

CONTRACT DOCUMENTS & TECHNICAL SPECIFICATIONS

ADDENDUM NO. 2

**LUMS POND STATE PARK
UTILITY IMPROVEMENTS, PHASE II
CONTRACT No. 2015-LP-100**

September 18, 2015

ADDENDUM No. TWO

Project Name: Lums Pond State Park
Utility Improvements, Phase II

Contract No.: 2015-LP-100

Date of Issue: September 18, 2015

Notice No. 2: Attach this addendum to the Project Manual for this project. It modifies and becomes part of the Bidding Documents. Work or material not specifically mentioned herein is to be as described in the main body of the specifications and as shown on the drawings.

Bids Due: Friday, October 2, 2015 at 11:00 AM

DNREC Division of Parks and Recreation
Richardson and Robbins Building
89 Kings Highway
Dover, DE 19901

General

1. A sign-in sheet and minutes from the mandatory pre-bid meeting are attached to this addendum.
2. All references to topsoil thickness required for restoration of disturbed areas should be changed to six inches. Contractor may need to import topsoil to meet this requirement. Topsoil shall be incidental to the restoration pay item.
3. Soil borings dated July 29, 2015 are included as Attachment 1. They are included for informational purposes only. The soil boring information provided is only an indication of subsurface conditions at those locations and time the borings were completed.
4. Alternate pumping station work will not be permitted to begin until November 1, 2016. Contractor is to process submittals and order required equipment prior to November 1, 2016

such that work can be completed in 60 day time frame. Contractor may request payment for materials purchased, insured, delivered and securely stored in accordance with the contract documents.

5. Contractor will be permitted to work 24 hours per day, 7 days per week excluding holidays.
6. Prior to any construction at the site, Contractor is to install a survey stake at each rear corner of the driveways and schedule with DNREC to approve layout. It is DNREC's intention a) to reduce all driveway widths (except lots 58, 59 and 60) to 10 feet keeping the utility side of the driveway as shown, b) to reduce the driveway width of lots 58, 59 and 60 to 12 feet keeping the utility side of the driveway as shown and c) increase the length of lots 58, 59 and 60 by 10 feet. Bid quantities have not been modified. Contractor will be reimbursed for the quantity of asphalt paving placed at the unit cost submitted with the bid.
7. Liquidated Damages in the amount of \$3,000 per calendar day will be assessed for each day beyond the 180 day contract time it takes to reach Substantial Completion.
8. Liquidated Damages in the amount of \$3,000 per calendar day will be assessed for each day beyond the 210 day contract time it takes to reach Final Completion.
9. Building Utility Stub Up drawings have been included as Attachment 2.
10. In order to satisfy DNREC stormwater concerns, DNREC may elect to install a porous paving system in accordance with Attachment 4 on a driveway(s).

Drawings

11. Title Sheet – Sediment and Stormwater Management Plans – Delete note 6.c. These plans are for construction.
12. Delete Drawing ES-06 and replace with the attached ES-06. Detail ESC-3.6.1 was added to the sheet.
13. G-02 – Note 27 – Contractor to provide a 4 feet by 8 feet metal sign stating “CAMPGROUND CLOSED UNTIL MEMORIAL DAY 2016” and sign shall be in accordance with MUTCD. Contractor to submit the sign to DNREC for approval prior to fabrication.
14. Delete Sheet C-04 and replace with attached Sheet C-04.
15. Delete Sheet C-05 and replace with attached Sheet C-05.
16. Sheet C-07 – Delete note indicating water crossing at approximate station 10+25.

17. Sheet C-13 to C-16 – References to paving sections are further clarified below:

Type C – WMA, Superpave, PG 70-22, 160 Gyration (401804)(Carbonate Stone)

Type B – WMA, Superpave, PG 70-22, 160 Gyration (401813)

GABC (302007)

Paving Section Structural Number (SN) is 3.12

18. Sheet C-13 – Sidewalk Detail – Change 6” GABC beneath sidewalk to 4” GABC. Preformed expansion joint filler shall be in accordance with DELDOT standards.

