONTROLS, SOIL STOCKPILES, AND ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE WITHIN 14 CALENDAR DAYS UNLESS MORE RESTRICTIVE FEDERAL REQUIREMENTS APPLY.
5. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL COMPLY WITH THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
6. AT ANY TIME A DEWATERING OPERATION IS USED, IT SHALL BE PREVIOUSLY APPROVED BY THE AGENCY CONSTRUCTION SITE REVIEWER FOR A NON-EROSIVE POINT OF DISCHARGE, AND A DEWATERING PERMIT SHALL BE APPROVED BY THE DNREC WELL PERMITTING BRANCH.
7. APPROVED PLANS REMAIN VALID FOR 3 YEARS FROM THE DATE OF APPROVAL.
8. POST CONSTRUCTION VERIFICATION DOCUMENTS ARE TO BE SUBMITTED TO THE DNREC SEDIMENT AND STORMWATER PROGRAM WITHIN 60 DAYS OF STORMWATER MANAGEMENT FACILITY COMPLETION.
9. APPROVAL OF A SEDIMENT AND STORMWATER PLAN DOES NOT GRANT OR IMPLY A RIGHT TO DISCHARGE STORMWATER RUNOFF. THE OWNER/DEVELOPER IS RESPONSIBLE FOR ACQUIRING ANY AND ALL AGREEMENTS, EASEMENTS, ETC., NECESSARY TO COMPLY WITH STATE DRAINAGE AND OTHER APPLICABLE LAWS.
10. THE NOTICE OF INTENT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER NPDES GENERAL PERMIT FOR THIS PROJECT IS PENDING ID #406. AT ANY TIME THE OWNERSHIP FOR THIS PROJECT CHANGES, A TRANSFER OF AUTHORIZATION OR A CO-PERMITEE APPLICATION MUST BE SUBMITTED TO DNREC. THE PERMITTEE OF RECORD SHALL NOT BE RELIEVED OF THEIR RESPONSIBILITIES UNTIL A NOTICE OF TERMINATION HAS BEEN PROCESSED BY DNREC.
11. THE OWNER SHALL BE FAMILIAR WITH AND COMPLY WITH ALL ASPECTS OF THE NPDES CONSTRUCTION GENERAL PERMIT ASSOCIATED WITH THE PROJECT, INCLUDING, BUT NOT LIMITED TO, PERFORMING WEEKLY SITE INSPECTIONS DURING CONSTRUCTION AND AFTER RAIN EVENTS, AND MAINTAINING WRITTEN LOGS OF THESE INSPECTIONS.
12. BEFORE ANY EARTHWORK OR EXCAVATION TAKES PLACE, THE CONTRACTOR SHALL CALL MISS UTILITY AT 811 OR 1.800.282.8555 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION, TO HAVE ALL EXISTING UTILITIES MARKED ONSITE.
13. THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT OR DEBRIS LADEN RUNOFF OR WIND FROM LEAVING THE SITE. PERIMETER CONTROLS SHALL BE CHECKED DAILY AND ADJUSTED AND/OR REPAIRED TO FULLY CONTAIN AND CONTROL SEDIMENT FROM LEAVING THE SITE. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF THE CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST OR ALTER MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
14. BEST AVAILABLE TECHNOLOGY (BAT) SHALL BE EMPLOYED TO MANAGE TURBID DISCHARGES IN ACCORDANCE WITH REQUIREMENTS OF 7 DEL C. CHAPTER 60, REGULATIONS GOVERNING THE CONTROL OF WATER POLLUTION, SECTION 9.1.02, KNOWN AS SPECIAL CONDITIONS FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES AND DEPARTMENT POLICIES, PROCEDURES, AND GUIDANCE.
15. DOCUMENTATION OF SOIL TESTING AND MATERIALS USED FOR TEMPORARY OR PERMANENT STABILIZATION INCLUDING BUT NOT LIMITED TO SOIL TEST RESULTS, SEED TAGS, SOIL AMENDMENT TAGS, ETC. SHALL BE PROVIDED TO THE DEPARTMENT OR DELEGATED AGENCY TO VERIFY THAT THE PERMANENT OR TEMPORARY STABILIZATION HAS BEEN COMPLETED IN ACCORDANCE WITH THE APPROVED PLAN. THE DEPARTMENT OR DELEGATED AGENCY MAY REQUIRE ADDITIONAL SOIL TESTING AND REAPPLICATION OF PERMANENT OR TEMPORARY STABILIZATION IN ACCORDANCE WITH SPECIFICATIONS PROVIDED IN THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK, OR ALTERNATIVE MEASURES THAT PROVIDE FUNCTIONAL EQUIVALENCY.

SHEET INDEX

SWM1.0	COVER SHEET
SWM1.1	CONSTRUCTION SITE STORMWATER MANAGEMENT PLAN
SWM1.2	CONSTRUCTION SITE DETAILS AND NOTES
SWM1.3	CONSTRUCTION SITE DETAILS AND NOTES
SWM1.4	OVERALL POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
SWM1.5	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN, FACILITY #1
SWM1.6	BMP CONTRIBUTING DRAINAGE AREA PLAN
SWM1.7	PRE DEVELOPED SUBAREA LIMITS OF DISTURBANCE DATA PLAN

LEGEND

	EXISTING	PROPOSED
PROPERTY LINE		
CONTOUR	40	40
DRAINAGE AREA BOUNDARY		
100-YR FLOODPLAIN	FP	N/A
POINT OF ANALYSIS		
TIME OF CONCENTRATION PATH	>TC >TC	>TC >TC
BMP FOOTPRINT	N/A	
LIMITS OF DISTURBANCE (LOD)	LOD LOD	LOD LOD
SILT FENCE	N/A	SF
CONSTRUCTION SAFETY FENCE	N/A	CSF CSF
STABILIZED CONSTRUCTION ENTRANCE	N/A	SCE
RIPRAP	N/A	
INLET PROTECTION	N/A	
IMPERVIOUS COVER		
CONCRETE COVER		
UNDERGROUND WATERLINE	W W	N/A
UNDERGROUND ELECTRIC	E	N/A
UNDERGROUND SANITARY SEWER	S S S	N/A
OVERHEAD UTILITY	OH	N/A
STORMSEWER		
FENCE LINE		
BUILDING		
LANDSCAPING		
SIGN		
LAMP	LAMP	LAMP
MAILBOX	MB	MB
FIRE HYDRANT		N/A
POST		N/A
WATER VALVE	W.V.	N/A
CONCRETE MONUMENT	C.M.	N/A
ELECTRIC TRANSFORMER	E.T.	N/A
UTILITY BOX – FIBER	F	N/A
CATCH BASIN	C.B.	N/A
LIGHT		N/A
ELECTRIC OUTLET	E	N/A
UTILITY POLE		N/A
MANHOLE	M	N/A
WOODSLINE		



LOCATION MAP — SCALE: 1" = ½ MILE

APPROVAL STAMP

OWNER/DEVELOPER CERTIFICATION

I, THE UNDERSIGNED, CERTIFY THAT ALL LAND CLEARING, CONSTRUCTION AND DEVELOPMENT SHALL BE DONE PURSUANT TO THE APPROVED PLAN AND THAT RESPONSIBLE PERSONNEL (I.E. BLUE CARD HOLDER) INVOLVED IN THE LAND DISTURBANCE WILL HAVE A CERTIFICATION OF TRAINING PRIOR TO INITIATION OF THE PROJECT, AT A DNREC SPONSORED OR APPROVED TRAINING COURSE FOR THE CONTROL OF EROSION AND SEDIMENT DURING CONSTRUCTION. IN ADDITION, I GRANT THE DNREC SEDIMENT AND STORMWATER PROGRAM AND/OR THE RELEVANT DELEGATED AGENCY THE RIGHT TO CONDUCT ON-SITE REVIEWS, AND I UNDERSTAND MY RESPONSIBILITIES UNDER THE NPDES CONSTRUCTION GENERAL PERMIT, AS REFERENCED ON THIS COVERSHEET.

CYNTHIA A. TODD, RLA — DATE
CONSTRUCTION PROJECT ADMINISTRATOR
OFFICE OF DESIGN AND DEVELOPMENT
DNREC – DIVISION OF PARKS AND RECREATION
89 KINGS HIGHWAY, DOVER, DE 19901
PHONE: 302-739-9210
FAX: 302-739-3817

CERTIFICATION OF PLAN ACCURACY

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

ALEX SCHMIDT, P.E., DE NO. 16139 — DATE
CENTURY ENGINEERING, INC.
4134 NORTH DUPONT HIGHWAY
DOVER, DELAWARE 19901
PHONE: (302) 734-9188
FAX: (302) 734-4589

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

SEDIMENT AND STORMWATER MANAGEMENT PLANS
COVER SHEET

SEAL:

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: MDS
DRAWN BY: MDS
CHECKED BY: AES
DATE: MARCH 2016
SCALE: NOT TO SCALE
SHEET NO.: SWM1.0
CONTRACT NO.:

LEGEND	SYMBOL
LIMITS OF DISTURBANCE (LOD)	LOD LOD
SILT FENCE	SF
CONSTRUCTION SAFETY FENCE	CSF CSF
STABILIZED CONSTRUCTION ENTRANCE	SCE
INLET PROTECTION	
STAGING & STOCKPILING LOCATION	
BMP FOOTPRINT	
PROPOSED IMPERVIOUS COVER	
RIPRAP	

0' 60' 120' 180'
SCALE: 1" = 60'

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

SEDIMENT AND STORMWATER MANAGEMENT PLANS
CONSTRUCTION SITE STORMWATER MANAGEMENT PLAN

SEAL:

CIVIL ENGINEER:

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: MDS

DRAWN BY: MDS

CHECKED BY: AES

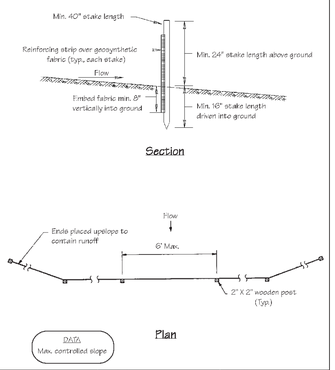
DATE: MARCH 2016

SCALE: 1" = 60'

SHEET NO.: SWM1.1

CONTRACT NO.:

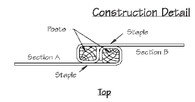
Standard Detail & Specifications
Silt Fence



Source:	Symbol:	Detail No.
Adapted form MD Stds. & Specs. for ESC	SF	DE-ESC-3.1.2.1 Sheet 1 of 2

Effective October 2015

Standard Detail & Specifications
Silt Fence



Construction Notes:

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

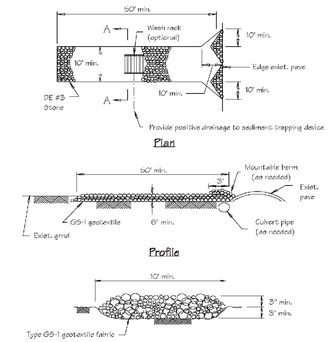
Materials:

1. Stakes: Steel (either T or U) or 2" x 2" hardwood
2. Geosynthetic Fabric: Type GD-I
3. Reinforcing strip: Wooden lath, plastic strip or other approved equivalent
4. Prefabricated Unit: Geofab, Enviofence, or approved equivalent

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

Effective October 2015

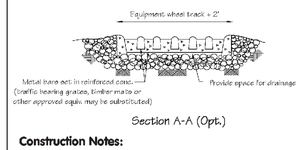
Standard Detail & Specifications
Stabilized Construct. Entrance



Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook	SCE	DE-ESC-3.4.7 Sheet 1 of 2

Effective October 2015

Standard Detail & Specifications
Stabilized Construct. Entrance



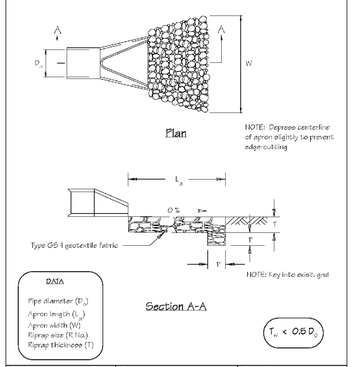
Construction Notes:

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

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook	SCE	DE-ESC-3.4.7 Sheet 2 of 2

Effective October 2015

Standard Detail & Specifications
Riprap Outlet Protection - 1



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

Effective October 2015

Standard Detail & Specifications
Riprap Outlet Protection - 1

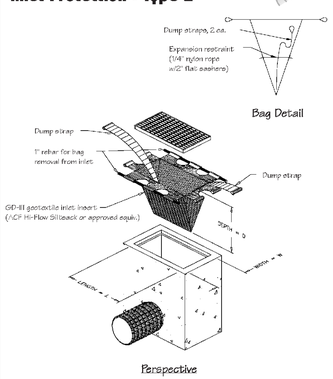
Construction Notes:

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

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

Effective October 2015

Standard Detail & Specifications
Inlet Protection - Type 2



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

Effective October 2015

Standard Detail & Specifications
Inlet Protection - Type 2

Notes:

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

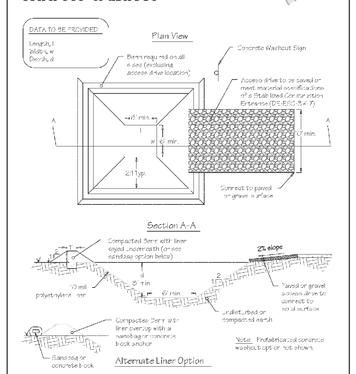
Materials:

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

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

Effective October 2015

Standard Detail & Specifications
Concrete Washout



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

Effective October 2015

Standard Detail & Specifications
Concrete Washout

Construction Notes:

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

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

Effective October 2015

NOT FOR CONSTRUCTION
IN PROGRESS - NOT FOR CONSTRUCTION

PROJECT NOTES

1. TOTAL LOD AREA = 11.20 ACRES (488,029± S.F.)
2. TOTAL WETLAND AREA WITHIN LOD = 0.0 ACRES (0.0± S.F.)
3. THE ENTIRE LOD IS OUTSIDE THE 100-YR FLOODPLAIN.
4. EXCAVATION VOLUMES: SPOIL: 0 CF / BORROW: 0 CF
5. GEOTEXTILE FOR THE STABILIZED CONSTRUCTION ENTRANCE SHALL MEET DNREC TYPE GS-1 SPECIFICATIONS.
   EXAMPLE PRODUCTS INCLUDE: MIRAFI 600X, AMOCO 2006, AND GEOTEX 315ST
6. SPRINKLING SHALL BE THE STABILIZATION MEASURE INITIATED IF DUST CONTROL BECOMES A PROBLEM.
7. DUE TO THE ABSENCE OF NATIVE VEGETATION AND TOPSOIL, NO SEEDING, MULCHING, & TOPSOILING IS SPECIFIED.
8. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN AND REPAIR ALL EROSION AND SEDIMENT CONTROL PRACTICES DURING CONSTRUCTION.
9. LOCATIONS OF DUMPSTER AND CONCRETE WASHOUT AREAS ARE SHOWN ON PLANS. IF THESE LOCATIONS MUST BE MOVED, THE NEW LOCATION SHALL BE APPROVED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
10. STOCKPILE AREAS SHOWN FOR BIDDING/INFORMATIONAL PURPOSES ONLY. STOCKPILE LOCATIONS MAY BE ADJUSTED AS REQUIRED. CONTRACTOR SHALL COORDINATE ALL STOCKPILE LOCATIONS WITH THE OWNER TO AVOID EXISTING TREES AND OTHER ITEMS TO REMAIN.

SEQUENCE OF CONSTRUCTION

1. NOTIFY THE DNREC SEDIMENT AND STORMWATER PROGRAM IN WRITING AT LEAST FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
2. PRIOR TO ANY CLEARING, INSTALLATION OF SEDIMENT CONTROL MEASURES OR GRADING, A PRECONSTRUCTION MEETING MUST BE SCHEDULED AND CONDUCTED WITH THE AGENCY CONSTRUCTION SITE REVIEWER. THE LANDOWNER/DEVELOPER, CONTRACTOR, AND CERTIFIED CONSTRUCTION REVIEWER ARE REQUIRED TO BE IN ATTENDANCE AT THE PRE-CONSTRUCTION MEETING; THE DESIGNER IS RECOMMENDED TO ATTEND.
3. CLEAR AND GRUB AS REQUIRED TO INSTALL STABILIZED CONSTRUCTION ENTRANCE. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND TRAFFIC DIVERSION BARRELS. CLEAR AND GRUB AS REQUIRED TO INSTALL SILT FENCE. INSTALL SILT FENCE. ALL PERIMETER CONTROLS ARE TO BE REVIEWED BY THE AGENCY CONSTRUCTION SITE REVIEWER AND APPROVED PRIOR TO PROCEEDING WITH FURTHER SITE DISTURBANCE OR CONSTRUCTION.
4. AT THE OWNER'S DIRECTION, THE CONTRACTOR SHALL PLACE SENSITIVE AREA PROTECTION AROUND ALL TREES WITHIN THE LIMITS OF DISTURBANCE THAT ARE TO REMAIN FOLLOWING CONSTRUCTION.
5. THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT OR DEBRIS LADEN RUNOFF OR WIND FROM LEAVING THE SITE. PERIMETER CONTROLS SHOULD BE CHECKED DAILY AND ADJUSTED AND/OR REPAIRED TO FULLY CONTAIN AND CONTROL SEDIMENTATION ON THE SITE. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF THE CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST OR REPAIR MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
6. SAW CUT AND DEMO EXISTING ASPHALT TO BE REMOVED.
7. PERFORM ALL UTILITY WORK (ELECTRIC, WATER & SEWER) AS SHOWN ON PLAN SHEETS C8.1 – C8.6 & E1.1 – E8.1. ALL UNDERGROUND UTILITIES SHALL BE INSTALLED CONTINUOUSLY, BACKFILLING AND STABILIZING ALL DISTURBED TRENCH AREA AS UTILITY LINE IS PLACED.
8. PERFORM ROUGH GRADING FOR CONSTRUCTION OF THE EAST LOOP ROADWAY, NEW CAMPING SPACES, NEW PARKING AREA, AND SIDEWALKS. STOCKPILE ANY EXCESS SUBGRADE MATERIAL ONSITE IN DESIGNATED STOCKPILE AREAS SURROUNDED BY APPROVED PERIMETER CONTROLS.
9. INSTALL PCC SIDEWALK.
10. PLACE STONE BASE FOR ALL UNSTABILIZED AREAS TO BE PAVED.
11. PERMANENTLY GRADE AND STABILIZE ALL REMAINING DISTURBED AREAS.
12. PERFORM PAVING OF ALL SURFACES SHOWN. PLACE PAVEMENT MARKINGS AND STRIPING.
13. PERFORM CLEANOUT & MAINTENANCE OF ALL EXISTING DRAINAGE PIPES. INSTALL RIP RAP AT EXISTING DRAINAGE OUTFALLS.
14. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE REMOVED ONLY AFTER WORK IN AN AREA HAS BEEN COMPLETED AND STABILIZED, WITH WRITTEN APPROVAL FROM THE AGENCY CONSTRUCTION SITE REVIEWER.
15. THE TERMINATION OF THE CONSTRUCTION GENERAL PERMIT WILL REQUIRE SUBMISSION AND ACCEPTANCE OF THE POST CONSTRUCTION VERIFICATION DOCUMENTS, INCLUDING FINAL STABILIZATION THROUGHOUT THE SITE, AND ALL ELEMENTS OF THE SEDIMENT AND STORMWATER MANAGEMENT PLAN IMPLEMENTED.

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

SEDIMENT AND STORMWATER MANAGEMENT PLANS
CONSTRUCTION SITE DETAILS AND NOTES

SEAL:

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

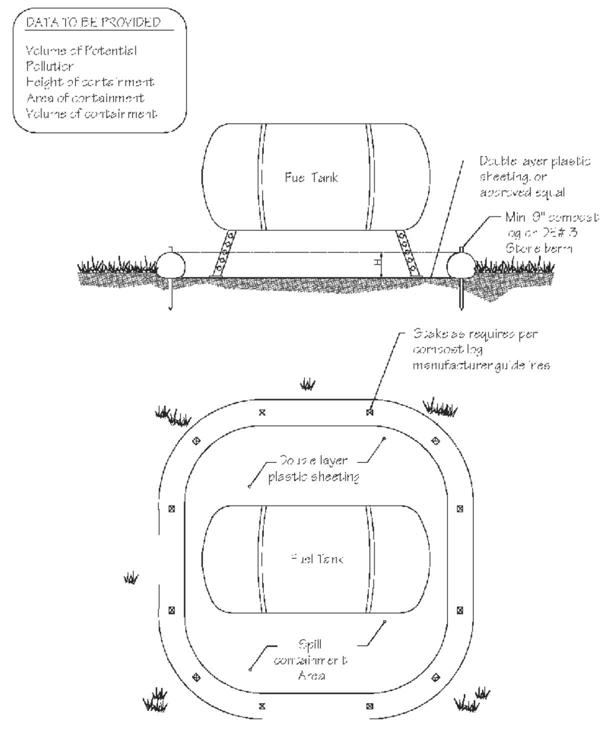
CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: MDS
DRAWN BY: MDS
CHECKED BY: AES
DATE: MARCH 2016
SCALE: NOT TO SCALE
SHEET NO.: SWM1.2
CONTRACT NO.:

Standard Detail & Specifications

Construction Site Waste Mgt & Spill Control



Source:	Symbol:	Detail No.
Delaware ESC Handbook		**DE-ESC-3.6.1** Sheet 1 of 5

Effective October 2015

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:	Symbol:	Detail No.
Delaware ESC Handbook		**DE-ESC-3.6.1** Sheet 2 of 5

Effective October 2015

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 their original labeled containers and covered.
   c. Substances shall not be mixed.
   d. When possible, all of a product shall be used up prior to disposal of the container.
   e. Manufacturers' instructions for disposal shall be strictly adhered to.
   f. The site foreman shall designate someone to inspect all BMPs daily.