19. Sheet C-13 – Delete Typical Driveway Detail and replace with the Typical Driveway Detail included as Attachment 3.

20. C-15 – Yard Hydrant Detail – Drain hole, plunger and valve to be located a minimum of 3 feet below grade.

21. C-15 – RV Sewer and Dump Station Detail – Install SDR 35 PVC to SCH 80 PVC transition immediately prior to Wye and reduce to 4” diameter. All piping after transition is to be SCH 80. Cap is to be a hinged sewer hatch cover Model DSV-GT2 as manufactured by Trumbull Recreational Supply Co, or approved equal. Embed cover in concrete in accordance with manufacturer’s recommendations. Concrete embedded cover is required at both RV sewer and dump stations.

22. Sheet C-16 – 48” Diameter Manhole Detail – Delete the note pointing to the manhole frame and cover indicating “See Concrete Manhole Collar on Sheet C-14” and replace it with “See Sanitary Sewer Manhole Frame and Cover Replacement Detail” for instructions on how all frames are to be adhered to precast riser sections and subsequent construction of concrete collar.

23. Delete Sheet C-16 and replace with attached Sheet C-16.

Specifications

24. Delete Section 00300 – Bid Form in its entirety and substitute the revised Section 00300 – Bid Form attached to this addendum.

25. Delete Section 01025 – Measurement and Payment in its entirety and substitute the revised Section 01025 – Measurement and Payment attached to this addendum.

Sign In Sheet

Project: State of Delaware
 DNREC, Division of Parks and Recreation
 Lums Pond State Park, Utility Improvements, Phase II

Contract No. 2015-LP-100

Date: September 9, 2015

Meeting: Pre Bid Conference

Name	Representing	Phone No.	Email Address
Jerry Katzmire	AECOM	302-463-3408 (Cell)	Gerald.Katzmire@aecom.com
<i>C. C. WATZ</i>	<i>Kent Construction</i>	<i>302-1053-6416</i>	<i>Estimator2@kentconstructionco.com</i>
William A. Keener	Mumford and Miller Concrete	302 530 3692	Kmumroe@mumfordandmiller.com
Philip F. Cullin	Guardian Construction	302-834-1000 229-8919	pcullin@guardianco.com <i>Leto@guardianco.com</i>
Davison Mwale	DNREC	302-739-9991	davison.mwale@state.de.us
Michael Branham	LINDSTROM EXC. CONT INC	(410) 778-6344	MB21617@gmail.com
BRAM COCHRAN	COCHRAN EXCAVATING	302 652-6628	—
Dale Kerns	Nickle Electrical	302-463-7564	DKerns@nickle_email
Matt Baile	Power Plus Electrical Cont. Inc	302 786-5070	Mattb337@gmail.com
Don Yanick	Castle Const. of DE	302-326-3600	dona ld. yanick@castledc.com
Charles W. Reed II	Teal Construction Inc	302-678-9500	creed@tealconstruction.com
Jimmie Fitzsimmons	Superior Electric	302-420-2502	Jimmie@Superiorelectric.biz
Steve Newman	Reybold Construction	302-832-3100 x134	shewman@reybold.com
Ric Shuckey	Pro Work Inc	(302) 221-4200	Ric.Shuckey@proworkexc.com
Bud Anthony	ANCHOR ELECC.	302 420 4758	ASA.ELECTRICAL@GMAIL.COM
Anna Bradley	JJID INC.	302-528-4947	abradley@jjid.com
MAT BALLINTEK	MATCO CONSTRUCTION ENGRS.	302-992-9810	MATB@MCEBS.COM
WAYNE COMEBYS	DELLO LLO FLEET	302-994-3400	WAYNE@DELLOLLO.COM
JOHN HUTCHINGS	EASTERN STATES	302-995-2259	HUTCHINGS@EASTERN-STATES.NET
JOHN EVERHART	BRANDYWINE CONST.	302-571-9773	jeverhart@bcccico.com

PRE BID MEETING MINUTES

Date: September 17, 2015
To: Prospective Bidders
From: Gerald N. Katzmire
Subject: Lums Pond State Park: Utility Improvements, Phase II
Contract No. 2015-LP-100
Meeting Date: September 9, 2015

PRE-BID CONFERENCE:

ATTENDEES: Please see the “Sign in Sheet”

LOCATION: Lums Pond Campground Entrance
3350 Red Lion Road
Bear, DE 19701

On September 9, 2015 there was a mandatory Pre Bid Conference for Contract No. 2015-LP-100 for the Lums Pond State Park Utility Improvements, Phase II. The following items were discussed.