3. **Waste management practices**

   a. All waste materials shall be collected and stored in securely lidded dumpsters in a location that does not drain to a waterbody.
   b. Waste materials shall be salvaged and/or recycled whenever possible.
   c. The dumpsters shall be emptied a minimum of twice per week, or more if necessary. The licensed trash hauler is responsible for cleaning out dumpsters.

Source:	Symbol:	Detail No.
Adapted from USEPA Pub. 840-B-92-002		**DE-ESC-3.6.1** Sheet 3 of 5

Effective October 2015

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.

4. **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. L[illegible] or non-toxic substances shall be prioritized for use.

Source:	Symbol:	Detail No.
Adapted from USEPA Pub. 840-B-92-002		**DE-ESC-3.6.1** Sheet 4 of 5

Effective October 2015

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

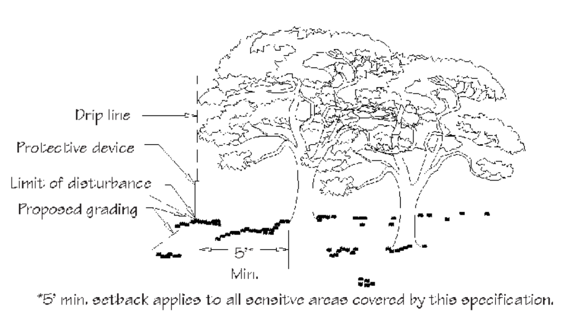
DNREC 24-Hour Toll Free Number	**800-662-8802**
DNREC Solid & Hazardous Waste Branch	**302-739-9403**

Source:	Symbol:	Detail No.
Adapted from USEPA Pub. 840-B-92-002		**DE-ESC-3.6.1** Sheet 5 of 5

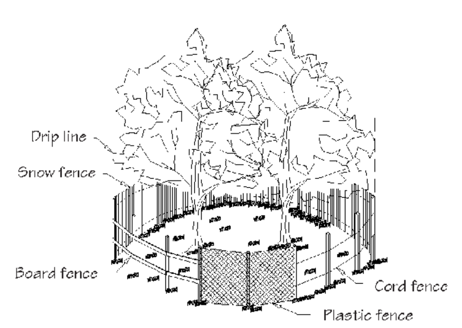
Effective October 2015

Standard Detail & Specifications

Sensitive Area Protection



Location of Sensitive Area Protection



Methods of Sensitive Area Protection

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook	SAP	**DE-ESC-3.7.2** Sheet 1 of 3

Effective October 2015

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 proteciton, 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:	Symbol:	Detail No.
Adapted from VA ESC Handbook	SAP	**DE-ESC-3.7.2** Sheet 2 of 3

Effective October 2015

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 [illegible] 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:

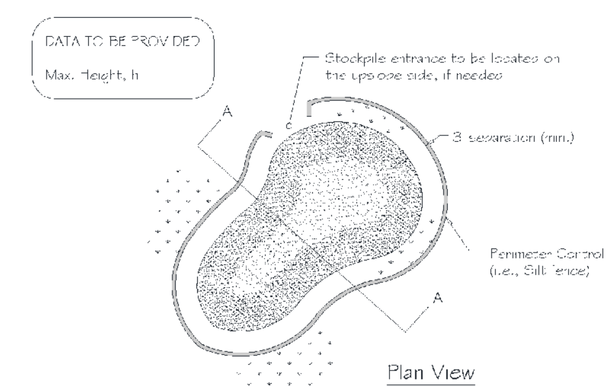
Fencing and armoring devices shall be in place before any excavation or grading is begun, shall be kept in good repair for the duration of construction activities, and shall be the last items removed during the final cleanup after the completion of the project.

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook	SAP	**DE-ESC-3.7.2** Sheet 3 of 3

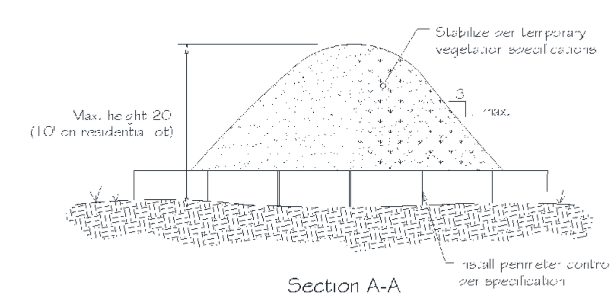
Effective October 2015

Standard Detail & Specifications

Soil Stockpile



Plan View



Section A-A

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

Effective October 2015

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

Effective October 2015

Standard Detail & Specifications

Dust Control

Temporary Methods:

1. Mulches - See **DE-ESC-3.4.5**, Standard Detail and Specifications for Mulching.
2. Vegetative cover - See **DE-ESC-3.4.3**, Std. Detail and Specifications for Vegetative Stabilization.
3. Adhesives - Use on mineral soils only (not effective on muck soils). Keep traffic off these areas. The following table may be used for general guidance.

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

4. Tillage - For emergency temporary treatment, scarify the soil surface to prevent or reduce the amount of blowing dust until a more appropriate solution can be implemented. Begin the tillage operation on the windward side of the site using a chisel-type plow for best results.
5. Sprinkling - Sprinkle site with water until the surface is moist . Repeat as needed.
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 soild board fences, snow fences, hay bales, etc. at right angles to the prevailing air currents at intervals of approx. 10X their height.

Permanent Methods:

1. Vegetative cover - See **DE-ESC-3.4.3**, Std. Detail and Specifications for Vegetative Stabilization.
2. Stone - Apply layer of crushed stone or coarse gravel to protect soil surface.

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

Effective October 2015

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

SEDIMENT AND STORMWATER MANAGEMENT PLANS
CONSTRUCTION SITE DETAILS AND NOTES

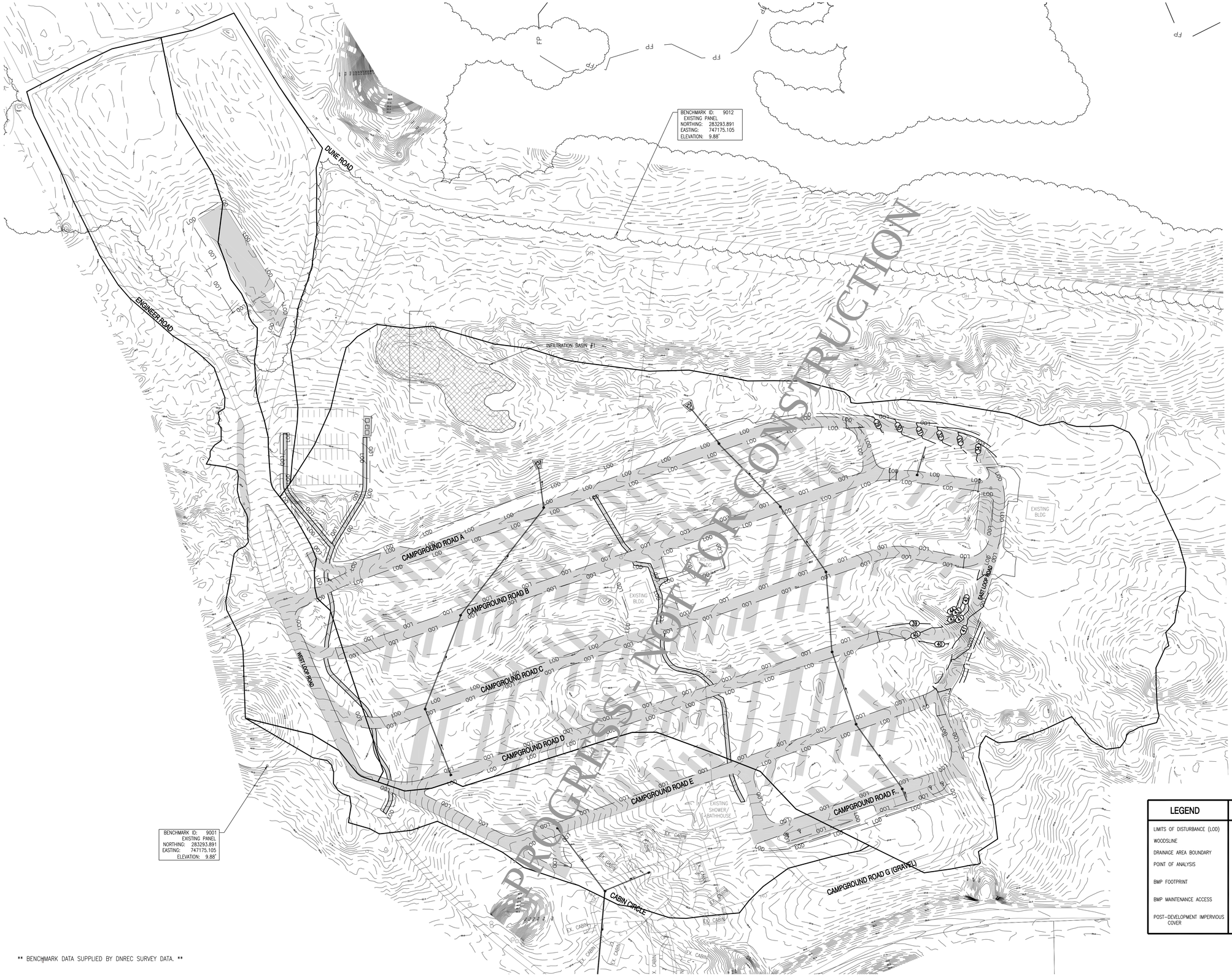
SEAL:

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: MDS
DRAWN BY: MDS
CHECKED BY: AES
DATE: MARCH 2016
SCALE: NOT TO SCALE
SHEET NO.: SWM1.3
CONTRACT NO.:



LEGEND	SYMBOL
LIMITS OF DISTURBANCE (LOD)	LOD LOD
WOODSLINE	
DRAINAGE AREA BOUNDARY	
POINT OF ANALYSIS	
BMP FOOTPRINT	
BMP MAINTENANCE ACCESS	
POST-DEVELOPMENT IMPERVIOUS COVER	

0' 70' 140' 210'
SCALE: 1" = 70'

** BENCHMARK DATA SUPPLIED BY DNREC SURVEY DATA. **

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

SEDIMENT AND STORMWATER MANAGEMENT PLANS
OVERALL POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

SEAL:

CIVIL ENGINEER:

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: MDS

DRAWN BY: MDS

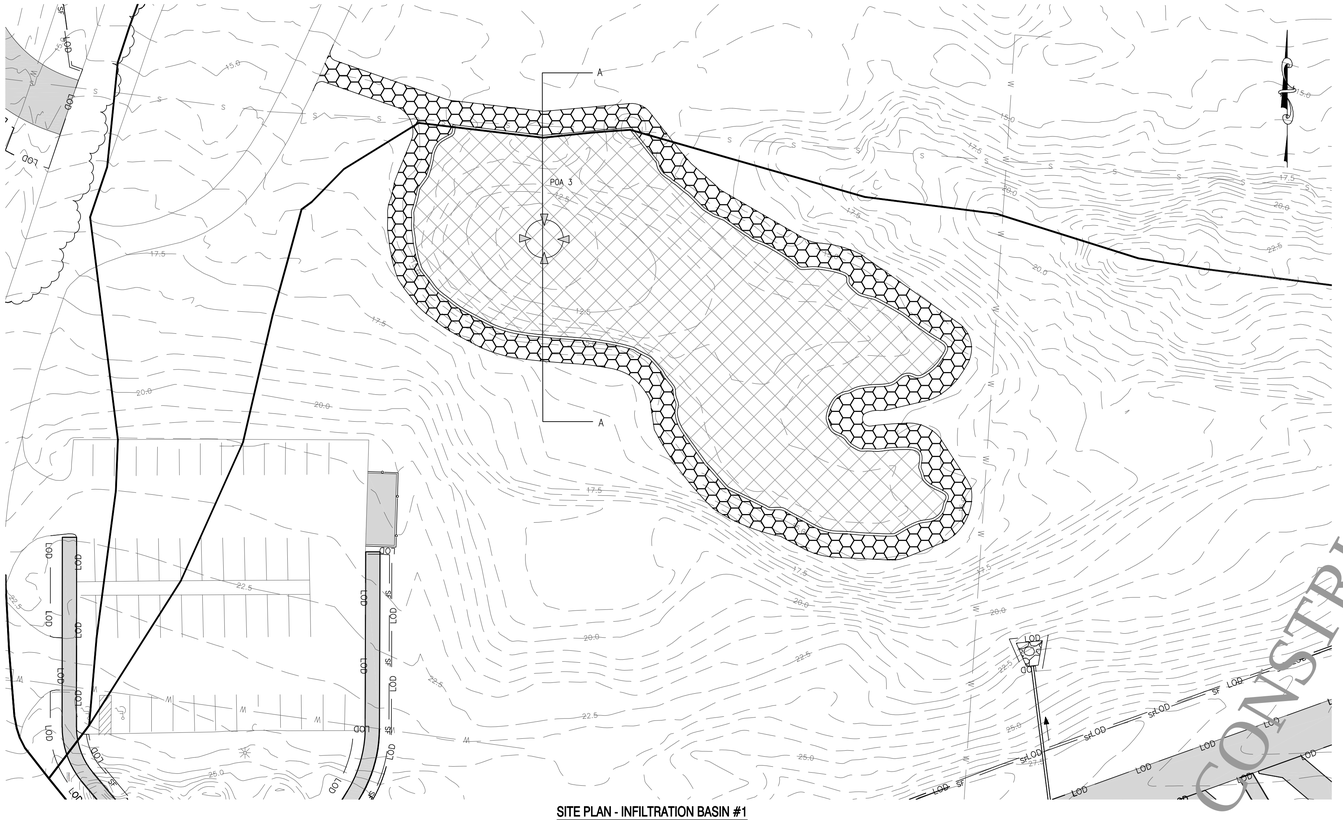
CHECKED BY: AES

DATE: MARCH 2016

SCALE: 1" = 70'

SHEET NO.: SWM1.4

CONTRACT NO.:



SITE PLAN - INFILTRATION BASIN #1
SCALE: 1" = 30'

ELEVATION	SURFACE AREA (SQ. FT)	CUMULATIVE VOLUME (CF)
12.00'	1,223	0
12.50'	2,968	1,048
13.00'	4,974	3,033
13.50'	8,370	6,369
14.00'	18,384	13,050

** NOTE: BASIN OVERTOPS AT ELEVATION 14.00'. **

GENERAL NOTES

1. THE DNREC SEDIMENT AND STORMWATER PROGRAM RESERVES THE RIGHT TO ENTER PRIVATE PROPERTY FOR PURPOSES OF PERIODIC SITE REVIEWS.
2. THE DNREC SEDIMENT AND STORMWATER PROGRAM SHALL BE NOTIFIED WITHIN 30 BUSINESS DAYS IF THE PROPERTY OWNERSHIP IS TRANSFERRED TO A NEW PERSON OR ENTITY.
3. THE DNREC SEDIMENT AND STORMWATER PROGRAM MAY SEEK ENFORCEMENT ACTION AGAINST ANY OWNER DEEMED NEGLIGENT IN FULFILLING THE OPERATION AND MAINTENANCE REQUIREMENTS OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
4. THE DNREC SEDIMENT AND STORMWATER PROGRAM SHALL BE CONTACTED IF A CONCERN ARISES REGARDING A STORMWATER MANAGEMENT FACILITY, BEFORE ANY NON-ROUTINE MAINTENANCE, OR IF MODIFICATIONS TO THE FACILITY ARE DESIRED.
5. ANY DESIGN MODIFICATIONS MADE TO THE STORMWATER SYSTEM SHALL REQUIRE THE CREATION OF A NEW POST CONSTRUCTION STORMWATER MANAGEMENT PLAN AND/OR OPERATIONS AND MAINTENANCE PLAN, WITH APPROVAL OF THE PLAN(S) BY THE DNREC SEDIMENT AND STORMWATER PROGRAM.
6. FOR ALL STORMWATER EASEMENT AREAS (I.E., ACCESS, MAINTENANCE, OR OFFSITE) AND THE MINIMUM 10-FOOT WIDE ACCESSWAYS TO ALL STORMWATER FACILITIES AND THEIR STRUCTURAL COMPONENTS, REGULAR MOWING SHALL BE PERFORMED TO KEEP THE GRASS 6" OR LESS; NO TREES OR SHRUBS SHALL BE PLANTED, AND ANY FOUND GROWING SHALL BE REMOVED; AND NO PERMANENT STRUCTURES, SUCH AS FENCES OR SHEDS, SHALL BE LOCATED WITHIN THE EASEMENT OR ACCESSWAY.
7. TREES SHALL NOT BE PLANTED, AND SHALL BE REMOVED IF FOUND GROWING, ON AND WITHIN 15 FEET OF ALL POND EMBANKMENTS, ON POND SLOPES OR SAFETY BENCHES, AND WITHIN 10 FEET OF STRUCTURAL COMPONENTS, SUCH AS PIPE INLETS.
8. WHEN THE FACILITY IS EXCAVATED TO REMOVE ACCUMULATED SEDIMENT, THE DISPOSAL AREA SHALL BE PERMANENTLY STABILIZED SO THAT IT DOES NOT RECREATE AN EROSION PROBLEM. ANY MATERIAL TAKEN OFF-SITE SHALL STILL BE UTILIZED OR DISPOSED OF IN AN APPROVED DNREC MANNER.
9. BEFORE ANY EARTHWORK OR EXCAVATION TAKES PLACE, THE CONTRACTOR SHALL CALL MISS UTILITY AT 811 OR 1.800.282.8555 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION, TO HAVE ALL EXISTING UTILITIES MARKED ONSITE.

INFILTRATION BASIN MAINTENANCE

FUNCTION:
THESE STORMWATER FACILITIES ARE DESIGNED TO INFILTRATE STORMWATER AND SHOULD NOT HOLD WATER FOR MORE THAN 48 HOURS.

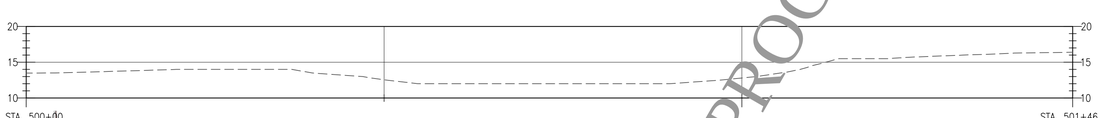
INSPECTION:
SELF INSPECT SEMI-ANNUALLY (SPRING AND FALL) AND AFTER STORM EVENTS OF 2 INCHES OR MORE. CLEAN OUT ACCUMULATED SEDIMENT TO MAINTAIN PRE-DEVELOPMENT STORAGE VOLUME.

TRASH AND DEBRIS:
REMOVE TRASH AND DEBRIS ON A REGULAR BASIS. IT IS ESPECIALLY IMPORTANT TO REMOVE DEBRIS FROM ALL INLETS AND OUTFALL STRUCTURES.

FENCING:
PERMANENT FENCING IS NOT RECOMMENDED AND NOT REQUIRED; HOWEVER, IF A FENCE IS PREFERRED, ENSURE THAT IT IS IN GOOD REPAIR AND PROVIDES ACCESS FOR MAINTENANCE AND INSPECTIONS. CONSTRUCTION SAFETY FENCE SHALL BE INSTALLED AROUND THE PERIMETER OF THE FACILITY DURING CONSTRUCTION.

SPECIAL CONSIDERATIONS:
INFILTRATION BASINS ARE DESIGNED TO INFILTRATE WATER AND REMOVE POLLUTANTS FROM STORMWATER. DO NOT COMPACT FACILITY IN ANY WAY. THIS INCLUDES THE USE OF HEAVY EQUIPMENT OR MACHINERY. COMPACTION MAY LEAD TO SYSTEM FAILURE.

HIRE A PROFESSIONAL:
IF FACILITY DOES NOT DRAIN WITHIN 48 HOURS; REPAIR OF SEVERE EROSION; REPLACEMENT OF DETERIORATING PIPES OR STRUCTURAL COMPONENTS; IF MOSQUITOES ARE SUSPECTED TO BE PROBLEMATIC; RECONSTRUCTION OF EMBANKMENT AND OUTLET STRUCTURE; REMOVAL OF ACCUMULATED SEDIMENT; AQUATIC VEGETATION CONTROL (CHEMICAL APPLICATION) IF LICENSING REQUIRED BY DE DEPARTMENT OF AGRICULTURE; IF DREDGING (SEDIMENT REMOVAL) IS REQUIRED.



SECTION A-A TYPICAL INFILTRATION BASIN SECTION
SCALE: 1" = 10'

LEGEND	SYMBOL
LIMITS OF DISTURBANCE (LOD)	LOD LOD
WOODSLINE	
DRAINAGE AREA BOUNDARY	
POINT OF ANALYSIS	
BMP FOOTPRINT	
BMP MAINTENANCE ACCESS	

PROGRESS - NOT FOR CONSTRUCTION

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

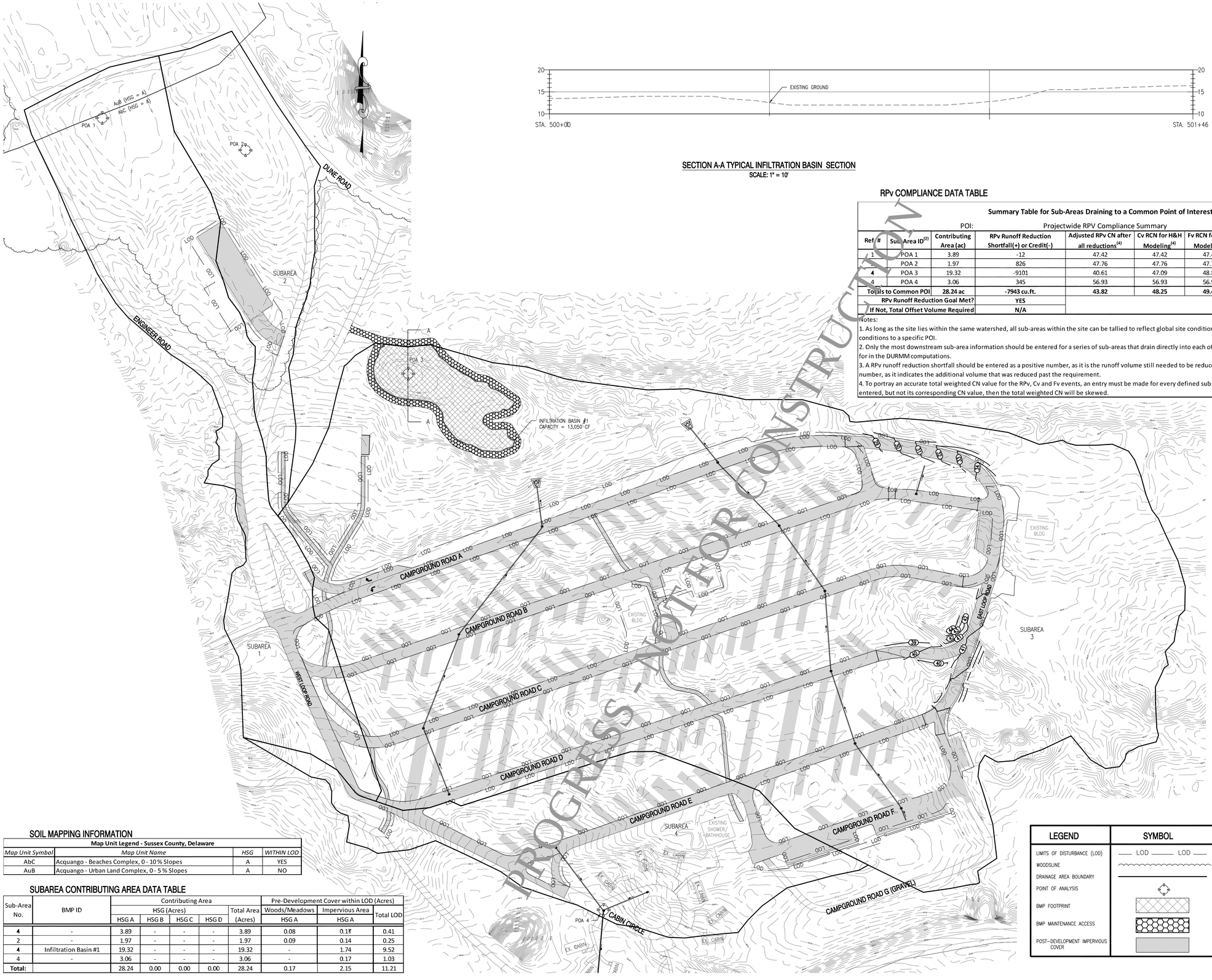
SEDIMENT AND STORMWATER MANAGEMENT PLANS
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN - FACILITY #1

SEAL:

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

CEI NO.: 125002.15

DESIGNED BY: MDS
DRAWN BY: MDS
CHECKED BY: AES
DATE: MARCH 2016
SCALE: VARIES
SHEET NO.: SWM1.5
CONTRACT NO.:



SECTION A-A TYPICAL INFILTRATION BASIN SECTION

SCALE: 1" = 10'

RPv COMPLIANCE DATA TABLE

Summary Table for Sub-Areas Draining to a Common Point of Interest (POI)[1]

POI: Projectwide RPV Compliance Summary

Ref. #	Sub. Area ID[2]	Contributing Area (ac)	RPv Runoff Reduction Shortfall(+) or Credit(-)	Adjusted RPv CN after all reductions[4]	Cv RCN for H&H Modeling[4]	Fv RCN for H&H Modeling[4]	TN Pollutant Load (lb/yr)	TP Pollutant Load (lb/yr)	TSS Pollutant Load (lb/yr)
1	POA 1	3.89	-12	47.42	47.42	47.42	5.18	0.70	155.39
2	POA 2	1.97	826	47.76	47.76	47.76	2.69	0.36	80.69
4	POA 3	19.32	-9101	40.61	47.09	48.82	14.95	2.02	448.62
4	POA 4	3.06	345	56.93	56.93	56.93	7.73	1.04	231.75
Totals to Common POI		**28.24 ac**	**-7943 cu.ft.**	**43.82**	**48.25**	**49.43**	**30.55 lb/yr**	**4.12 lb/yr**	**916.45 lb/yr**
RPv Runoff Reduction Goal Met?			**YES**						
If Not, Total Offset Volume Required			**N/A**						

Notes:

1. As long as the site lies within the same watershed, all sub-areas within the site can be tallied to reflect global site conditions; or, the summary table can be used to show conditions to a specific POI.
2. Only the most downstream sub-area information should be entered for a series of sub-areas that drain directly into each other, as the upstream areas will already be accounted for in the DURMM computations.
3. A RPv runoff reduction shortfall should be entered as a positive number, as it is the runoff volume still needed to be reduced. A RPv credit should be entered as a negative number, as it indicates the additional volume that was reduced past the requirement.
4. To portray an accurate total weighted CN value for the RPv, Cv and Fv events, an entry must be made for every defined sub-area. If a sub-area's contributing drainage acreage is entered, but not its corresponding CN value, then the total weighted CN will be skewed.

SOIL MAPPING INFORMATION

Map Unit Legend - Sussex County, Delaware

Map Unit Symbol	*Map Unit Name*	*HSG*	*WITHIN LOD*
AbC	Acquango - Beaches Complex, 0 - 10 % Slopes	A	YES
AuB	Acquango - Urban Land Complex, 0 - 5 % Slopes	A	NO

SUBAREA CONTRIBUTING AREA DATA TABLE

Sub-Area No.	BMP ID	Contributing Area HSG (Acres) HSG A	HSG B	HSG C	HSG D	Total Area (Acres)	Pre-Development Cover within LOD (Acres) Woods/Meadows HSG A	Impervious Area HSG A	Total LOD
4	-	3.89	-	-	-	3.89	0.08	0.18	0.41
2	-	1.97	-	-	-	1.97	0.09	0.14	0.25
4	Infiltration Basin #1	19.32	-	-	-	19.32	-	1.74	9.52
4	-	3.06	-	-	-	3.06	-	0.17	1.03
Total:		28.24	0.00	0.00	0.00	28.24	0.17	2.15	11.21

LEGEND	SYMBOL
LIMITS OF DISTURBANCE (LOD)	LOD LOD
WOODSLINE	
DRAINAGE AREA BOUNDARY	
POINT OF ANALYSIS	
BMP FOOTPRINT	
BMP MAINTENANCE ACCESS	
POST-DEVELOPMENT IMPERVIOUS COVER	

0' 70' 140' 210'

SCALE: 1" = 70'

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK CAMPGROUND IMPROVEMENTS

SEDIMENT AND STORMWATER MANAGEMENT PLANS
BMP CONTRIBUTING DRAINAGE AREA PLAN

SEAL:

CIVIL ENGINEER:

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: MDS

DRAWN BY: MDS

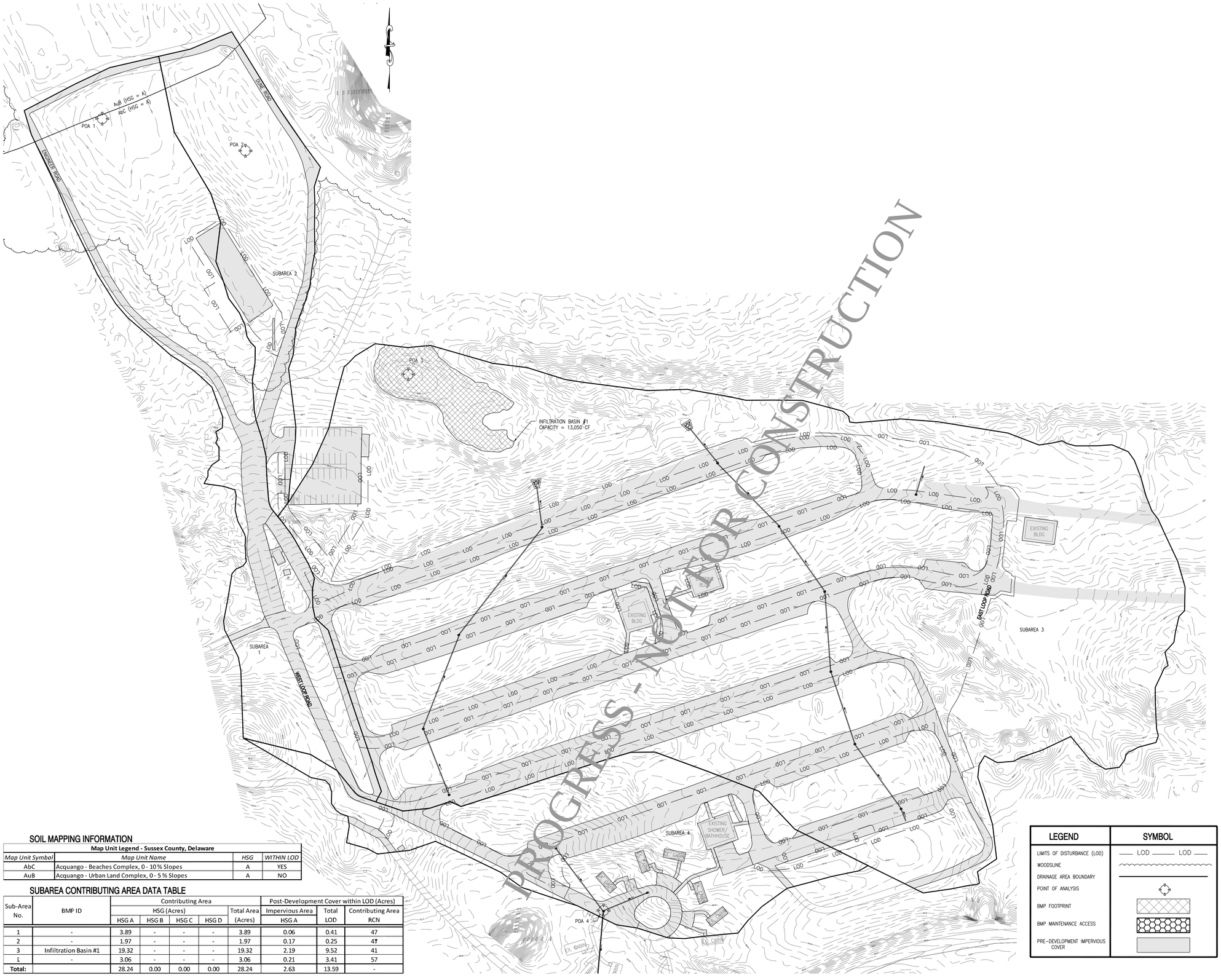
CHECKED BY: AES

DATE: MARCH 2016

SCALE: 1" = 70'

SHEET NO.: SWM1.6

CONTRACT NO.:



SOIL MAPPING INFORMATION

Map Unit Legend - Sussex County, Delaware			
Map Unit Symbol	*Map Unit Name*	*HSG*	*WITHIN LOD*
AbC	Acquango - Beaches Complex, 0 - 10 % Slopes	A	YES
AuB	Acquango - Urban Land Complex, 0 - 5 % Slopes	A	NO

SUBAREA CONTRIBUTING AREA DATA TABLE

Sub-Area No.	BMP ID	Contributing Area					Post-Development Cover within LOD (Acres)		
		HSG (Acres)				Total Area (Acres)	Impervious Area	Total LOD	Contributing Area RCN
		HSG A	HSG B	HSG C	HSG D		HSG A		
1	-	3.89	-	-	-	3.89	0.06	0.41	47
2	-	1.97	-	-	-	1.97	0.17	0.25	41
3	Infiltration Basin #1	19.32	-	-	-	19.32	2.19	9.52	41
4	-	3.06	-	-	-	3.06	0.21	3.41	57
Total:		28.24	0.00	0.00	0.00	28.24	2.63	13.59	-

LEGEND	SYMBOL
LIMITS OF DISTURBANCE (LOD)	LOD LOD
WOODSLINE	
DRAINAGE AREA BOUNDARY	
POINT OF ANALYSIS	
BMP FOOTPRINT	
BMP MAINTENANCE ACCESS	
PRE-DEVELOPMENT IMPERVIOUS COVER	

0' 70' 140' 210'
SCALE: 1" = 70'

REVISIONS:

DATE:	DESCRIPTION:	BY:

CAPE HENLOPEN STATE PARK
CAMPGROUND IMPROVEMENTS

SEDIMENT AND STORMWATER MANAGEMENT PLANS
PRE-DEVELOPED SUBAREA LIMIT OF DISTURBANCE DRAINAGE AREA PLAN

SEAL:

CIVIL ENGINEER:

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

CEI NO.: 125002.15

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: MDS

DRAWN BY: MDS

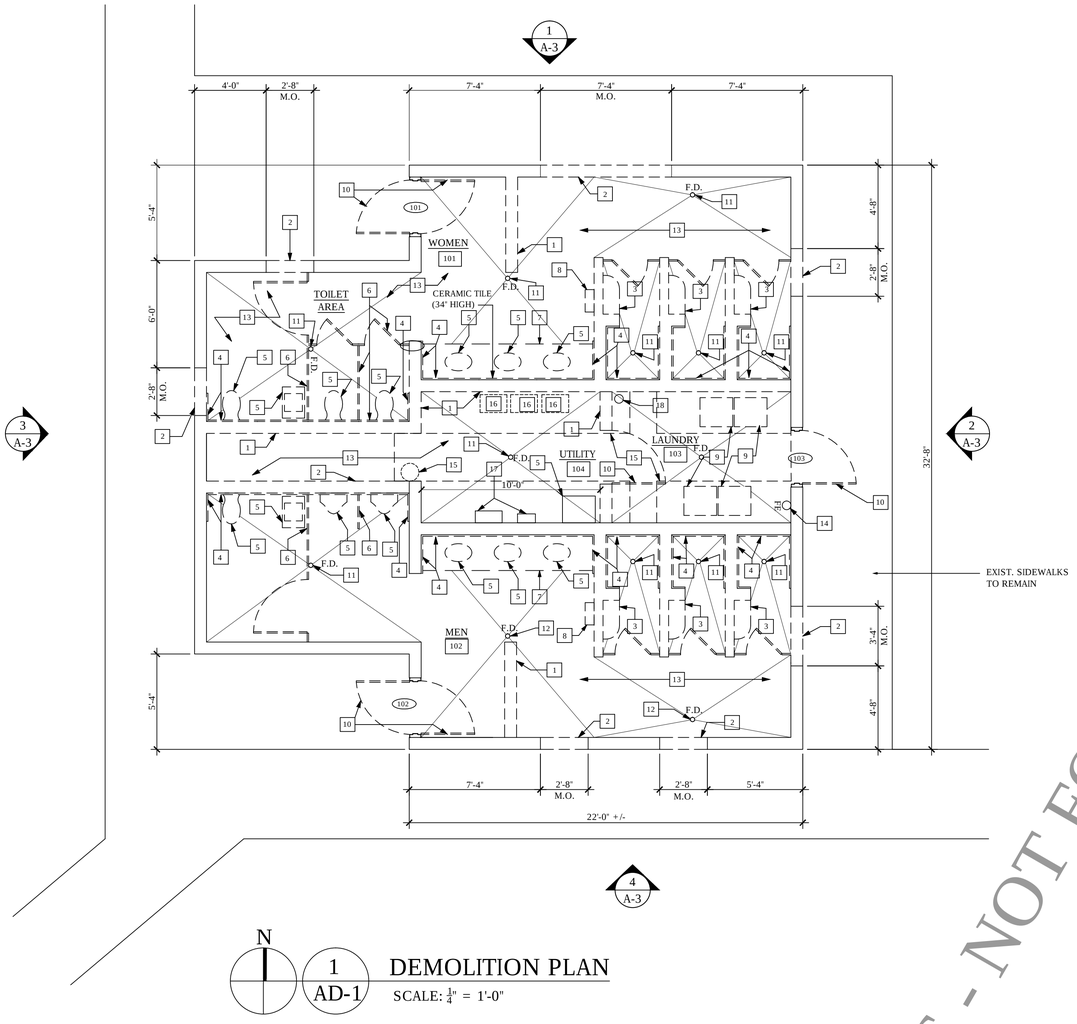
CHECKED BY: AES

DATE: MARCH 2016

SCALE: 1" = 70'

SHEET NO.: SWM1.7

CONTRACT NO.:



N

1 AD-1 DEMOLITION PLAN

SCALE: $\frac{1}{4}$" = 1'-0"

PROGRESS - NOT FOR CONSTRUCTION

DEMOLITION PLAN LEGEND

EXISTING CONSTRUCTION TO BE REMOVED. REFER TO DEMOLITION PLAN FOR ITEMS TO BE SAVED, STORED AND RECONDITIONED FOR REUSE

EXISTING CONSTRUCTION TO REMAIN. PATCH AND REPAIR AS REQUIRED FOR NEW CONSTRUCTION

DEMOLITION NOTES

1. AREAS DESIGNATED BY DASHED LINES SHALL BE REMOVED. CONTRACTOR SHALL VERIFY THESE CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
2. AREAS AND PARTITIONS NOT DASHED OR NOTED TO BE REMOVED SHALL STAY INTACT. REFER TO ARCHITECTURAL FLOOR PLAN FOR MORE INFORMATION. PATCH AND REPAIR ADJACENT AREAS AS REQUIRED AFTER DEMOLITION IN ACCORDANCE WITH RENOVATIONS.
3. PROVIDE INTERIOR AND EXTERIOR SHORING, BRACING, OR OTHER SUPPORT TO PREVENT MOVEMENT, SETTLEMENT OR COLLAPSE OF ELEMENTS TO BE DEMOLISHED AND ADJACENT WORK TO REMAIN.
4. PROVIDE TEMPORARY WEATHER PROTECTION DURING INTERVAL BETWEEN DEMOLITION AND INSTALLATION OF NEW CONSTRUCTION TO ENSURE THAT WATER LEAKAGE DOES NOT DAMAGE THE STRUCTURE.
5. LOCATE AND IDENTIFY EXISTING UTILITIES AND ASCERTAIN THEIR CONDITION TO ENSURE ADEQUATE PERFORMANCE OF ALL UTILITIES IN NEW CONSTRUCTION. PROTECT UTILITY LINES AND DEVICES DURING CONSTRUCTION AND DEMOLITION PHASES.
6. DEMOLISH CONCRETE AND MASONRY IN SMALL SECTIONS. CUT CONCRETE AND MASONRY AT JUNCTURES WITH OTHER ELEMENTS TO REMAIN USING POWER-DRIVEN MASONRY SAW OR HAND TOOLS; DO NOT USE POWER-DRIVEN IMPACT TOOLS.
7. REMOVE FROM BUILDING SITE DEBRIS, TRASH, AND OTHER MATERIALS RESULTING FROM DEMOLITION OPERATIONS. TRANSPORT AND LEGALLY DISPOSE OF OFF SITE.
8. IT IS NOT EXPECTED THAT HAZARDOUS MATERIALS WILL BE ENCOUNTERED IN THE WORK. IF MATERIALS SUSPECTED OF BEING HAZARDOUS ARE ENCOUNTERED, DO NOT DISTURB. IMMEDIATELY NOTIFY ARCHITECT AND OWNER. HAZARDOUS MATERIALS WILL BE REMOVED BY OWNER UNDER SEPARATE CONTRACT.
9. BURNING OF REMOVED MATERIALS IS NOT PERMITTED ON PROJECT SITE.
10. STORE ITEMS TO BE RELOCATED. DO NOT DAMAGE ANY MATERIALS. COORDINATE RELOCATION OF EXISTING MATERIALS WITH DRAWINGS.
11. COORDINATE DEMOLITION WITH BUILDING OWNER AND OTHER TRADES. CONFIRM EXTENT, TIMING, AND ITEMS TO BE SALVAGED BY BUILDING OWNER.