PB-1 The Pre Bid Meeting is mandatory and a prerequisite for bidding this Contract.

PB-2 The Owner requested that all attendees sign the “Sign in Sheet”

PB-3 The following items were noted in the Contract Documents:

- The Department of Natural Resources and Environmental Control, Division of Parks and Recreation, Office of Design and Development will receive sealed bids in the Auditorium, DNREC Building at 89 Kings Highway, Dover DE, 19901 until 11:00 AM local time on Friday October 2, 2015, at which time they will be publicly opened and read aloud in the Auditorium. Any bid received after the stated time will be returned unopened. The Invitation to Bid contains additional information related to the labeling on the outer envelope.
- Prospective bidders may obtain a CD containing electronic copies of bidding documents upon payment of \$25.00 for each set at the above owner’s address. Checks are to be made payable to the Division of Parks and Recreation. Prospective Bidders must purchase the CD to be considered on the Bidders list.

- Bidding Documents are available for review at the Office of the Division of Parks and Recreation and the Delaware Contractors Association and Associated Builders and Contractors.
- Cynthia A. Todd, RLA of the Division of Parks and will receive all questions related to the Bid and is the Point of Contact for DNREC. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to Cindy.Todd@state.de.us at least seven days prior to the date for receipt of Bids. Interpretations, corrections and changes to the Bidding Documents will be made by written Addendum.
- Requests for substitutions shall be made in writing to DNREC at least ten days prior to the date of the Bid Opening. Such requests shall include a complete description of the proposed substitution, drawings, performance and test data, explanation of required installation modifications due the substitution, and any other information necessary for an evaluation. The burden of proof of the merit of the proposed substitution is upon the proposer. DNREC's decision of approval or disapproval shall be final.
- Bidders should use the Bid Forms included in the Contract Documents.
- Bidders must acknowledge receipt of all Addenda when submitting their Bids.
- Each bid must be accompanied by a bid security in the form of a certified check, etc. or bid bond in the amount of ten percent (10%) of the bid total (Base Bid and all Alternates) and made payable to the Department of Natural Resources and Environmental Control.
- The successful Contractor will be required to provide a Performance and Payment Bonds for the full value of the Bid.
- This is a prevailing wage project. Both the State of Delaware and Davis Bacon wage rates apply. The higher of the two for each labor classification will need to be paid. The Project is classified "Heavy Construction".
- The Project is a calendar day Contract and is 180 calendar days to Substantial Completion with an additional 30 days to final completion. An additional 60 days will be allotted to the Contract if the Pump Station alternates are awarded. The additional 60 days will be to complete the pump station bid alternates only. All work within the campground must be completed within the 210 calendar days described above.
- This project is being funded by the Clean Water State Revolving Fund loan funded from the State of Delaware's Department of Natural Resources and Environmental Control. Bidder must comply with the provisions that are included in the contract.

PB-4 Davison Mwale reviewed the requirements of the Clean Water State Revolving Loan Fund,

Part A: Buy American Iron and Steel Requirements

1. Included products and construction materials include the following
 - a) Lined or unlined pipes and fittings
 - b) Manhole covers
 - c) Hydrants.
 - d) Flanges
 - e) Valves
 - f) Pipe clamps and restraints
 - g) Reinforced precast concrete
 - h) Structural steel
 - i) Municipal castings –*List on Page 7 (access hatches, cleanout boxes)*
2. Excluded materials are listed at bottom of Pages 8 and 9
 - a) Mechanical and electrical components – *pumps, motors, drives including VFDs, mixers, blowers, etc.)*
 - b) Equipment and systems
3. Compliance: Review the documents and
 - a) Contractor to sign construction contract statement on Page 18
 - b) Contractor to get certification from manufactures (see page 19 and 20) that all manufacturing of iron and steel products occurred in the USA
4. Waivers are applicable if (Page 11).
 - a) It is not in public interest (e.g., for standardized systems) to use USA iron and steel,
 - b) Not enough iron and steel products of good quality produced in USA
 - c) Inclusion of iron and Iron and Steel will increase the project by at least 25%.
5. Waiver Process (Page 11-15)
 - a) Borrower will e-mail a word document with waiver request to state.
 - b) State will review the waiver request and make sure all documentation is included (see checklist - appendix 1 on page 15)
 - c) EPA will review state submission (see checklist - appendix 2 on page 16) and advertise for 15 days on EPA website and make a ruling accepting or denying the request.
6. Current Waivers
 - a) Stainless steel nuts and bolts used in pipe couplings, restraints, joints, flanges and saddles
 - b) Iron and steel products manufactured using non-domestic pig iron and direct reduced iron

Part B: Davis Bacon and State Wage rates apply

1. Both the State of Delaware and Federal Davis Bacon wage rates apply. The higher of two for each labor classification will need to be paid.
2. Contractor to submit certified weekly payrolls to DE DOL and DNREC Parks and Recreation. Submission to DNREC Parks and Recreation should include “Statement of Compliance” signed by contractor affirming compliance with Davis Bacon wage rate requirement.
3. DNREC Parks and Recreation will review weekly payroll and verify compliance of Davis Bacon wage requirements with the CSWRF

Part C: Non-Discrimination Clause-Equal Opportunity Employment Clause (EO 11246)

1. A “Compliance Statement form” needs to be signed by all bidders and submitted together with the bid.

By signing the form, each bidder agrees that: Contractor and subcontractors will not discriminate any employee or applicant for employment because of race, religion, sex, or national origin.

Part C: Certification of Non-Segregated Facilities

1. A “Certification of Non-segregated Facilities form” needs to be signed by all bidders and submitted together with the bid.

By signing the form, the contractor agrees not to maintain employee facilities that are segregated.

Part D: Disadvantaged Business Enterprise (DBE) Regulations

1. All bidders need to sign and submit the new DBE rule form (found under DBE regulations section of Program Requirements and submit form with bid
2. All DBE’s are now required to be certified and a list of the certified DBE’s may be obtained from the Delaware Department of Transportation (DelDOT) or the EPA Office of Small Business Programs
3. All bidders are required to follow the 6 Good Faith Efforts during bidding.
 - 1) All bidders are required to solicit DBEs for sub-contracts
 - a. Bidders may send e-mail, phone calls, faxes, advertise, etc.
 - b. Bidders must submit to DBEs EPA forms 6100-2 and 6100-3
 - c. DBEs fill and return EPA form 6100-3 to bidder.
 - d. Bidders use information from EPA 6100-3 to fill-out EPA 6100-4.

- e. Bidders must submit documentation of efforts, EPA form 6100-3 & 6100-4 with bid.
- 2) Bids should be advertised for at least 30-days to encourage and facilitate DBE participation.
- 3) If economically feasible, divide total job requirements into small tasks to permit maximum DBE participation.
- 4) Encourage DBE's to form consortiums
- 5) Obtain a list of the certified DBE's from (DelDOT) or SBA.
- 6) Requires subcontractors to follow steps (1)-(5)

Part E: Civil Rights Act of 1964

Contractor and sub-contractors shall not on the grounds of race, color, national origin or sex exclude from participation in , deny the benefits of, or subject to any person under any program or activity receiving federal financial assistance.

Part F: Rehabilitation Act 1973 and Age Discrimination Act of 1975**Part G: Provisions of 40CFR Part 31 Subpart C**

Bidders need to comply with the Clean Air Act and the Clean Water Act.

Part H: Suspension, Debarment and other responsibility matters

Please check with www.epls.gov to make sure that contractors and subcontractors are not on the "list of parties excluded from federal procurement programs

PART I: Access to Project Site- Contractors to ensure EPA, DNREC have access to site at all times

Project Sign- Contractor to provide project sign. Specifications of sign are in program requirements.

PB-5 The following items related to the work were discussed:

- The Base Bid involves utility upgrades to camp sites in the Lums Pond State Park Campground providing an installation of a complete electrical system, a gravity sewer system and water system with hook ups at campsites. In addition, the work includes the construction of asphalt driveways at each camp site, upgrade to existing lift station adjacent to the campground and utility connections for a pre-fabricated bathhouse at the campground. There will be bid alternates to rehabilitate existing manholes throughout the Park, upgrades to two additional pump stations, replacement of manhole frames and covers and work on the Wastewater Treatment Plant primary feeder.
- The Bid will be awarded based on the amount of the lowest grand total, summation of Base Bid, Contingency's and the selected Alternate Bids. The

Bidder acknowledges that the Alternate Bids may not be awarded at the sole discretion of the Owner.