DEMOLITION PLAN KEY NOTES

1. REMOVE CMU WALL FULL HEIGHT.
2. PARTIALLY REMOVE MASONRY WALL FOR NEW OPENING.
3. REMOVE CMU SHOWER COMPARTMENT INCLUDING BENCHES, ACCESSORIES, SHOWERHEAD, PLUMBING, ETC. CAP WATER LINES AT SOURCE.
4. REMOVE CERAMIC WALL TILE.
5. REMOVE PLUMBING FIXTURE CARRIER & WATER LINES. CAP WATER LINES AT SOURCE. CAP SEWER LINE BELOW CONC. FLOOR SLAB. TURN OVER TO OWNER TOILETS AND FLUSH VALVES, URINALS ANDWALL-MOUNTED LAVATORIES.
6. REMOVE TOILET PARTITION AND ALL ACCESSORIES.
7. REMOVE COUNTER TOP AND ALL SUPPORTS.
8. REMOVE HAND DRYER. REMOVE POWER BACK TO SOURCE.
9. EXISTING WASHER AND DRYER TO BE REMOVED BY OTHERS. CONTRACTOR TO REMOVE WATER & POWER CONNECTIONS BACK TO SOURCE. PROVIDE BLANK RECEPTACLE COVERS ON ELEC. BOXES TO REMAIN THAT ARE IN CMU PARTITION.
10. REMOVE DOOR & FRAME.
11. REMOVE FLOOR DRAIN & CAP SEWER PIPE BELOW SLAB.
12. RAISE FLOOR DRAIN AS REQUIRED FOR NEW TOPPING.
13. REMOVE FLOOR SLAB & TILE FINISH.
14. REMOVE & REINSTALL EXISTING FIRE EXTINGUISHER.
15. REMOVE ABANDONED EXHAUST SYST. PATCH ROOF WITH $\frac{5}{8}$" EXT. PLYWOOD & ASPHALT SHINGLES TO MATCH.
16. REMOVE THREE INSTANTANEOUS WATER HEATERS. RELOCATE AND REINSTALL ONE. HAND OVER REMAINING TWO TO OWNER.
17. EXISTING ELECTRICAL PANELS TO REMAIN.
18. EXISTING STACK TO REMAIN.

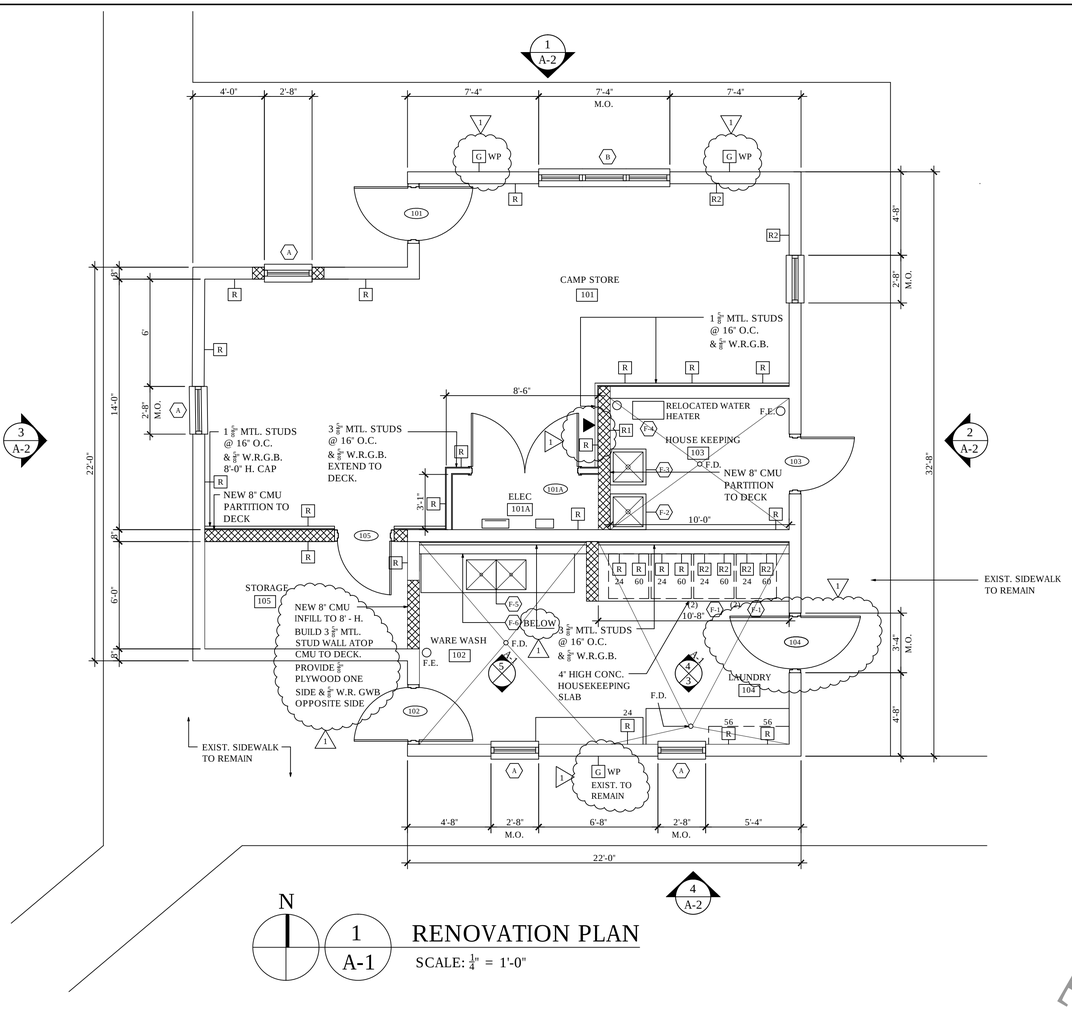
DATE:	DESCRIPTION:	BY:

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

BATHHOUSE DEMOLITION PLAN - ALTERNATE BID

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

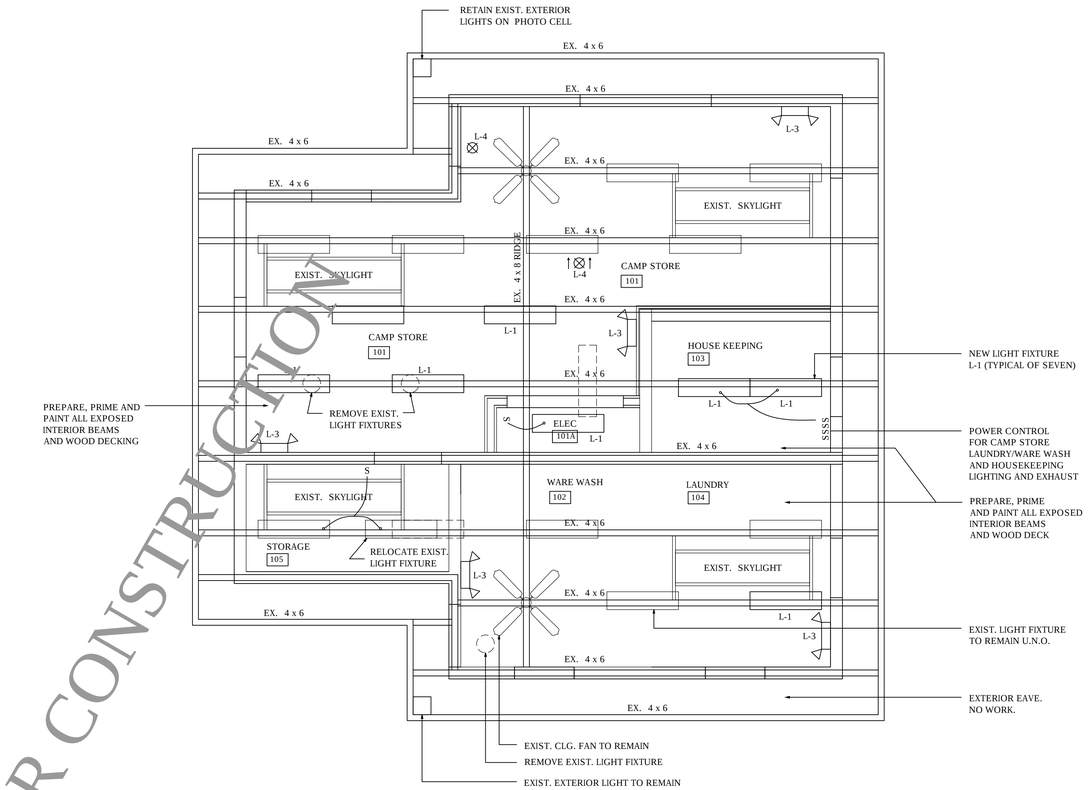
DESIGNED BY: O.D.D.
DRAWN BY: O.D.D.
BUILDING NO.: N/A
DATE: 04\26\2016
SCALE: AS NOTED
SHEET NO.: AD-1
PARKS PROJECT #: CH-44
CONTRACT #: 2015-CH-300



N

1 / A-1 RENOVATION PLAN

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



N

2 / A-1 REFLECTED CEILING PLAN

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

PROGRESS - NOT FOR CONSTRUCTION

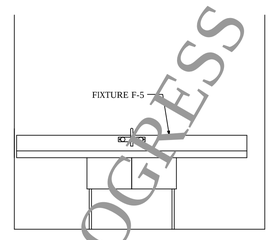
ARCHITECTURAL PLAN LEGEND

EXISTING CONSTRUCTION TO REMAIN

NEW CONSTRUCTION

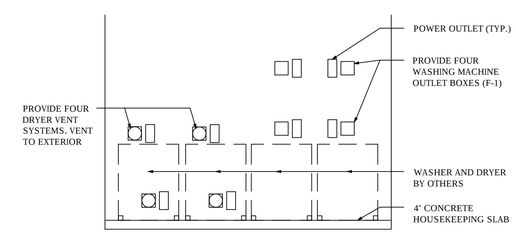
ARCHITECTURAL PLAN NOTES

1. REFER TO DEMOLITION PLAN FOR MORE INFORMATION REGARDING EXISTING CONDITIONS.
2. REFER TO REFLECTED CEILING PLAN FOR EXTENTS OF NEW AND EXISTING CEILING.
3. UNLESS NOTED OTHERWISE, DIMENSIONS ARE FROM FACE OF MASONRY TO FACE OF MASONRY OR TO FACE OF STUD.
4. REMOVE SITE DEBRIS, TRASH, AND OTHER MATERIALS RESULTING FROM CONSTRUCTION OPERATIONS DAILY FROM BUILDING. TRANSPORT AND LEGALLY DISPOSE OF MATERIALS OFF-SITE.
5. BURNING OF WASTE MATERIALS IS NOT PERMITTED ON PROJECT SITE.
6. COORDINATE RELOCATION OF EXISTING MATERIALS WITH DRAWINGS.
7. ALL ROOMS W/ THE EXCEPTION OF HOUSEKEEPING 103 ARE TO HAVE FLOOR DRAINS RAISED & 1/4" (MEASURED AT ENTRANCE DOORS) SELF LEVELING GROUT APPLIED. OVER EXISTING QUARRY TILE. ROOMS 102 AND 104 ARE TO SLOPE TO DRAINS.



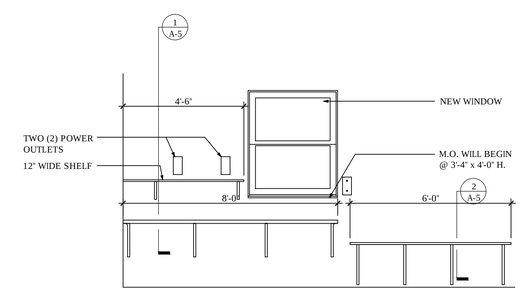
5 / A-1 ROOM 102 ELEVATION

SCALE: 3/8" = 1'-0"



4 / A-1 ROOM 104 ELEVATION (W/D)

SCALE: 3/8" = 1'-0"



3 / A-1 ROOM 104 ELEVATION

SCALE: 3/8" = 1'-0"

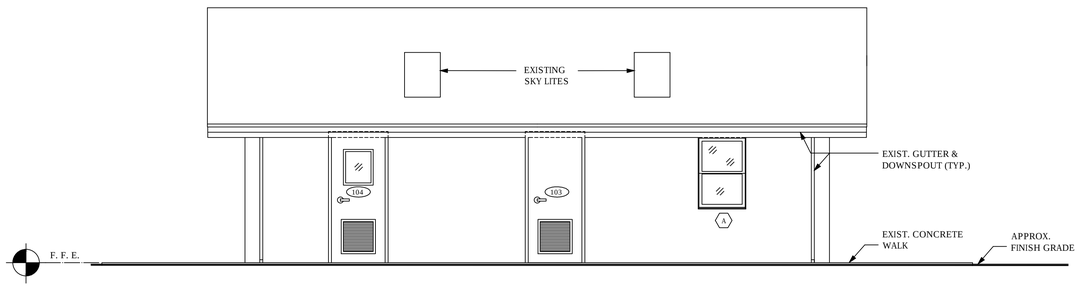
DATE: 02\04\2016 DESCRIPTION: REVISION 1 BY:

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

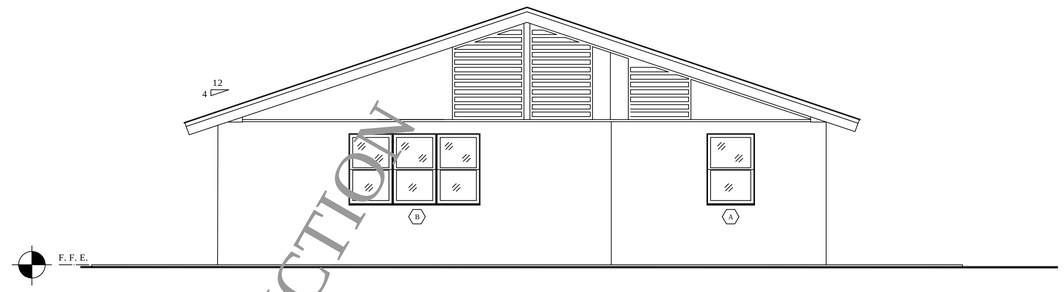
BATHHOUSE RENOVATION PLAN, REFLECTED PLAN AND ROOM ELEVATIONS - ALTERNATE BID

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY:	O.D.D.
DRAWN BY:	O.D.D.
BUILDING NO.:	N/A
DATE:	04\26\2016
SCALE:	AS NOTED
SHEET NO.:	A-1
PARKS PROJECT #:	CH-44
CONTRACT #:	2015-CH-300



2
A-2
EAST ELEVATION
SCALE: $\frac{1}{4}$" = 1'-0"



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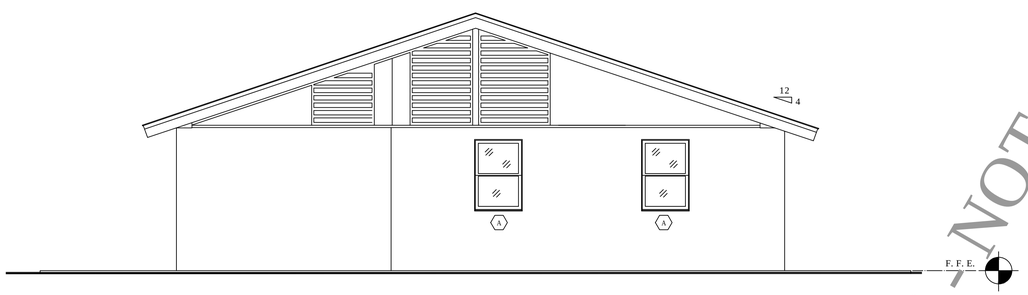
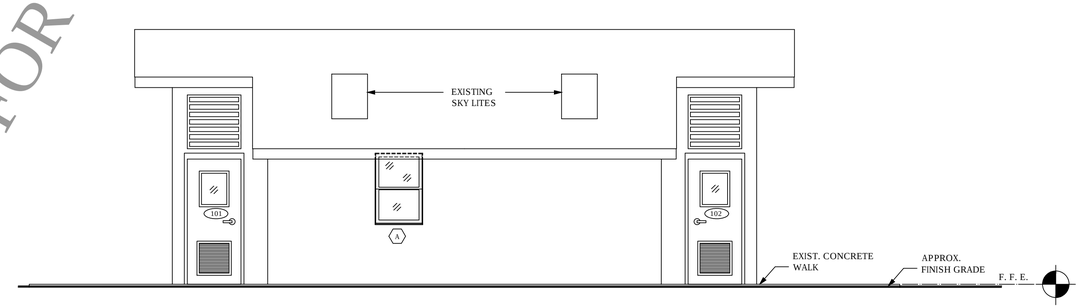
A-2
NORTH ELEVATION
SCALE: $\frac{1}{4}$" = 1'-0"



4
A-2
SOUTH ELEVATION
SCALE: $\frac{1}{4}$" = 1'-0"



3
A-2
WEST ELEVATION
SCALE: $\frac{1}{4}$" = 1'-0"

PROGRESS - NOT FOR CONSTRUCTION

DATE:	DESCRIPTION:	BY:

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

LAUNDRY AND CAMP STORE ELEVATIONS - ALTERNATE BID

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: O.D.D.
DRAWN BY: O.D.D.
BUILDING NO.: N/A
DATE: 04/26/2016
SCALE: AS NOTED
SHEET NO.: A-2
PARKS PROJECT #: CH-44
CONTRACT #: 2015-CH-300

ROOM FINISH SCHEDULE

	ROOM NUMBER	ROOM NAME	FLOOR			BASE		WALLS		CEILING			CEILING HEIGHT	Remarks
			Concrete w/ Sealer	Entrance Mat	Carpet	NONE	Wood w/ Shoe Mold Match Existing	Paint over Existing Paint	Primer and two Top Coats over New Substrate	Paint Existing Wood Deck and Exposed Structure	Existing GWB - Paint	Existing No Work		
BATHHOUSE	101	CAMP STORE	●			●		●	●	●			VARIES	
	101A	ELECTRIC	●			●		●	●	●			VARIES	
	102	WARE WASH	●			●		●	●	●			VARIES	
	103	HOUSE KEEPING	●			●		●		●			VARIES	
	104	LAUNDRY	●			●		●	●	●			VARIES	
	105	STORAGE	●			●		●		●			VARIES	

NOTES:

1. CONCRETE SEALER: SHERWIN WILLIAMS ARMORSEAL 8100 WATER BASED EPOXY PRIMER AND TOPCOAT OR EQUAL.
2. ENTRANCE MAT: PATCRAFT COMMERCIAL CARPET, COLLECTION BEYOND THE DOOR, PATTERN PRADO TILE #10317. COLOR TO BE DETERMINED.
3. CARPET: SHAW CONTRACT GROUP; COLLECTION, LIGHT SERIES; STYLE: VIBRANT TILE #5T001; COLOR AURORA #01322

DOOR SCHEDULE

	DOOR No.	ROOM NAME	DOOR SIZE W	DOOR SIZE H	DOOR SIZE THK	DOOR TYPE	DOOR MATL	DOOR FINISH	FRAME TYPE	FRAME MATL	FRAME FINISH	FRAME HEAD	FRAME JAMB	FRAME SILL	FIRE RATING	HARDWARE DEVICES / SETS	HARDWARE FINISH	Remarks
BATHHOUSE	101	CAMP STORE	3'-0"	7'-0"	1-3/4"	B	FG	PAINT	1	FG	PAINT	1	1	ALUM	0	BB, WS, KP, DB, DH, PP TH	630	
	101	CAMP STORE	3'-0"	7'-0"	1-1/4"	A	WD	PAINT				1	1		0	SH, PP, DH	630	
	101A	ELECTRIC	3'-0"	7'-0"	1-3/4"	B	FG	PAINT	1	FG	PAINT	2	2		0	BB, KP, (2), FB, LSC	630	
	102	WARE WASH	3'-0"	7'-0"	1-3/4"	B	FG	PAINT	1	FG	PAINT	1	1	ALUM	0	BB, WS, KP, DB, DH, PP TH	630	
	102	WARE WASH	3'-0"	7'-0"	1-1/4"	A	WD	PAINT				1	1		0	SH, PP, DH	630	
	103	HOUSE KEEPING	3'-0"	7'-0"	1-3/4"	C	FG	PAINT	1	FG	PAINT	1	1	ALUM	0	BB, KP (2), LSC, TH	630	
	104	LAUNDRY	3'-0"	7'-0"	1-3/4"	B	FG	PAINT	1	FG	PAINT	1	1	ALUM	0	BB, WS, KP, DB, DH, PP TH	630	
	104	LAUNDRY	3'-0"	7'-0"	1-1/4"	A	WD	PAINT				1	1		0	SH, PP, DH	630	
	105	STORAGE	3'-0"	7'-0"	1-3/4"	B	FG	PAINT	1	FG	PAINT	1	1		0	BB, KP (2), LSC	630	

DOOR AND FRAME MATERIALS

AL ALUMINUM
EMB EMBOSSED HARD BOARD FACE
FG FIBERGLASS
GL GLASS
GALV GALVANIZED
HM HOLLOW METAL
LAM PLASTIC LAMINATE
IN INSULATED
SG SAFETY GLASS (TEMPERED OR LAMINATED SAFETY GLASS)
SS 18 GAUGE STAINLESS STEEL
STL STEEL
WD WOOD
WD/HC WOOD HOLLOW CORE
WD/SC WOOD SOLID CORE
WG WIRE GLASS