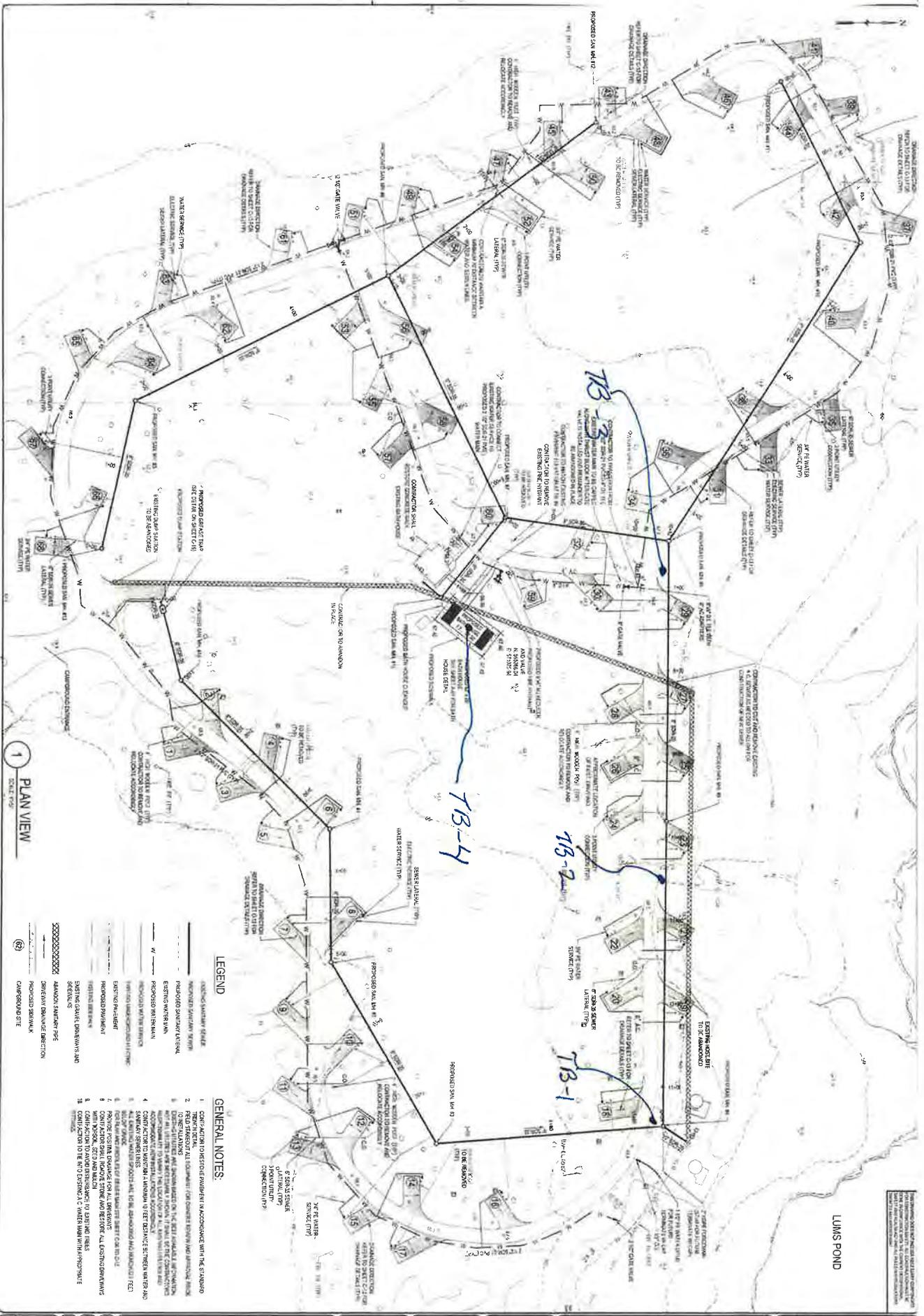
- The Campground will be closed to complete the work. Work will be conducted in one phase to provide the least possible interference to the activities of the Owner's personnel, activities within the Park and to permit an orderly startup of utilities at the campground. The Contractor will be allowed to work seven (7) days/week, 24 (24) hours/day to complete the work. Close coordination with DNREC will be required throughout the course of the work.
- Contractor will be expected to conduct his work in a safe manner and in accordance with OSHA requirements including meeting all the requirements for confined space entry and trench safety.
- Contract is a Unit Cost Contract. However, some of the units are Lump Sum. Please review the Bid Form and Section 01025, Measurement and Payment in detail for a description of Bid Items and the work included in each Bid Item.
- Access to the Pipe – Bidders should familiarize themselves with the site prior to submitting a Bid. Bidders should call ahead to Park Office to announce their intent to visit the site. Bidders must also visit the Parks Main Office prior to commencing on-site inspection.
- A Project Sign is required. See the Contract Documents for specifics related to the sign (Section 00650, Water Pollution Control Revolving Loan Requirements).
- Please review Section 01040, Project Coordination of the Contract Documents for coordination and notification requirements the Contractor is responsible to provide throughout the course of the work.
- There will be addenda issued prior to the Bid.

The minutes of the meeting have been prepared by AECOM. We feel they accurately reflect the discussions of the meeting. Any additions, deletions or corrections to these minutes should be forwarded to Cindy Todd, in writing within 7 days of receiving these minutes. If no comments are received, the minutes presented above shall be considered acceptable to all parties.

CC: Meeting attendees

ATTACHMENT 1

Soil Borings



1 PLAN VIEW
SCALE: 1" = 40'

- LEGEND**
- 12" SANITARY SEWER
 - 18" SANITARY SEWER
 - 24" SANITARY SEWER
 - 30" SANITARY SEWER
 - 36" SANITARY SEWER
 - 42" SANITARY SEWER
 - 48" SANITARY SEWER
 - 54" SANITARY SEWER
 - 60" SANITARY SEWER
 - 66" SANITARY SEWER
 - 72" SANITARY SEWER
 - 78" SANITARY SEWER
 - 84" SANITARY SEWER
 - 90" SANITARY SEWER
 - 96" SANITARY SEWER
 - 102" SANITARY SEWER
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 - 888" SANITARY SEWER
 - 894" SANITARY SEWER
 - 900" SANITARY SEWER
 - 906" SANITARY SEWER
 - 912" SANITARY SEWER
 - 918" SANITARY SEWER
 - 924" SANITARY SEWER
 - 930" SANITARY SEWER
 - 936" SANITARY SEWER
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 - 954" SANITARY SEWER
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 - 972" SANITARY SEWER
 - 978" SANITARY SEWER
 - 984" SANITARY SEWER
 - 990" SANITARY SEWER
 - 996" SANITARY SEWER
 - 1000" SANITARY SEWER
- GENERAL NOTES:**
1. CONNECTION TO EXISTING UTILITY SHALL BE MADE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS, LATEST EDITION, AND ANY LOCAL ORDINANCES.
 2. ALL UTILITIES SHALL BE DEPTH MARKED AND MAINTAINED THROUGHOUT THE PROJECT.
 3. ALL UTILITIES SHALL BE PROTECTED AND MAINTAINED THROUGHOUT THE PROJECT.
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 10. ALL UTILITIES SHALL BE PROTECTED AND MAINTAINED THROUGHOUT THE PROJECT.

<p>CAMPGROUND UTILITY PLAN</p> <p>LUMS POND STATE PARK UTILITY IMPROVEMENTS - PHASE II NEW CASTLE COUNTY, DELAWARE</p>	<p>DATE: 07/27/2011</p> <p>PROJECT NO: 07271101</p> <p>SCALE: 1" = 40'</p>	<p>PROJECT NO: 07271101</p> <p>DATE: 07/27/2011</p>									
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URS

405 COLLEENWOOD SUITE 300
NEWARK, DE 19713
903.731.5900
WWW.URS-CORP.COM



WALTON CORPORATION
 Drilling Contractor
 P.O. BOX 1097, NEWARK, DELAWARE 19715
BORING LOG

BLOWS ON CASING B	
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1-2	
2-3	
3-4	
4-5	
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NAME Lump's Pond PROJECT NO. _____
 SUPERVISOR _____

BORING NO. TB-4 DRILLER DAVID COLTON DATE 7-29-15
 WEATHER SUNNY SURFACE ELEVATION _____ DATUM _____

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	*Blows A		
	From	To	From	To				
1	0	2			Brown SILTY sand	1	2	3 3
2	2	4			BROWN SILTY sand	3	7	10 10
3	4	6			BROWN SILTY sand SM-Gravel	8	9	15 10
4	6	8			Brown SILTY sand	6	6	6 6
5	8	10			Brown sand Trace clay	2	3	3 4
6	10	12			Brown sand Trace clay	2	3	4 6
7	12	14			Brown to orange sand Trace clay	5	5	8 9
8	14	16			Brown sand Trace clay wet	2	3	4 7
9	16	18			Orange sand wet	5	12	16 16
10	18	22			Orange sand wet	12	20	16 15

*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.
 *B Number of blows of 300 lb. hammer dropped 18 in. required to drive _____ in casing 12 inches.