HARDWARE DEVICES

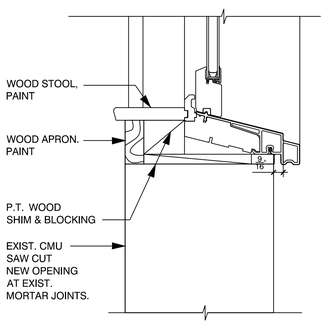
AST ASTRAGAL
BB 1 1/2 PAIR BUTT HINGES PER LEAF FOR DOORS 7'-0" HIGH; 2 FOR DOORS OVER 7'-0" HIGH
BDH BARN DOOR HARDWARE
CL CLOSER
DB DEAD BOLT W/ KEY EACH SIDE
DH DOOR HOLDER
DL DUMMY LEVER
ES ELECTRIC STRIKE
FB FLUSH BOLT
FS FLOOR STOP
HPS HINGE PIN DOOR STOP
KP KICK PLATE
LSC LOCK SET, CLASSROOM (F84)
LSE LOCK SET, ENTRANCE (F81)
LSP LOCK SET, PRIVACY (F76)
LTC LATCH SET (F75)
PP PUSH PULL
SB SLIDE BOLT
SH SPRING HINGES
SIL SILENCERS
SW SWEEP
TH THRESHOLD
WS WEATHER STRIPPING
WST WALL STOP
XR EXIT DEVICE, RIM TYPE
XVE EXIT DEVICE, VERTICAL ROD, EXPOSED
XVC EXIT DEVICE, VERTICAL ROD, CONCEALED

NOTES:

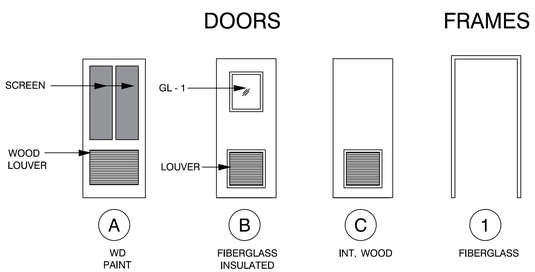
1. UNLESS NOTED OTHERWISE, LOCATE FINISH OPENING 6" FROM ADJACENT WALL
2. "MFR STD" DENOTES MANUFACTURER STANDARD
3. PROVIDE WOOD BLOCKING TO MOUNT ALL WALL STOPS
4. UNLESS NOTED OTHERWISE, ALL INTERIOR GLAZING SHALL BE 1/4" SAFETY GLASS
5. ALL LOCKSETS & LATCHSETS SHALL BE LEVER TYPE TO MEET ADAAG
6. F-NUMBERS REFER TO FUNCTIONS OF BHMA SERIES 4000 BORED LOCKS
7. ALL LOCKSETS & DEAD BOLTS ARE TO HAVE REMOVABLE CORES. FINAL CORES BY OWNER

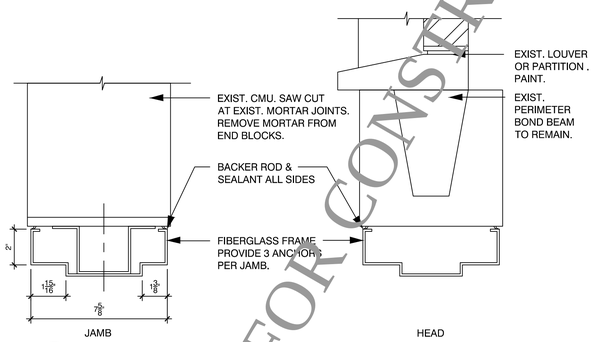
HARDWARE MATERIALS AND FINISHES (BHMA)

#600 PRIMED FOR PAINTING
#605 BRIGHT BRASS
#612 SATIN BRONZE
#613 DARK SATIN BRONZE, OIL RUBBED
#625 BRIGHT CHROMIUM PLATED
#626 SATIN CHROME PLATED ON BRASS
#628 SATIN ALUMINUM, CLEAR ANODIZED
#630 SATIN STAINLESS STEEL
#632 BRIGHT BRASS PLATED ON STEEL (FOR FIRE RATED HINGES)
#652 SATIN CHROME, PLATED ON STEEL (FOR FIRE RATED HINGES)

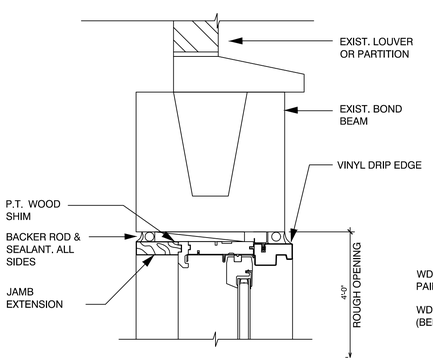


5 / A-3 WINDOW SILL
SCALE: 3" = 1'-0"

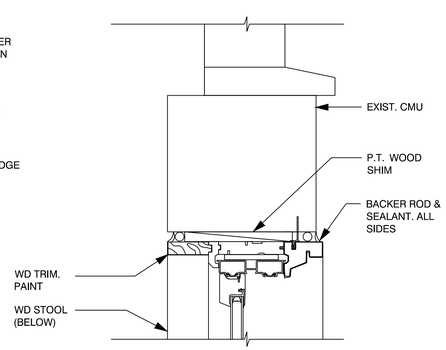




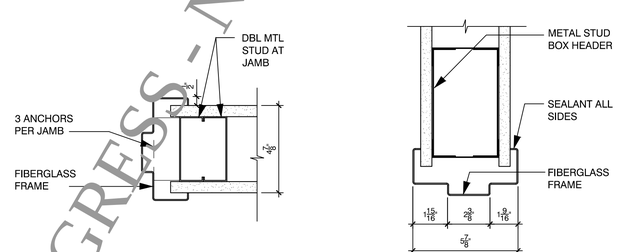
1 / A-3 FG DOOR FRAME DET. - MASONRY
SCALE: 3" = 1'-0"



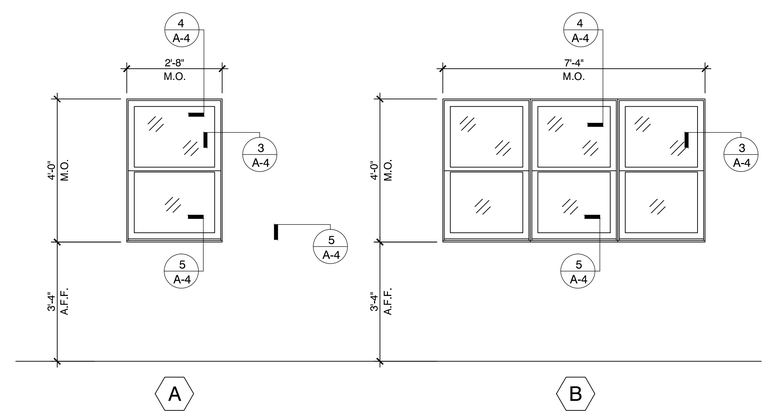
4 / A-3 WINDOW HEAD
SCALE: 3" = 1'-0"



3 / A-3 WINDOW JAMB
SCALE: 3" = 1'-0"



2 / A-3 FG DOOR FRAME DET. - STUD
SCALE: 3" = 1'-0"



6 / A-3 WINDOW ELEVATIONS
SCALE: 1/2" = 1'-0"

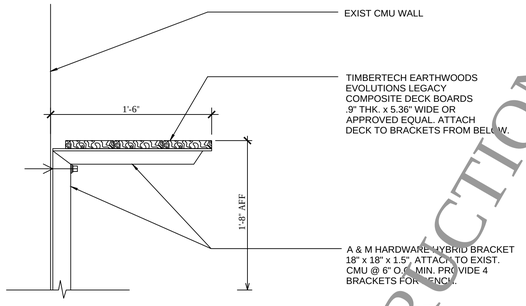
PROGRESS - NOT FOR CONSTRUCTION

DATE: DESCRIPTION: BY:

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

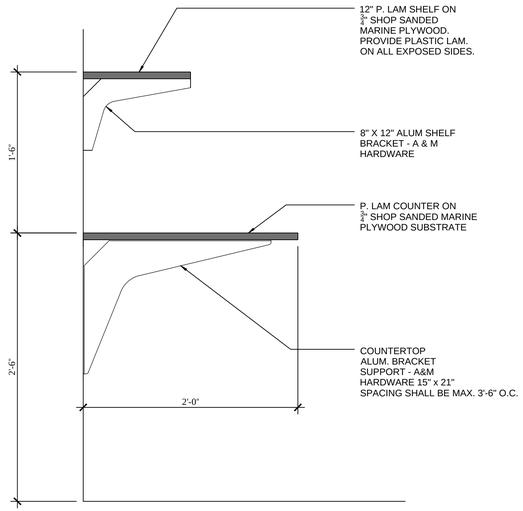
DOOR & FINISH SCHEDULES
AND DOOR DETAILS - ALTERNATE BID

DESIGNED BY: O.D.D.
DRAWN BY: O.D.D.
BUILDING NO.: N/A
DATE: 04\26\2016
SCALE: AS NOTED
SHEET NO.: A-3
PARKS PROJECT #: CH-44
CONTRACT #: 2015-CH-300



2 / A-4 BENCH SECTION

SCALE: 1-1/2" = 1'-0"



1 / A-4 COUNTERTOP SECTION - LAUNDRY FOLDING

SCALE: 1-1/2"= 1'-0"

PROGRESS - NOT FOR CONSTRUCTION

DATE:	DESCRIPTION:	BY:
02\04\2016	REVISION 1	

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

DETAILS

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: O.D.D.

DRAWN BY: O.D.D.

BUILDING NO.: N/A

DATE: 04/26/2016

SCALE: AS NOTED

SHEET NO.: A-4

PARKS PROJECT #: CH-44

CONTRACT #: 2015-CH-300

GENERAL PLUMBING NOTES

1. Plumbing plans are schematic representation of what is intent of the plumbing systems only. All work shall be done in accordance with the relevant plumbing code and in good installation practice. The plumbing contractor is responsible to make sure that they are completely aware of the local code, the requirements on these plans and the owners recommendations prior to submitting bids. There will be no additional compensation made for lack of knowledge of any requirements after the contracts have been awarded.
2. Contractor is responsible for safety including all necessary barricades, signs, fire extinguishers, etc. All applicable OSHA regulations shall apply to this work.
3. All work shall conform to the international mechanical code, international plumbing code and all local codes.
4. Contractor to supply all hangers, nuts, bolts, and gaskets.
5. Contractor shall field verify all existing conditions before beginning new work.
6. Provide all labor, material, equipment, incidentals, methods and services required to install all work indicated completely and in full operation.
7. Prior to acceptance of the project, all systems shall be tested, balanced and operated to demonstrate to the owner or his designated representative that the installation and performance of these systems and/or parts thereof conform to design intent.
8. Contractor shall submit shop drawings for all new equipment, materials, sheet metal layout and controls.
9. Upon completion of the contract the contractor shall provide the owner with (3) complete sets of manufacturers' operating, maintenance and preventive maintenance instructions (in bound book form) including parts lists and complete procurement information including equipment numbers and descriptions. Operating staff persons shall be instructed in proper operating and service requirements of the systems and equipment.
10. Each contractor shall review "all" project documents of "all" trades reviewing all of the project requirements prior to bidding. Discrepancies between documents shall be reported at the time of bid.
11. Verify all field conditions, access ways, dimensions and details in the field prior to bid and prior to fabrication. Include in bid all work necessary to cover costs resulting from field conditions.
12. All work shall be in conformance with all applicable laws, codes and regulations adopted by municipal, county, state and federal authorities, utility companies, insurance agencies and other authorities having jurisdiction over the work.
13. The contractor shall apply for, secure and pay for all permits and/or certificates of inspection required in the performance of the work by all authorities having jurisdiction.
14. The contractor shall guarantee the entire installation for period of one year except where extensions of this one year period are noted from the date of acceptance of the system as a whole. Any defects in workmanship, materials, malfunction of equipment or unsatisfactory performance and all other work or parts of the building damaged thereby, shall be repaired, replaced or otherwise remedied without expense to the owner. Such repairs or replacements shall be made in a timely manner and at the convenience of the owner.
15. All work shall be scheduled and coordinated with the owner so that disruption to the areas involved is kept to a minimum. Contractor shall give owner a minimum of 10 working days notice of any and all work that will interfere with the owner's operation so a schedule suitable to the owner can be arranged. Any accidental interruptions to services shall be repaired immediately by the contractor without additional cost to the owner.
16. In addition to specifics as may be defined hereinafter the contractor shall protect the work site and all his work against damage from any source (including but not limited to water, dust, heat, freezing etc.) until final completion and acceptance by the owner.
17. Contractor shall upon completion of the work submit a set of record drawings showing all changes from the contract drawing made in the installation and showing dimensioned locations of buried or concealed equipment or parts of the work.
18. Prior to delivery of materials to the site contractor shall provide material safety data sheets for all items and materials used in the work.
19. All equipment shall have its manufacturer's nameplate securely attached giving design and operating characteristics. Name plates shall not be covered or obstructed from view. Electrical panel schedules shall be provided and/or where existing they shall be amended to reflect the new work. Piping and conduit systems shall be labeled and valves shall be tagged.
20. All work shall be performed in compliance with current environmental regulations.
21. Unless otherwise noted, all parts, equipment and materials shall be new and shall be ASME and/or UL approved.
22. Contractor shall complete all cutting and patching required for the installation of the work. Cutting and patching shall be completed in a neat and workmanlike manner. Patching materials shall match existing materials to the greatest extent possible. provide touch-up paint to match existing surrounding areas of cutting and patching work.
23. Upon completion of all construction work, all piping systems shall be cleaned by the installing contractor using appropriate chemicals. The cleaning work shall be deemed completed only when agreed upon by a representative of the owner.

GENERAL PLUMBING SPECIFICATIONS

1. All plumbing shall comply with the 2012 edition of the International Plumbing Code.
2. Work shall be performed by mechanics skilled in particular trade involved. That is, plumbing work shall be performed by plumbers, electrical work shall be performed by electricians, mechanical work performed by sheet metal mechanics.
3. All work shall be inspected, tested and approved by the proper authorities having jurisdiction. Certified copies of these approvals shall be delivered to the owner before final payment.
4. Escutcheon plates shall be provided on all pipe which pass through wall partitions, floors or ceilings. Plates shall be one piece, chrome finished bronze.
5. Dielectric coupling shall be used where dissimilar metals are joined.
6. Core drilling shall be accomplished by mechanical means in a manner that will not affect the integrity of the structure. After installation of piping thru the core drill, pack the annular space with oakum or fibrous glass, leaving a minimum of two inches at each end to be filled and finished with sealant.
7. If conflict arises between items shown on drawings and items specified, the most stringent item shall be used.
8. The installation of all insulation shall be performed by an experienced craftsman in a neat workman-like manner and shall be in accordance with the manufacturer's published recommendations for service intended.
9. All new plumbing fixtures shall meet the appropriate ANSI standards listed in the plumbing subcode. Use of substandard and non-conforming foreign made products is prohibited.
10. If leaks occur during system testing, repairs shall be made and system retested until no evidence of leaks exist for the duration of the test.
11. All plumbing systems and valves shall be labeled for proper identification. Name plates, metal tags, plastic pipe markers in accordance with Seton Name Plate Corp.
12. provide insulation or ADA compliant barriers on undercounter plumbing in accordance with ADA requirements.
13. Handicapped fixture heights shall be in accordance with CABO/ANSI A-117.1.
14. Plumbing fixtures shall be as scheduled. Equivalent as listed are acceptable. Where manufacturer's product line permits, all fixtures shall be from a single manufacturer. All plumbing fixtures shall be provided with shutoff valves.
15. All plumbing fixtures shall be provided with chrome-plated shut off valves (angle stops, chrome plated supplies and p-traps).

CONTINUITY OF EXIST. SYSTEMS AND SERVICES

1. All work shall be performed at such time and in such manner as will least interfere with maintenance and operation of owner's activities. Provisions shall be made to permit owner's use of all the building and of existing systems at all times. Provide temporary facilities to secure these conditions. Remove temporary facilities when permanent work has been placed into service.
2. Fully coordinate with owner and all other tirades, all work involving shut-down and interruption of existing systems and service. Ten (10) business days notice must be given to the owner before any required utility shut-down.
3. Existing systems and services that are temporarily disconnected, but are to remain in use, shall be permanently reconnected and returned to proper operation.
4. Fully coordinate with owner and other trades to insure complete continuity of all systems and services.

FIXTURE SCHEDULE

SYMBOL	MANUFACTURER	MODEL NO.	FAUCET	HW	CW	WASTE	VENT	NOTES
F-1	OATEY WASHING MACHINE OUTLET BOX	38529	-	$\frac{1}{2}$"	$\frac{1}{2}$"	2"	2"	PROVIDE WATER ARRESTER. AVAILABLE AT LOWES. EQUAL SUBSTITUTIONS ACCEPTABLE.
F-2	FIAT PRODUCTS MOLDED STONE	MSB-2424	WOLVERINE BRASS MODEL 93363	$\frac{1}{2}$"	$\frac{1}{2}$"	3"	2"	24" x 24", 10" DEEP ONE-PIECE MOLDED STONE MOP SERVICES BASIN WITH STAINLESS-STEEL BUMPER AND WALL GUARDS. 8" WALL MOUNTED SERVICE SINK FAUCET. FAUCET SHALL HAVE VACUUM BREAKER, 6" SPOUT W/ PAIL HOOK, WALL BRACKET AND $\frac{3}{4}$" HOSE OUTLET. FAUCET SHALL BE SOLID BRASS BODY, ROUGH CHROME FINISH WITH SOLID BRASS HANDLES.
F-3	FLORESTONE COMPOSITE SINK	FM (RM54193)	MOEN 74998	$\frac{1}{2}$"	$\frac{1}{2}$"	3"	2"	EQUAL SUBSTITUTIONS ACCEPTABLE.
F-4	EXIST. TANKLESS WATER HEATER	-	-	$\frac{3}{4}$"	$\frac{3}{4}$"	-	-	RELOCATE EXIST. WATER HEATER. CONNECT TO F-1, F-2, F-3 AND F-5.
F-5	GLOBAL INDUSTRIES	WCB 198540	EAGLE GROUP DECK MOUNT 8" SPOUT WRIST HANDLES 301248	$\frac{1}{2}$"	$\frac{1}{2}$"	2"	2"	TWO BOWL ECONOMY S.S. NSF SINK WITH TWO 30" WIDE DRAINBOARDS. THE TWO BOWLS ARE 20" x 20" x 14" DEEP. 18 GAUGE S.S.
F-6	HOSE BIB JAY R. SMITH MFG. CO.	55090T	-	$\frac{1}{2}$"	-	-	-	PROVIDE WITH QUARTER TURN ACTIVATION, NON FREEZE & VACUUM BREAKER & S.S. LOCKABLE BOX.

DOMESTIC WATER SPECIFICATIONS

1. Domestic water pipe for above ground use shall be ASTM B88 "Type "K" seamless copper tube with solder joint fittings using 95-5 solder per ASTM B32. All water distribution piping shall be water rated for not less than 100 psi @ 190-degree F. Dielectric coupling shall be used where dissimilar metals are joined. Piping materials for use on domestic water systems including fixtures & valves shall not contain more than 8 percent lead.
2. All hot and cold water piping shall be IJ-inch minimum.
3. Prior to disinfection, potable water piping shall be flushed with water until no dirty water appears at the points of outlets.
4. Potable water piping shall be disinfected prior to use per national standard plumbing code. The piping shall be filled with a water chlorine solution containing at least 50 parts per million of chlorine and shall be valved off for 24 hours or filled with a water chlorine solution containing at least 200 parts per million of chlorine and allowed to stand for at least 3 hours. Following the allowed standing time, the system shall be flushed with potable water until no chlorine remains in the system. Provide results of disinfection to owner when complete.
5. Domestic water pipe shall consist of a hydrostatic pressure test of 25 psig above the working pressure under which it is operated for not less than 60 minutes.
6. If leaks occur during testing, repairs shall be made and system retested until no evidence of leaks exist for the duration of the test.
7. Domestic water pipe shall be insulated with 1" thick fiberglass preformed insulation with vapor jacket and self-sealing tape, equal to Owens-Corning ASJ/SSL-2. Cover insulation with white PVC sealed jacket system.
8. Ball valves shall be equal to Conbraco Apollo series 82-100 or 82-200 rated for 150 psig w.o.g. or equal.
9. Approved water hammer arresters shall be installed on water distribution systems where quick closing valves are installed. Water hammer arresters shall be placed as close as possible to the quick closing valve or at the end of long piping runs. Arresters shall be accessible for replacement.
10. Provide not less then 1 IJ-inch insulation to piping subject to freezing area.

SANITARY WASTE SPECIFICATIONS

1. Sanitary waste and vent pipe & fittings shall be service weight hubless cast iron ASTM A-888, with hubless coupling gaskets in accordance with ASTM C564 & CISPL-301 for above ground and hub and spigot pipe & fittings ASTM A-74, with compression type gaskets per ASTM C-564 for below slab.
2. Sanitary waste & vent pipe shall be air tested to not less than 5 psig pressure in the system. Piping system shall sustain a constant pressure for no less than 15 minutes.
3. Drainage specialties (clean outs and floor drains) shall be from a single manufacturer as noted in the plumbing fixture schedule or approved equal. Contractor shall coordinate top shape for floor drains and clean outs with final floor finishes. In general, provide square tops in tile floors, and round tops in other areas.
4. Horizontal drain piping shall be installed at uniform slope not less than 1/4" per foot for 3" and smaller and not less than 1/8" per foot for 4" and larger. Lesser slope may be permitted as approved by local administrative authority.
5. All new floor drains shall have deep seal traps, except where noted.
6. In the removal of any part of a drainage system, dead ends shall be avoided except where necessary to extend to a cleanout so as to be accessible.
7. Provide all necessary temporary or permanent caps or plugs for piping. Do not leave piping open ended.
8. All excavation shall be performed in strict compliance with OSHA occupational safety and health association regulations.