REMARKS: Wet on spoon 16 FT
Water in logs 11 FT 9 in

GROUND WATER	



WALTON CORPORATION

Drilling Contractor

P.O. BOX 1097, NEWARK, DELAWARE 19715

BORING LOG

NAME Lums Pond PROJECT NO. _____
 SUPERVISOR _____

BORING NO. TB-3 DRILLER DAVID COLTON DATE 7-29-15
 WEATHER Sunny SURFACE ELEVATION _____ DATUM _____

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	*Blows A		
	From	To	From	To				
1	0	2			Brown silty sand	4	5	7
2	2	4			Brown silty sand 5m gravel	4	7	12
3	4	6			Brown silty sand	3	4	5
4	6	8			Brown silty sand	3	4	5
5	8	10			Brown silty sand trace clay	2	3	4
6	10	12			Brown silty sand trace clay	3	4	4
7	12	14			Brown silty sand trace clay moist	3	3	3
8	14	16			Brown silty sand wet			
9	16	18			Brown silty sand wet			
10	18	20			Brown silty sand wet			
H.00pm water in pipe 15FT 9in								

*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.
 *B Number of blows of 300 lb. hammer dropped 18 in. required to drive in casing 12 inches.

REMARKS: Gravel layer 3-5ft
wet on spoon 12.3 ft
water in aug 16 ft.
cavel 2ft 6in.

GROUND WATER

BLOWS ON CASING B
0-1
1-2
2-3
3-4
4-5
5-6
6-7
7-8
8-9
9-10
10-11
11-12
12-13
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57-58
58-59
59-60
60-61



WALTON CORPORATION
 Drilling Contractor
 P.O. BOX 1097, NEWARK, DELAWARE 19715
BORING LOG

BLOWS ON CASING B
0-1
1-2
2-3
3-4
4-5
5-6
6-7
7-8
8-9
9-10
10-11
11-12
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NAME LUM POND PROJECT NO.
 SUPERVISOR

BORING NO. 7B-2 DRILLER DAVID COCTIA DATE 7-29-15
 WEATHER SURFACE ELEVATION DATUM

Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	*Blows A			
	From	To	From	To					
1	0	2			BROWN SILTY SAND SM GRAVEL	7	6	5	5
2	2	4			BROWN SILTY SAND	4	6	7	6
3	4	6			BROWN SILTY SAND TRACE CLAY	2	4	4	8
4	6	8			BROWN SILTY SAND TRACE CLAY	5	5	6	8
5	8	10			BROWN SILTY SAND MOIST	2	3	4	6
6	10	12			BROWN SILTY SAND MOIST	8	10	11	11
7	12	14			BROWN SILTY SAND WET	4	8	12	12
8	14	16			GRAY SAND WET	3	8	12	14
9	16	18			GRAY SAND WET	12	20	15	18
10	18	20			GRAY SAND WET	9	5	10	13
3:55 WATER IN PIPE 10 FT 9 IN									

*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.
 *B Number of blows of 300 lb. hammer dropped 18 in. required to drive in casing 12 inches.

REMARKS: WET ON SPOON 12.6 FT
WATER IN AUG 10.4 FT

GROUND WATER

ONLY 9 CAVED 3 FT 5 IN



WALTON CORPORATION

Drilling Contractor
P.O. BOX 1097, NEWARK, DELAWARE 19715

BORING LOG

BLOWS ON CASING B
0-1
1-2
2-3
3-4
4-5
5-6
6-7
7-8
8-9
9-10
10-11
11-12
12-13
13-14
14-15
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60-61