HANGERS & SUPPORTS

1. Hangers and anchors shall be securely attached to building construction at sufficiently close intervals to support piping and its contents.
2. In the removal of any part of a drainage system, dead ends shall be avoided except where necessary to extend to a cleanout so as to be accessible.

   A. Vertical piping for cast iron shall be supported at base and at each story height.
   B. Vertical piping for copper shall be supported at each story height but not more than 10 foot intervals.
   C. Horizontal piping for cast iron shall be supported with minimum one hanger located within 18" of each joint, at changes in direction, and at each branch connection. Where pipe is suspended by non-rigid hangers more than 18" long provide lateral support.
   D. Horizontal piping for copper shall be supported at 6 foot intervals for pipe sizes 1-1/4" and smaller and at 10 foot intervals for pipe sizes 1-1/2" and larger.
   E. All supports coming in contact with copper piping shall be plastic coated.
   F. Install metal shields on hangers supporting insulated pipe.
   G. Provide hangers that are u.l. listed and labeled. All domestic water, storm & sanitary waste pipe supports shall be in accordance with the 2012 IPC.

PROGRESS SET FOR CONSTRUCTION

DATE:	DESCRIPTION:	BY:

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

PLUMBING SCHEDULE, NOTES & SPECIFICATIONS

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: O.D.D.
DRAWN BY: O.D.D.
BUILDING NO.: N/A
DATE: 04/26/2016
SCALE: AS NOTED
SHEET NO.: PA-1
PARKS PROJECT #: CH-44
CONTRACT #: 2015-CH-300

ELECTRICAL GENERAL NOTES

1. The contract documents are schematic. The electrical contractor is to provide a fully functional power and lighting system for existing devices and fixtures.
2. The contractor is to provide all labor and material required for a complete installation that is fully warranted by the product manufacturer. Any details or work required, but not shown or specified are to be provided in accordance with the products manufacturer's recommendations and/or requirements at no additional cost to the owner.
3. Contractor shall keep work area clean and orderly.
4. The contractor is responsible for site safety and shall follow safety rules and conditions for contractors.
5. The electrical contractor is responsible for providing temporary lighting adequate in all areas of construction providing a coverage of .25 watts per square foot. Temporary lights shall be of the OSHA approved type.
6. All penetrations of roof and exterior walls shall be weathertight.
7. All electrical work to be done in a safe and orderly manner and in accordance with all state fire regulations, local codes and nec. Contractor shall arrange for all work to be inspected in accordance with Delaware State Law.
8. Contractor shall provide catalog cut sheet submittals for all equipment and materials under contractors scope of supply, submit with approval stamp affixed.
9. All electrical material and equipment shall be new, UL listed and bear the UL label. The exception is the existing electrical panels which shall remain.
10. All electrical material and equipment shall be as specified or approved equal.
11. All work shall comply with the latest edition of the National Electric Code (NEC) and all local codes.
12. The electrical contractor shall furnish and install all incidental accessories necessary to make the electrical work complete and ready for operation.
13. Conduit types shall be as follows, unless otherwise specified on the drawings:
    - A. Schedule 40 pvc - all underground conduit. Underground conduit shall transition to RGS conduit 1 '-0" (min.) prior to surfacing above ground.
    - B. Rigid Galvanized Steel (RGS) - all above ground outdoor conduit, and all indoor conduit subject to damage.
    - C. Electrical Metallic Tubing (EMT) - all above ground indoor conduit not subject to damage.
    - D. Liquidtight Flexible Metal Conduit - at final termination, not to exceed 18", to equipment subject to vibration.
    - E. MC cable may be used for power whips to light fixtures.
14. Contractor to coordinate conduit installation with piping and mechanical installation on this project.
15. All wire type shall be copper, with thhn/thwn, 75°c insulation. #4 awg and larger shall be XHHW insulation.
16. Contractor shall furnish and install permanent Brady heat shrink wire labels, with unique wire numbers, for all wires.
17. Contractor shall furnish and install new typewritten panel schedules and engraved name plates for all existing power panels and panel boards.
18. Coordinate electrical equipment installation locations with other disciplines and contractors.
19. All neutral conductors shall be rated at 100%, except as noted, of the ampacity of the circuit it is serving. Common neutrals and downsizing of neutral conductors shall not be permitted.
20. A green insulated equipment grounding conductor shall be run to each piece of equipment. Combining grounding conductors or the use of conduit as an equipment ground shall not be permitted.
21. All lighting branch circuit wiring shall be 2 #12 with 1 #12 green insulated ground in conduit not less than ¾-inches where specified. Type MC cable may be used as follows.
22. Contractor shall furnish all equipment, materials and hardware required to furnish a complete and operational electrical installation.
23. All underground conduit shall be at a minimum depth of 36" below finished grade. Areas where conduit is run under the building minimum depth shall be 24" below finished floor. A warning tape shall be installed inside the underground conduit trench at a maximum 12" below grade.
24. Where power connections are shown to disconnect switches, junction boxes, etc. This contractor shall also be responsible for all final connections to equipment.
25. This contractor shall field verify all dimensions and existing conditions prior to proceeding with any work. Where discrepancies occur between these documents and existing conditions, the discrepancy shall be reported to the owner for expediting and resolution.
26. All devices shall be white in color. Convenience receptacles shall be Hubbell 120v, 20amp, grounding type, NEMA 5-20r units. light switches shall be quiet type, snap action, 277 volt, 20 amp units. Cover plates shall be stainless steel.
27. This contractor shall verify all equipment voltage, phase and power requirements prior to connection of the equipment. Where discrepancies occur between these requirements and power supply, the discrepancy shall be reported to the project engineer for expediting and resolution.
28. All electrical devices shall be recessed in the new GWB partitions. All conduit and wiring shall be concealed in the new GWB partitions and/or new concrete slabs. Conduit at existing CMU partitions and in unfinished areas may by run exposed. The complete installation of devices, wiring and conduit shall be coordinated with the owner.
29. Unless noted otherwise, all light switches shall be mounted +48-inches A.F.F. and all receptacles and voice/data outlet boxes shall be mounted +18-inches A.F.F.

ELECTRICAL SYMBOLS

R — NEMA type 5-20r duplex receptacle outlet - Provide extra heavy duty specification grade, straight blade, 20 ampere, 125 volt, 2 pole, 3 wire grounding type with gray color (Hubbell cat. no. HBL5362GY or approved equal by Bryant, Cooper, Leviton or Pass & Seymour). Mount 18" A.F.F. unless otherwise noted.

R1 — NEMA type 5-2dr surge-protection duplex receptacle outlet - Provide specification grade, straight blade, 20 ampere, 125 volt, 2 pole, 3 wire grounding type, 240 joules/15000a per mode with blue color, indicator light and audible alarm (Hubbell cat. no. HBL5362SA or approved equal by Bryant, Cooper, Leviton or Pass & Seymour). Mount 18" A.F.F. unless otherwise noted.

R2 — NEMA type 14-30r receptacle outlet - Provide straight blade, 30 ampere, 125/250 volt, 3 pole, 4 wire grounding type (hubbell cat. no. HBL9430A or approved equal by Bryant, Cooper, Leviton or Pass & Seymour). Mounting height as indicated.

G WP — GFCI receptacle outlet as above with horizontal weatherproof while-in-use device cover. Device cover shall be heavy duty gray die-cast aluminum or zinc (Hubbell cat. no. WP826H or approved equal by Pass & Seymour). Mount 24" A.F.F. unless otherwise noted.

▶ Provide ¾" conduit with pull string & back box for owner installed it. Conduit is to extend to Housekeeping 103.

LIGHTING FIXTURE SCHEDULE

FIXTURE NO.	MANUFACTURER: MODEL NO.	LAMPS		BALLASTS		INPUT VOLTS	INPUT WATTS	INPUT VA	DESCRIPTION
		QTY.	TYPE	QTY.	TYPE				
L-1	KENALL: SH5-48-W-1-32-IS-1-DV (OR APPROVED EQUAL BY MORLITE OR LITHONIA	1	32 WATT T8 LINEAR FLUORESCENT 3500K	1	ELECTRONIC LINEAR FLUORESCENT INSTANT START <10% THD .88 BALLAST FACTOR	120	31	31	4' SURFACE-MOUNTED VANDAL-RESISTANT FLUORESCENT WRAPAROUND LUMINAIRE WITH 1-LAMP CROSS SECTION, NOMINAL 5" WIDE, 16 GAUGE STEEL HOUSING WITH WHITE TGIC POLYESTER POWDER COAT (5-STAGE PRETREATMENT SUBJECTED TO 1,000-HR. SALT SPRAY TEST), .156" THICK PATTERN #12 POLYCARBONATE LENS, SEAM WELDED END CAPS, TAMPER-RESISTANT SCREWS AND WET LOCATION LISTING.
L-2	KENALL: R12-48-3-32-IS-2-DV (OR APPROVED EQUAL BY MORLITE OR LITHONIA)	3	32 WATT T8 LINEAR FLUORESCENT 3500K	2	ELECTRONIC LINEAR FLUORESCENT INSTANT START <10% THD .88 BALLAST FACTOR	120	90	90	4' SURFACE-MOUNTED ROUGH-SERVICE FLUORESCENT WRAPAROUND LUMINAIRE WITH 3-LAMP CROSS SECTION, NOMINAL 12" WIDE, 20 GAUGE STEEL HOUSING WITH WHITE TGIC POLYESTER POWDER COAT (5-STAGE PRETREATMENT SUBJECTED TO 1,000-HR. SALT SPRAY TEST), CLEAR PRISMATIC ACRYLIC LENS, SEAM WELDED END CAPS AND DAMP LOCATION LISTING.
L-3	DUAL-LITE: LZ25NDI-03L(-VRS-4X) (OR APPROVED EQUAL BY McPHILBEN OR LITHONIA)	2	3 WATT, 6 VOLT MR16 LED	-	-	120	11.1	13.9	EMERGENCY LIGHTING UNIT WITH (2) INTEGRAL HIGH-OUTPUT LED LAMPS, WHITE THERMOPLASTIC HOUSING, MAINTENANCE FREE NICKEL CADMIUM BATTERY WITH REMOTE CAPACITY (20 TOTAL WATTS FOR 90 MINUTES), 6-VOLT OUTPUT, TEST SWITCH, AND SELF-TESTING DIAGNOSTICS. PROVIDE VANDAL-RESISTANT SHIELD (DUAL-LITE CAT. NO. VRS-4X) WHERE INDICATED ON PLANS. MOUNT ON WALL 7'-6" A.F.F.
L-4	DUAL-LITE: LXURITE(-VRS3) (OR APPROVED EQUAL BY LITHONIA OR DAY-BRITE)	-	LED	-	-	120	3.8	4.8	UNIVERSALLY-MOUNTED LED EXIT SIGN WITH WHITE THERMOPLASTIC HOUSING, RED STENCILED LETTERS, UNIVERSAL SNAP-IN CHEVRON ARROWS, MAINTENANCE-FREE NICKEL-CADMIUM BATTERY, TEST SWITCH, SELF-TESTING DIAGNOSTICS AND DAMP LOCATION LISTING. PROVIDE VANDAL-RESISTANT SHIELD (DUAL-LITE CAT. NO. VRS3) WHERE INDICATED ON PLANS. MOUNT BOTTOM OF SIGN 7'-6" A.F.F.

PROGRESS - NOT FOR CONSTRUCTION

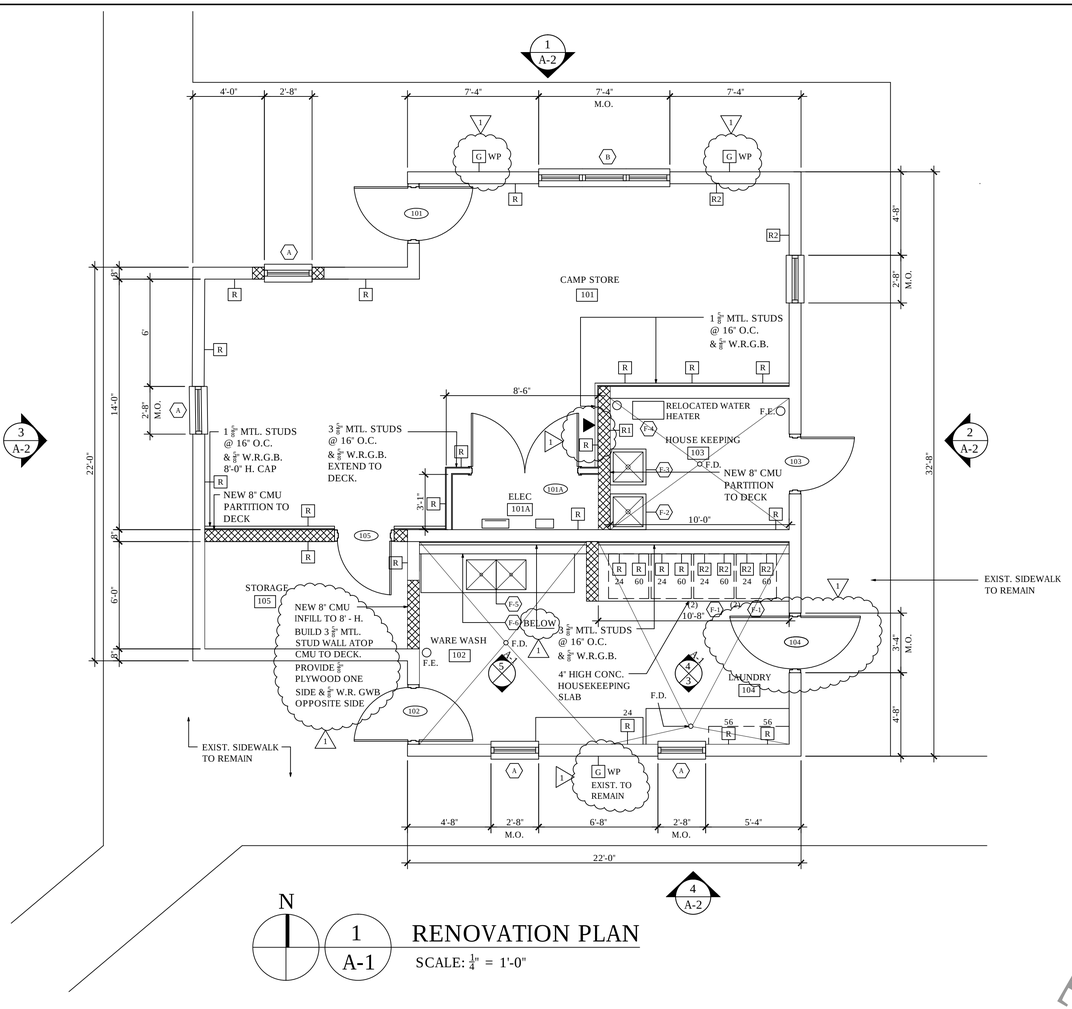
DATE:	DESCRIPTION:	BY:
02/04/2016	REVISION 1	

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

ELECTRICAL SCHEDULE, NOTES & SPECIFICATIONS - ALTERNATE BID

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

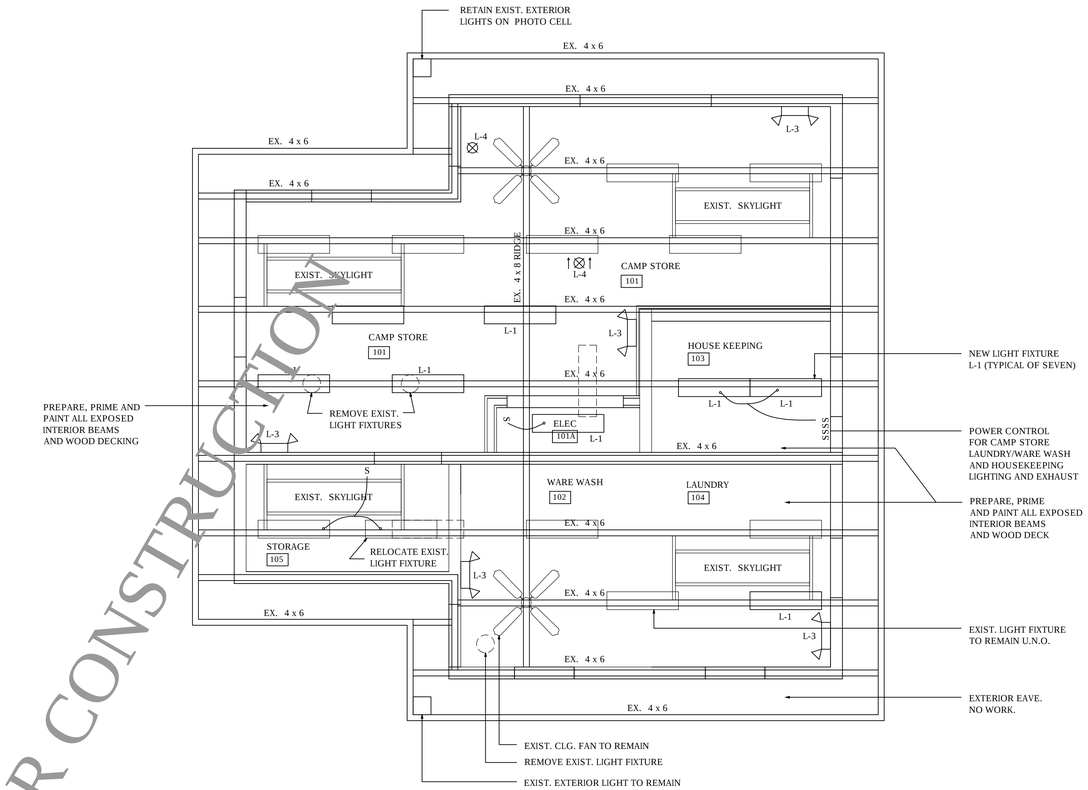
DESIGNED BY: O.D.D.
DRAWN BY: O.D.D.
BUILDING NO.: N/A
DATE: 04/26/2016
SCALE: AS NOTED
SHEET NO.: EA-1
PARKS PROJECT #: CH-44
CONTRACT #: 2015-CH-300



N

1 / A-1 RENOVATION PLAN

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



N

2 / A-1 REFLECTED CEILING PLAN

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

PROGRESS - NOT FOR CONSTRUCTION

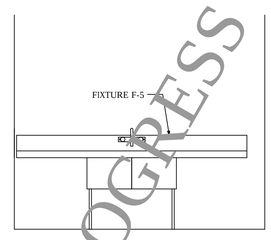
ARCHITECTURAL PLAN LEGEND

EXISTING CONSTRUCTION TO REMAIN

NEW CONSTRUCTION

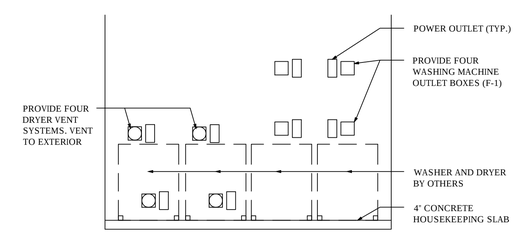
ARCHITECTURAL PLAN NOTES

1. REFER TO DEMOLITION PLAN FOR MORE INFORMATION REGARDING EXISTING CONDITIONS.
2. REFER TO REFLECTED CEILING PLAN FOR EXTENTS OF NEW AND EXISTING CEILING.
3. UNLESS NOTED OTHERWISE, DIMENSIONS ARE FROM FACE OF MASONRY TO FACE OF MASONRY OR TO FACE OF STUD.
4. REMOVE SITE DEBRIS, TRASH, AND OTHER MATERIALS RESULTING FROM CONSTRUCTION OPERATIONS DAILY FROM BUILDING. TRANSPORT AND LEGALLY DISPOSE OF MATERIALS OFF-SITE.
5. BURNING OF WASTE MATERIALS IS NOT PERMITTED ON PROJECT SITE.
6. COORDINATE RELOCATION OF EXISTING MATERIALS WITH DRAWINGS.
7. ALL ROOMS W/ THE EXCEPTION OF HOUSEKEEPING 103 ARE TO HAVE FLOOR DRAINS RAISED & 1/4" (MEASURED AT ENTRANCE DOORS) SELF LEVELING GROUT APPLIED. OVER EXISTING QUARRY TILE. ROOMS 102 AND 104 ARE TO SLOPE TO DRAINS.



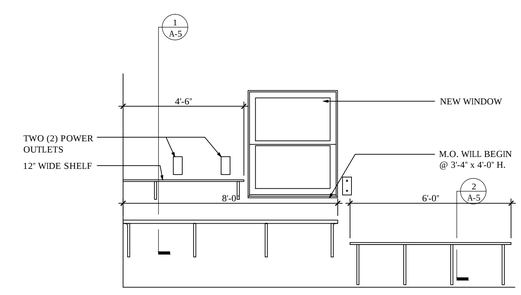
5 / A-1 ROOM 102 ELEVATION

SCALE: 3/8" = 1'-0"



4 / A-1 ROOM 104 ELEVATION (W/D)

SCALE: 3/8" = 1'-0"



3 / A-1 ROOM 104 ELEVATION

SCALE: 3/8" = 1'-0"

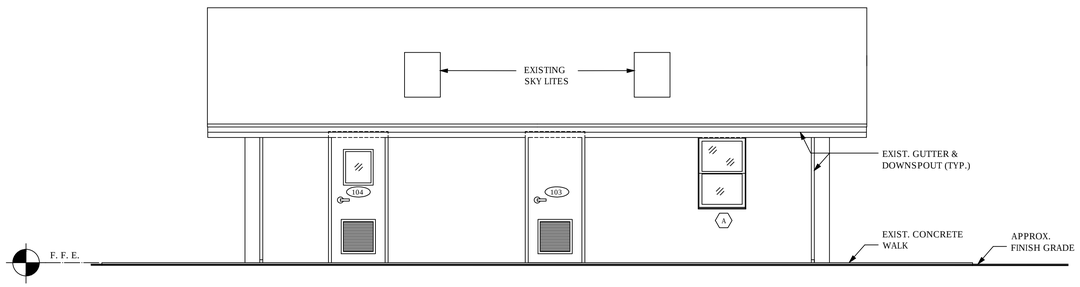
DATE: 02\04\2016	DESCRIPTION: REVISION 1
BY:	

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

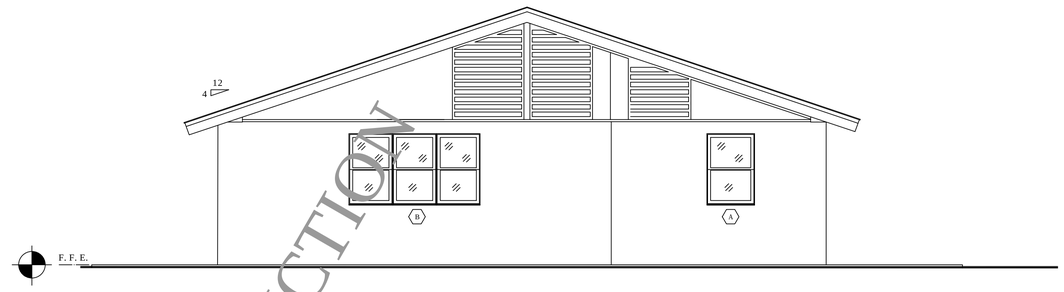
BATHHOUSE RENOVATION PLAN, REFLECTED PLAN AND ROOM ELEVATIONS - ALTERNATE BID

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

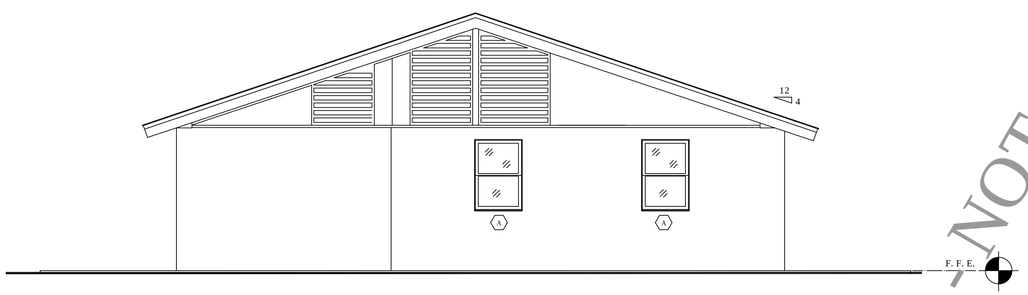
DESIGNED BY:	O.D.D.
DRAWN BY:	O.D.D.
BUILDING NO.:	N/A
DATE:	04\26\2016
SCALE:	AS NOTED
SHEET NO.:	A-1
PARKS PROJECT #:	CH-44
CONTRACT #:	2015-CH-300



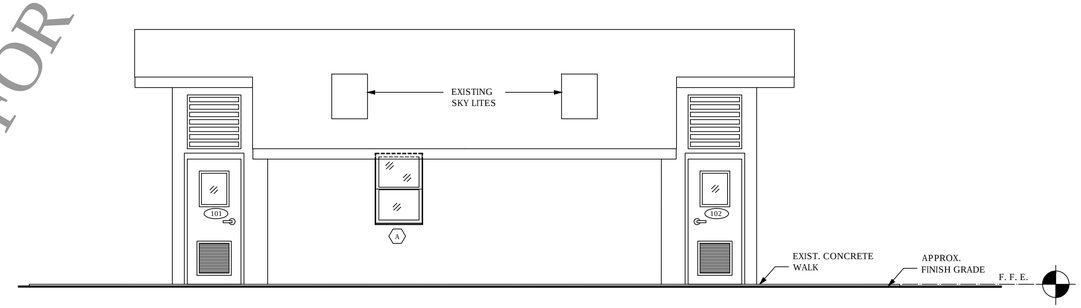
2
A-2
EAST ELEVATION
SCALE: $\frac{1}{4}$" = 1'-0"



1
A-2
NORTH ELEVATION
SCALE: $\frac{1}{4}$" = 1'-0"



4
A-2
SOUTH ELEVATION
SCALE: $\frac{1}{4}$" = 1'-0"



3
A-2
WEST ELEVATION
SCALE: $\frac{1}{4}$" = 1'-0"

PROGRESS - NOT FOR CONSTRUCTION

DATE:	DESCRIPTION:	BY:

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

LAUNDRY AND CAMP STORE ELEVATIONS - ALTERNATE BID

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: O.D.D.
DRAWN BY: O.D.D.
BUILDING NO.: N/A
DATE: 04/26/2016
SCALE: AS NOTED
SHEET NO.: A-2
PARKS PROJECT #: CH-44
CONTRACT #: 2015-CH-300

ROOM FINISH SCHEDULE

	ROOM NUMBER	ROOM NAME	FLOOR			BASE		WALLS		CEILING			CEILING HEIGHT	Remarks
			Concrete w/ Sealer	Entrance Mat	Carpet	NONE	Wood w/ Shoe Mold Match Existing	Paint over Existing Paint	Primer and two Top Coats over New Substrate	Paint Existing Wood Deck and Exposed Structure	Existing GWB - Paint	Existing No Work		
BATHHOUSE	101	CAMP STORE	●			●		●	●	●			VARIES	
	101A	ELECTRIC	●			●		●	●	●			VARIES	
	102	WARE WASH	●			●		●	●	●			VARIES	
	103	HOUSE KEEPING	●			●		●		●			VARIES	
	104	LAUNDRY	●			●		●	●	●			VARIES	
	105	STORAGE	●			●		●		●			VARIES	

NOTES:

1. CONCRETE SEALER: SHERWIN WILLIAMS ARMORSEAL 8100 WATER BASED EPOXY PRIMER AND TOPCOAT OR EQUAL.
2. ENTRANCE MAT: PATCRAFT COMMERCIAL CARPET, COLLECTION BEYOND THE DOOR, PATTERN PRADO TILE #10317. COLOR TO BE DETERMINED.
3. CARPET: SHAW CONTRACT GROUP; COLLECTION, LIGHT SERIES; STYLE: VIBRANT TILE #5T001; COLOR AURORA #01322

DOOR SCHEDULE

	DOOR No.	ROOM NAME	DOOR SIZE W	DOOR SIZE H	DOOR SIZE THK	DOOR TYPE	DOOR MATL	DOOR FINISH	FRAME TYPE	FRAME MATL	FRAME FINISH	FRAME HEAD	FRAME JAMB	FRAME SILL	FIRE RATING	HARDWARE DEVICES / SETS	HARDWARE FINISH	Remarks
BATHHOUSE	101	CAMP STORE	3'-0"	7'-0"	1-3/4"	B	FG	PAINT	1	FG	PAINT	1	1	ALUM	0	BB, WS, KP, DB, DH, PP TH	630	
	101	CAMP STORE	3'-0"	7'-0"	1-1/4"	A	WD	PAINT				1	1		0	SH, PP, DH	630	
	101A	ELECTRIC	3'-0"	7'-0"	1-3/4"	B	FG	PAINT	1	FG	PAINT	2	2		0	BB, KP, (2), FB, LSC	630	
	102	WARE WASH	3'-0"	7'-0"	1-3/4"	B	FG	PAINT	1	FG	PAINT	1	1	ALUM	0	BB, WS, KP, DB, DH, PP TH	630	
	102	WARE WASH	3'-0"	7'-0"	1-1/4"	A	WD	PAINT				1	1		0	SH, PP, DH	630	
	103	HOUSE KEEPING	3'-0"	7'-0"	1-3/4"	C	FG	PAINT	1	FG	PAINT	1	1	ALUM	0	BB, KP (2), LSC, TH	630	
	104	LAUNDRY	3'-0"	7'-0"	1-3/4"	B	FG	PAINT	1	FG	PAINT	1	1	ALUM	0	BB, WS, KP, DB, DH, PP TH	630	
	104	LAUNDRY	3'-0"	7'-0"	1-1/4"	A	WD	PAINT				1	1		0	SH, PP, DH	630	
	105	STORAGE	3'-0"	7'-0"	1-3/4"	B	FG	PAINT	1	FG	PAINT	1	1		0	BB, KP (2), LSC	630	

DOOR AND FRAME MATERIALS

AL ALUMINUM
EMB EMBOSSED HARD BOARD FACE
FG FIBERGLASS
GL GLASS
GALV GALVANIZED
HM HOLLOW METAL
LAM PLASTIC LAMINATE
IN INSULATED
SG SAFETY GLASS (TEMPERED OR LAMINATED SAFETY GLASS)
SS 18 GAUGE STAINLESS STEEL
STL STEEL
WD WOOD
WD/HC WOOD HOLLOW CORE
WD/SC WOOD SOLID CORE
WG WIRE GLASS

HARDWARE DEVICES

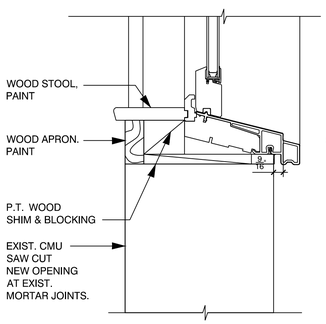
AST ASTRAGAL
BB 1 1/2 PAIR BUTT HINGES PER LEAF FOR DOORS 7'-0" HIGH; 2 FOR DOORS OVER 7'-0" HIGH
BDH BARN DOOR HARDWARE
CL CLOSER
DB DEAD BOLT W/ KEY EACH SIDE
DH DOOR HOLDER
DL DUMMY LEVER
ES ELECTRIC STRIKE
FB FLUSH BOLT
FS FLOOR STOP
HPS HINGE PIN DOOR STOP
KP KICK PLATE
LSC LOCK SET, CLASSROOM (F84)
LSE LOCK SET, ENTRANCE (F81)
LSP LOCK SET, PRIVACY (F76)
LTC LATCH SET (F75)
PP PUSH PULL
SB SLIDE BOLT
SH SPRING HINGES
SIL SILENCERS
SW SWEEP
TH THRESHOLD
WS WEATHER STRIPPING
WST WALL STOP
XR EXIT DEVICE, RIM TYPE
XVE EXIT DEVICE, VERTICAL ROD, EXPOSED
XVC EXIT DEVICE, VERTICAL ROD, CONCEALED

NOTES:

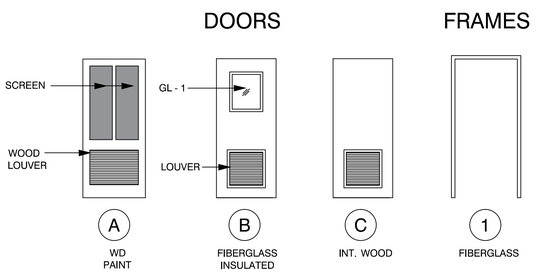
1. UNLESS NOTED OTHERWISE, LOCATE FINISH OPENING 6" FROM ADJACENT WALL
2. "MFR STD" DENOTES MANUFACTURER STANDARD
3. PROVIDE WOOD BLOCKING TO MOUNT ALL WALL STOPS
4. UNLESS NOTED OTHERWISE, ALL INTERIOR GLAZING SHALL BE 1/4" SAFETY GLASS
5. ALL LOCKSETS & LATCHSETS SHALL BE LEVER TYPE TO MEET ADAAG
6. F-NUMBERS REFER TO FUNCTIONS OF BHMA SERIES 4000 BORED LOCKS
7. ALL LOCKSETS & DEAD BOLTS ARE TO HAVE REMOVABLE CORES. FINAL CORES BY OWNER

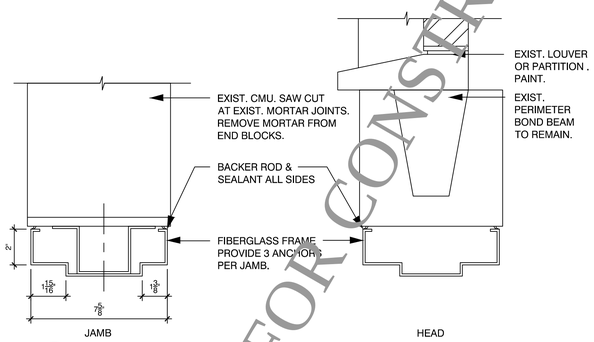
HARDWARE MATERIALS AND FINISHES (BHMA)

#600 PRIMED FOR PAINTING
#605 BRIGHT BRASS
#612 SATIN BRONZE
#613 DARK SATIN BRONZE, OIL RUBBED
#625 BRIGHT CHROMIUM PLATED
#626 SATIN CHROME PLATED ON BRASS
#628 SATIN ALUMINUM, CLEAR ANODIZED
#630 SATIN STAINLESS STEEL
#632 BRIGHT BRASS PLATED ON STEEL (FOR FIRE RATED HINGES)
#652 SATIN CHROME, PLATED ON STEEL (FOR FIRE RATED HINGES)

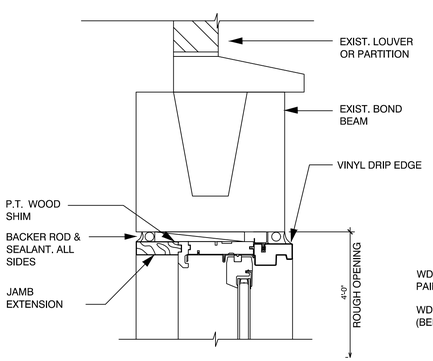


5 / A-3 WINDOW SILL
SCALE: 3" = 1'-0"

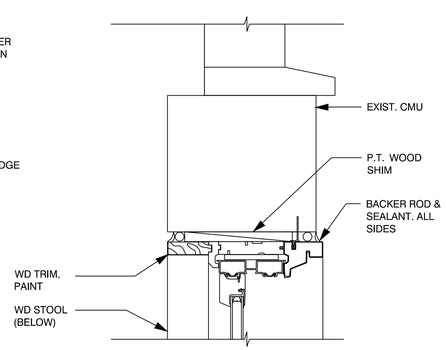




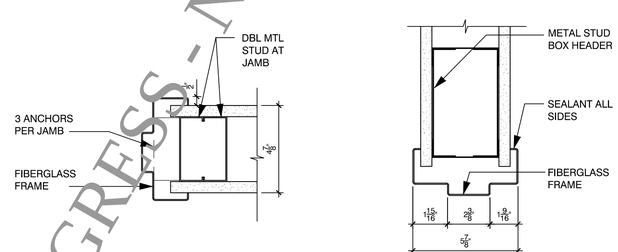
1 / A-3 FG DOOR FRAME DET. - MASONRY
SCALE: 3" = 1'-0"



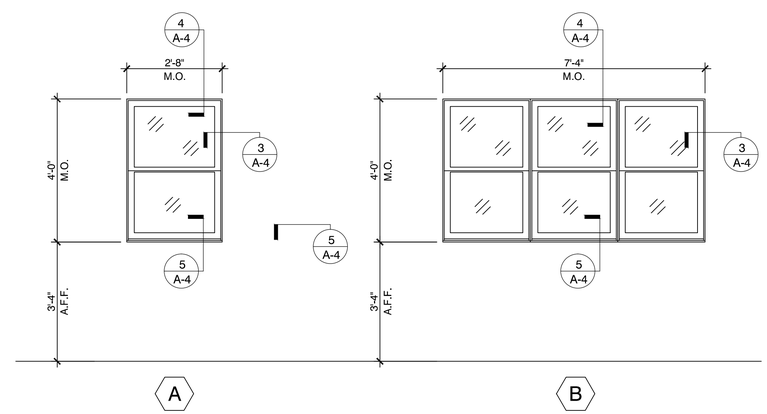
4 / A-3 WINDOW HEAD
SCALE: 3" = 1'-0"



3 / A-3 WINDOW JAMB
SCALE: 3" = 1'-0"



2 / A-3 FG DOOR FRAME DET. - STUD
SCALE: 3" = 1'-0"



6 / A-3 WINDOW ELEVATIONS
SCALE: 1/2" = 1'-0"

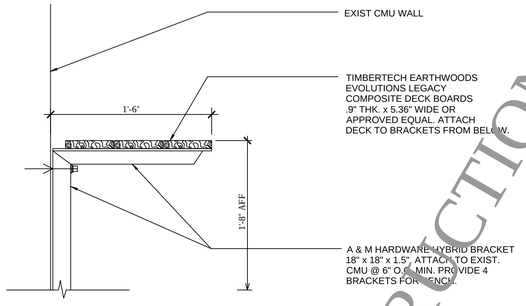
PROGRESS - NOT FOR CONSTRUCTION

DATE: DESCRIPTION: BY:

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

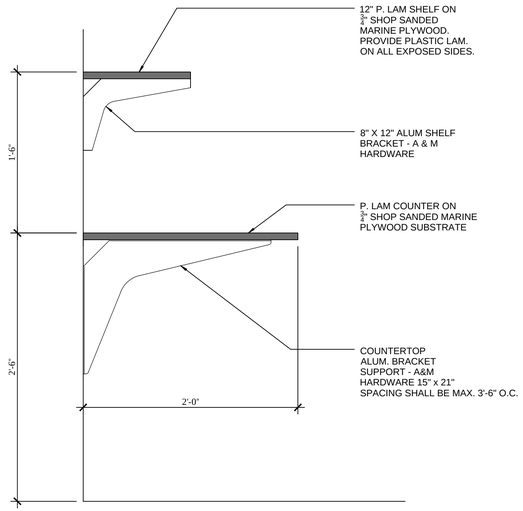
DOOR & FINISH SCHEDULES
AND DOOR DETAILS - ALTERNATE BID

DESIGNED BY: O.D.D.
DRAWN BY: O.D.D.
BUILDING NO.: N/A
DATE: 04\26\2016
SCALE: AS NOTED
SHEET NO.: A-3
PARKS PROJECT #: CH-44
CONTRACT #: 2015-CH-300



2 / A-4 BENCH SECTION

SCALE: 1-1/2" = 1'-0"



1 / A-4 COUNTERTOP SECTION - LAUNDRY FOLDING

SCALE: 1-1/2"= 1'-0"

PROGRESS - NOT FOR CONSTRUCTION

DATE:	DESCRIPTION:	BY:
02\04\2016	REVISION 1	

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

DETAILS

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: O.D.D.

DRAWN BY: O.D.D.

BUILDING NO.: N/A

DATE: 04/26/2016

SCALE: AS NOTED

SHEET NO.: A-4

PARKS PROJECT #: CH-44

CONTRACT #: 2015-CH-300

GENERAL PLUMBING NOTES

1. Plumbing plans are schematic representation of what is intent of the plumbing systems only. All work shall be done in accordance with the relevant plumbing code and in good installation practice. The plumbing contractor is responsible to make sure that they are completely aware of the local code, the requirements on these plans and the owners recommendations prior to submitting bids. There will be no additional compensation made for lack of knowledge of any requirements after the contracts have been awarded.
2. Contractor is responsible for safety including all necessary barricades, signs, fire extinguishers, etc. All applicable OSHA regulations shall apply to this work.
3. All work shall conform to the international mechanical code, international plumbing code and all local codes.
4. Contractor to supply all hangers, nuts, bolts, and gaskets.
5. Contractor shall field verify all existing conditions before beginning new work.
6. Provide all labor, material, equipment, incidentals, methods and services required to install all work indicated completely and in full operation.
7. Prior to acceptance of the project, all systems shall be tested, balanced and operated to demonstrate to the owner or his designated representative that the installation and performance of these systems and/or parts thereof conform to design intent.
8. Contractor shall submit shop drawings for all new equipment, materials, sheet metal layout and controls.
9. Upon completion of the contract the contractor shall provide the owner with (3) complete sets of manufacturers' operating, maintenance and preventive maintenance instructions (in bound book form) including parts lists and complete procurement information including equipment numbers and descriptions. Operating staff persons shall be instructed in proper operating and service requirements of the systems and equipment.
10. Each contractor shall review "all" project documents of "all" trades reviewing all of the project requirements prior to bidding. Discrepancies between documents shall be reported at the time of bid.
11. Verify all field conditions, access ways, dimensions and details in the field prior to bid and prior to fabrication. Include in bid all work necessary to cover costs resulting from field conditions.
12. All work shall be in conformance with all applicable laws, codes and regulations adopted by municipal, county, state and federal authorities, utility companies, insurance agencies and other authorities having jurisdiction over the work.
13. The contractor shall apply for, secure and pay for all permits and/or certificates of inspection required in the performance of the work by all authorities having jurisdiction.
14. The contractor shall guarantee the entire installation for period of one year except where extensions of this one year period are noted from the date of acceptance of the system as a whole. Any defects in workmanship, materials, malfunction of equipment or unsatisfactory performance and all other work or parts of the building damaged thereby, shall be repaired, replaced or otherwise remedied without expense to the owner. Such repairs or replacements shall be made in a timely manner and at the convenience of the owner.
15. All work shall be scheduled and coordinated with the owner so that disruption to the areas involved is kept to a minimum. Contractor shall give owner a minimum of 10 working days notice of any and all work that will interfere with the owner's operation so a schedule suitable to the owner can be arranged. Any accidental interruptions to services shall be repaired immediately by the contractor without additional cost to the owner.
16. In addition to specifics as may be defined hereinafter the contractor shall protect the work site and all his work against damage from any source (including but not limited to water, dust, heat, freezing etc.) until final completion and acceptance by the owner.
17. Contractor shall upon completion of the work submit a set of record drawings showing all changes from the contract drawing made in the installation and showing dimensioned locations of buried or concealed equipment or parts of the work.
18. Prior to delivery of materials to the site contractor shall provide material safety data sheets for all items and materials used in the work.
19. All equipment shall have its manufacturer's nameplate securely attached giving design and operating characteristics. Name plates shall not be covered or obstructed from view. Electrical panel schedules shall be provided and/or where existing they shall be amended to reflect the new work. Piping and conduit systems shall be labeled and valves shall be tagged.
20. All work shall be performed in compliance with current environmental regulations.
21. Unless otherwise noted, all parts, equipment and materials shall be new and shall be ASME and/or UL approved.
22. Contractor shall complete all cutting and patching required for the installation of the work. Cutting and patching shall be completed in a neat and workmanlike manner. Patching materials shall match existing materials to the greatest extent possible. provide touch-up paint to match existing surrounding areas of cutting and patching work.
23. Upon completion of all construction work, all piping systems shall be cleaned by the installing contractor using appropriate chemicals. The cleaning work shall be deemed completed only when agreed upon by a representative of the owner.

GENERAL PLUMBING SPECIFICATIONS

1. All plumbing shall comply with the 2012 edition of the International Plumbing Code.
2. Work shall be performed by mechanics skilled in particular trade involved. That is, plumbing work shall be performed by plumbers, electrical work shall be performed by electricians, mechanical work performed by sheet metal mechanics.
3. All work shall be inspected, tested and approved by the proper authorities having jurisdiction. Certified copies of these approvals shall be delivered to the owner before final payment.
4. Escutcheon plates shall be provided on all pipe which pass through wall partitions, floors or ceilings. Plates shall be one piece, chrome finished bronze.
5. Dielectric coupling shall be used where dissimilar metals are joined.
6. Core drilling shall be accomplished by mechanical means in a manner that will not affect the integrity of the structure. After installation of piping thru the core drill, pack the annular space with oakum or fibrous glass, leaving a minimum of two inches at each end to be filled and finished with sealant.
7. If conflict arises between items shown on drawings and items specified, the most stringent item shall be used.
8. The installation of all insulation shall be performed by an experienced craftsman in a neat workman-like manner and shall be in accordance with the manufacturer's published recommendations for service intended.
9. All new plumbing fixtures shall meet the appropriate ANSI standards listed in the plumbing subcode. Use of substandard and non-conforming foreign made products is prohibited.
10. If leaks occur during system testing, repairs shall be made and system retested until no evidence of leaks exist for the duration of the test.
11. All plumbing systems and valves shall be labeled for proper identification. Name plates, metal tags, plastic pipe markers in accordance with Seton Name Plate Corp.
12. provide insulation or ADA compliant barriers on undercounter plumbing in accordance with ADA requirements.
13. Handicapped fixture heights shall be in accordance with CABO/ANSI A-117.1.
14. Plumbing fixtures shall be as scheduled. Equivalent as listed are acceptable. Where manufacturer's product line permits, all fixtures shall be from a single manufacturer. All plumbing fixtures shall be provided with shutoff valves.
15. All plumbing fixtures shall be provided with chrome-plated shut off valves (angle stops, chrome plated supplies and p-traps).

CONTINUITY OF EXIST. SYSTEMS AND SERVICES

1. All work shall be performed at such time and in such manner as will least interfere with maintenance and operation of owner's activities. Provisions shall be made to permit owner's use of all the building and of existing systems at all times. Provide temporary facilities to secure these conditions. Remove temporary facilities when permanent work has been placed into service.
2. Fully coordinate with owner and all other tirades, all work involving shut-down and interruption of existing systems and service. Ten (10) business days notice must be given to the owner before any required utility shut-down.
3. Existing systems and services that are temporarily disconnected, but are to remain in use, shall be permanently reconnected and returned to proper operation.
4. Fully coordinate with owner and other trades to insure complete continuity of all systems and services.

FIXTURE SCHEDULE

SYMBOL	MANUFACTURER	MODEL NO.	FAUCET	HW	CW	WASTE	VENT	NOTES
F-1	OATEY WASHING MACHINE OUTLET BOX	38529	-	$\frac{1}{2}$"	$\frac{1}{2}$"	2"	2"	PROVIDE WATER ARRESTER. AVAILABLE AT LOWES. EQUAL SUBSTITUTIONS ACCEPTABLE.
F-2	FIAT PRODUCTS MOLDED STONE	MSB-2424	WOLVERINE BRASS MODEL 93363	$\frac{1}{2}$"	$\frac{1}{2}$"	3"	2"	24" x 24", 10" DEEP ONE-PIECE MOLDED STONE MOP SERVICES BASIN WITH STAINLESS-STEEL BUMPER AND WALL GUARDS. 8" WALL MOUNTED SERVICE SINK FAUCET. FAUCET SHALL HAVE VACUUM BREAKER, 6" SPOUT W/ PAIL HOOK, WALL BRACKET AND $\frac{3}{4}$" HOSE OUTLET. FAUCET SHALL BE SOLID BRASS BODY, ROUGH CHROME FINISH WITH SOLID BRASS HANDLES.
F-3	FLORESTONE COMPOSITE SINK	FM (RM54193)	MOEN 74998	$\frac{1}{2}$"	$\frac{1}{2}$"	3"	2"	EQUAL SUBSTITUTIONS ACCEPTABLE.
F-4	EXIST. TANKLESS WATER HEATER	-	-	$\frac{3}{4}$"	$\frac{3}{4}$"	-	-	RELOCATE EXIST. WATER HEATER. CONNECT TO F-1, F-2, F-3 AND F-5.
F-5	GLOBAL INDUSTRIES	WCB 198540	EAGLE GROUP DECK MOUNT 8" SPOUT WRIST HANDLES 301248	$\frac{1}{2}$"	$\frac{1}{2}$"	2"	2"	TWO BOWL ECONOMY S.S. NSF SINK WITH TWO 30" WIDE DRAINBOARDS. THE TWO BOWLS ARE 20" x 20" x 14" DEEP. 18 GAUGE S.S.
F-6	HOSE BIB JAY R. SMITH MFG. CO.	55090T	-	$\frac{1}{2}$"	-	-	-	PROVIDE WITH QUARTER TURN ACTIVATION, NON FREEZE & VACUUM BREAKER & S.S. LOCKABLE BOX.

DOMESTIC WATER SPECIFICATIONS

1. Domestic water pipe for above ground use shall be ASTM B88 "Type "K" seamless copper tube with solder joint fittings using 95-5 solder per ASTM B32. All water distribution piping shall be water rated for not less than 100 psi @ 190-degree F. Dielectric coupling shall be used where dissimilar metals are joined. Piping materials for use on domestic water systems including fixtures & valves shall not contain more than 8 percent lead.
2. All hot and cold water piping shall be IJ-inch minimum.
3. Prior to disinfection, potable water piping shall be flushed with water until no dirty water appears at the points of outlets.
4. Potable water piping shall be disinfected prior to use per national standard plumbing code. The piping shall be filled with a water chlorine solution containing at least 50 parts per million of chlorine and shall be valved off for 24 hours or filled with a water chlorine solution containing at least 200 parts per million of chlorine and allowed to stand for at least 3 hours. Following the allowed standing time, the system shall be flushed with potable water until no chlorine remains in the system. Provide results of disinfection to owner when complete.
5. Domestic water pipe shall consist of a hydrostatic pressure test of 25 psig above the working pressure under which it is operated for not less than 60 minutes.
6. If leaks occur during testing, repairs shall be made and system retested until no evidence of leaks exist for the duration of the test.
7. Domestic water pipe shall be insulated with 1" thick fiberglass preformed insulation with vapor jacket and self-sealing tape, equal to Owens-Corning ASJ/SSL-2. Cover insulation with white PVC sealed jacket system.
8. Ball valves shall be equal to Conbraco Apollo series 82-100 or 82-200 rated for 150 psig w.o.g. or equal.
9. Approved water hammer arresters shall be installed on water distribution systems where quick closing valves are installed. Water hammer arresters shall be placed as close as possible to the quick closing valve or at the end of long piping runs. Arresters shall be accessible for replacement.
10. Provide not less then 1 IJ-inch insulation to piping subject to freezing area.

SANITARY WASTE SPECIFICATIONS

1. Sanitary waste and vent pipe & fittings shall be service weight hubless cast iron ASTM A-888, with hubless coupling gaskets in accordance with ASTM C564 & CISPL-301 for above ground and hub and spigot pipe & fittings ASTM A-74, with compression type gaskets per ASTM C-564 for below slab.
2. Sanitary waste & vent pipe shall be air tested to not less than 5 psig pressure in the system. Piping system shall sustain a constant pressure for no less than 15 minutes.
3. Drainage specialties (clean outs and floor drains) shall be from a single manufacturer as noted in the plumbing fixture schedule or approved equal. Contractor shall coordinate top shape for floor drains and clean outs with final floor finishes. In general, provide square tops in tile floors, and round tops in other areas.
4. Horizontal drain piping shall be installed at uniform slope not less than 1/4" per foot for 3" and smaller and not less than 1/8" per foot for 4" and larger. Lesser slope may be permitted as approved by local administrative authority.
5. All new floor drains shall have deep seal traps, except where noted.
6. In the removal of any part of a drainage system, dead ends shall be avoided except where necessary to extend to a cleanout so as to be accessible.
7. Provide all necessary temporary or permanent caps or plugs for piping. Do not leave piping open ended.
8. All excavation shall be performed in strict compliance with OSHA occupational safety and health association regulations.

HANGERS & SUPPORTS

1. Hangers and anchors shall be securely attached to building construction at sufficiently close intervals to support piping and its contents.
2. In the removal of any part of a drainage system, dead ends shall be avoided except where necessary to extend to a cleanout so as to be accessible.

   A. Vertical piping for cast iron shall be supported at base and at each story height.
   B. Vertical piping for copper shall be supported at each story height but not more than 10 foot intervals.
   C. Horizontal piping for cast iron shall be supported with minimum one hanger located within 18" of each joint, at changes in direction, and at each branch connection. Where pipe is suspended by non-rigid hangers more than 18" long provide lateral support.
   D. Horizontal piping for copper shall be supported at 6 foot intervals for pipe sizes 1-1/4" and smaller and at 10 foot intervals for pipe sizes 1-1/2" and larger.
   E. All supports coming in contact with copper piping shall be plastic coated.
   F. Install metal shields on hangers supporting insulated pipe.
   G. Provide hangers that are u.l. listed and labeled. All domestic water, storm & sanitary waste pipe supports shall be in accordance with the 2012 IPC.

PROGRESS SET FOR CONSTRUCTION

DATE:	DESCRIPTION:	BY:

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

PLUMBING SCHEDULE, NOTES & SPECIFICATIONS

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: O.D.D.
DRAWN BY: O.D.D.
BUILDING NO.: N/A
DATE: 04/26/2016
SCALE: AS NOTED
SHEET NO.: PA-1
PARKS PROJECT #: CH-44
CONTRACT #: 2015-CH-300

ELECTRICAL GENERAL NOTES

1. The contract documents are schematic. The electrical contractor is to provide a fully functional power and lighting system for existing devices and fixtures.
2. The contractor is to provide all labor and material required for a complete installation that is fully warranted by the product manufacturer. Any details or work required, but not shown or specified are to be provided in accordance with the products manufacturer's recommendations and/or requirements at no additional cost to the owner.
3. Contractor shall keep work area clean and orderly.
4. The contractor is responsible for site safety and shall follow safety rules and conditions for contractors.
5. The electrical contractor is responsible for providing temporary lighting adequate in all areas of construction providing a coverage of .25 watts per square foot. Temporary lights shall be of the OSHA approved type.
6. All penetrations of roof and exterior walls shall be weathertight.
7. All electrical work to be done in a safe and orderly manner and in accordance with all state fire regulations, local codes and nec. Contractor shall arrange for all work to be inspected in accordance with Delaware State Law.
8. Contractor shall provide catalog cut sheet submittals for all equipment and materials under contractors scope of supply, submit with approval stamp affixed.
9. All electrical material and equipment shall be new, UL listed and bear the UL label. The exception is the existing electrical panels which shall remain.
10. All electrical material and equipment shall be as specified or approved equal.
11. All work shall comply with the latest edition of the National Electric Code (NEC) and all local codes.
12. The electrical contractor shall furnish and install all incidental accessories necessary to make the electrical work complete and ready for operation.
13. Conduit types shall be as follows, unless otherwise specified on the drawings:
    - A. Schedule 40 pvc - all underground conduit. Underground conduit shall transition to RGS conduit 1 '-0" (min.) prior to surfacing above ground.
    - B. Rigid Galvanized Steel (RGS) - all above ground outdoor conduit, and all indoor conduit subject to damage.
    - C. Electrical Metallic Tubing (EMT) - all above ground indoor conduit not subject to damage.
    - D. Liquidtight Flexible Metal Conduit - at final termination, not to exceed 18", to equipment subject to vibration.
    - E. MC cable may be used for power whips to light fixtures.
14. Contractor to coordinate conduit installation with piping and mechanical installation on this project.
15. All wire type shall be copper, with thhn/thwn, 75°c insulation. #4 awg and larger shall be XHHW insulation.
16. Contractor shall furnish and install permanent Brady heat shrink wire labels, with unique wire numbers, for all wires.
17. Contractor shall furnish and install new typewritten panel schedules and engraved name plates for all existing power panels and panel boards.
18. Coordinate electrical equipment installation locations with other disciplines and contractors.
19. All neutral conductors shall be rated at 100%, except as noted, of the ampacity of the circuit it is serving. Common neutrals and downsizing of neutral conductors shall not be permitted.
20. A green insulated equipment grounding conductor shall be run to each piece of equipment. Combining grounding conductors or the use of conduit as an equipment ground shall not be permitted.
21. All lighting branch circuit wiring shall be 2 #12 with 1 #12 green insulated ground in conduit not less than ¾-inches where specified. Type MC cable may be used as follows.
22. Contractor shall furnish all equipment, materials and hardware required to furnish a complete and operational electrical installation.
23. All underground conduit shall be at a minimum depth of 36" below finished grade. Areas where conduit is run under the building minimum depth shall be 24" below finished floor. A warning tape shall be installed inside the underground conduit trench at a maximum 12" below grade.
24. Where power connections are shown to disconnect switches, junction boxes, etc. This contractor shall also be responsible for all final connections to equipment.
25. This contractor shall field verify all dimensions and existing conditions prior to proceeding with any work. Where discrepancies occur between these documents and existing conditions, the discrepancy shall be reported to the owner for expediting and resolution.
26. All devices shall be white in color. Convenience receptacles shall be Hubbell 120v, 20amp, grounding type, NEMA 5-20r units. light switches shall be quiet type, snap action, 277 volt, 20 amp units. Cover plates shall be stainless steel.
27. This contractor shall verify all equipment voltage, phase and power requirements prior to connection of the equipment. Where discrepancies occur between these requirements and power supply, the discrepancy shall be reported to the project engineer for expediting and resolution.
28. All electrical devices shall be recessed in the new GWB partitions. All conduit and wiring shall be concealed in the new GWB partitions and/or new concrete slabs. Conduit at existing CMU partitions and in unfinished areas may by run exposed. The complete installation of devices, wiring and conduit shall be coordinated with the owner.
29. Unless noted otherwise, all light switches shall be mounted +48-inches A.F.F. and all receptacles and voice/data outlet boxes shall be mounted +18-inches A.F.F.

ELECTRICAL SYMBOLS

R — NEMA type 5-20r duplex receptacle outlet - Provide extra heavy duty specification grade, straight blade, 20 ampere, 125 volt, 2 pole, 3 wire grounding type with gray color (Hubbell cat. no. HBL5362GY or approved equal by Bryant, Cooper, Leviton or Pass & Seymour). Mount 18" A.F.F. unless otherwise noted.

R1 — NEMA type 5-2dr surge-protection duplex receptacle outlet - Provide specification grade, straight blade, 20 ampere, 125 volt, 2 pole, 3 wire grounding type, 240 joules/15000a per mode with blue color, indicator light and audible alarm (Hubbell cat. no. HBL5362SA or approved equal by Bryant, Cooper, Leviton or Pass & Seymour). Mount 18" A.F.F. unless otherwise noted.

R2 — NEMA type 14-30r receptacle outlet - Provide straight blade, 30 ampere, 125/250 volt, 3 pole, 4 wire grounding type (hubbell cat. no. HBL9430A or approved equal by Bryant, Cooper, Leviton or Pass & Seymour). Mounting height as indicated.

G WP — GFCI receptacle outlet as above with horizontal weatherproof while-in-use device cover. Device cover shall be heavy duty gray die-cast aluminum or zinc (Hubbell cat. no. WP826H or approved equal by Pass & Seymour). Mount 24" A.F.F. unless otherwise noted.

▶ Provide ¾" conduit with pull string & back box for owner installed it. Conduit is to extend to Housekeeping 103.

LIGHTING FIXTURE SCHEDULE

FIXTURE NO.	MANUFACTURER: MODEL NO.	LAMPS		BALLASTS		INPUT VOLTS	INPUT WATTS	INPUT VA	DESCRIPTION
		QTY.	TYPE	QTY.	TYPE				
L-1	KENALL: SH5-48-W-1-32-IS-1-DV (OR APPROVED EQUAL BY MORLITE OR LITHONIA	1	32 WATT T8 LINEAR FLUORESCENT 3500K	1	ELECTRONIC LINEAR FLUORESCENT INSTANT START <10% THD .88 BALLAST FACTOR	120	31	31	4' SURFACE-MOUNTED VANDAL-RESISTANT FLUORESCENT WRAPAROUND LUMINAIRE WITH 1-LAMP CROSS SECTION, NOMINAL 5" WIDE, 16 GAUGE STEEL HOUSING WITH WHITE TGIC POLYESTER POWDER COAT (5-STAGE PRETREATMENT SUBJECTED TO 1,000-HR. SALT SPRAY TEST), .156" THICK PATTERN #12 POLYCARBONATE LENS, SEAM WELDED END CAPS, TAMPER-RESISTANT SCREWS AND WET LOCATION LISTING.
L-2	KENALL: R12-48-3-32-IS-2-DV (OR APPROVED EQUAL BY MORLITE OR LITHONIA)	3	32 WATT T8 LINEAR FLUORESCENT 3500K	2	ELECTRONIC LINEAR FLUORESCENT INSTANT START <10% THD .88 BALLAST FACTOR	120	90	90	4' SURFACE-MOUNTED ROUGH-SERVICE FLUORESCENT WRAPAROUND LUMINAIRE WITH 3-LAMP CROSS SECTION, NOMINAL 12" WIDE, 20 GAUGE STEEL HOUSING WITH WHITE TGIC POLYESTER POWDER COAT (5-STAGE PRETREATMENT SUBJECTED TO 1,000-HR. SALT SPRAY TEST), CLEAR PRISMATIC ACRYLIC LENS, SEAM WELDED END CAPS AND DAMP LOCATION LISTING.
L-3	DUAL-LITE: LZ25NDI-03L(-VRS-4X) (OR APPROVED EQUAL BY McPHILBEN OR LITHONIA)	2	3 WATT, 6 VOLT MR16 LED	-	-	120	11.1	13.9	EMERGENCY LIGHTING UNIT WITH (2) INTEGRAL HIGH-OUTPUT LED LAMPS, WHITE THERMOPLASTIC HOUSING, MAINTENANCE FREE NICKEL CADMIUM BATTERY WITH REMOTE CAPACITY (20 TOTAL WATTS FOR 90 MINUTES), 6-VOLT OUTPUT, TEST SWITCH, AND SELF-TESTING DIAGNOSTICS. PROVIDE VANDAL-RESISTANT SHIELD (DUAL-LITE CAT. NO. VRS-4X) WHERE INDICATED ON PLANS. MOUNT ON WALL 7'-6" A.F.F.
L-4	DUAL-LITE: LXURITE(-VRS3) (OR APPROVED EQUAL BY LITHONIA OR DAY-BRITE)	-	LED	-	-	120	3.8	4.8	UNIVERSALLY-MOUNTED LED EXIT SIGN WITH WHITE THERMOPLASTIC HOUSING, RED STENCILED LETTERS, UNIVERSAL SNAP-IN CHEVRON ARROWS, MAINTENANCE-FREE NICKEL-CADMIUM BATTERY, TEST SWITCH, SELF-TESTING DIAGNOSTICS AND DAMP LOCATION LISTING. PROVIDE VANDAL-RESISTANT SHIELD (DUAL-LITE CAT. NO. VRS3) WHERE INDICATED ON PLANS. MOUNT BOTTOM OF SIGN 7'-6" A.F.F.

PROGRESS - NOT FOR CONSTRUCTION

DATE:	DESCRIPTION:	BY:
02/04/2016	REVISION 1	

CAMPGROUND IMPROVEMENTS
CAPE HENLOPEN STATE PARK
LEWES, DELAWARE

ELECTRICAL SCHEDULE, NOTES & SPECIFICATIONS - ALTERNATE BID

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DESIGNED BY: O.D.D.
DRAWN BY: O.D.D.
BUILDING NO.: N/A
DATE: 04/26/2016
SCALE: AS NOTED
SHEET NO.: EA-1
PARKS PROJECT #: CH-44
CONTRACT #: 2015-CH-300