NAME LUMS pond PROJECT NO. _____
 SUPERVISOR _____

BORING NO. TB-1 DRILLER DAVID COLTON DATE 7-29-15
 WEATHER SUNNY SURFACE ELEVATION _____ DATUM _____

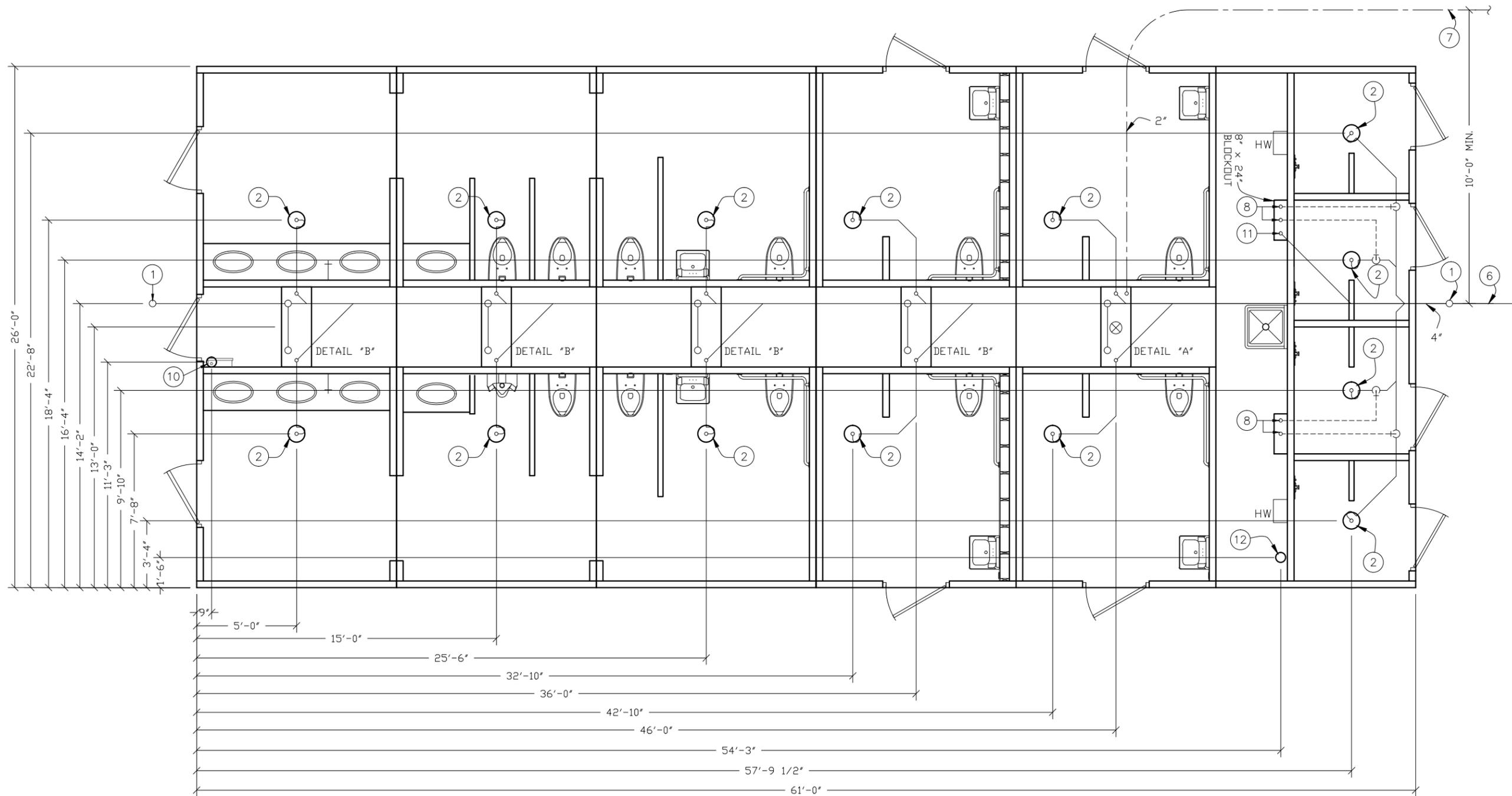
Sample No.	Sample Depth - Feet		Depth Strata Feet		Driller's Description of Materials	*Blows A			
	From	To	From	To					
1	0	2			Brown silty sand	8	7	7	7
					sm gravel				
2	2	4			Brown silty sand	8	7	11	11
3	4	6			Brown silty sand	5	5	5	5
4	6	8			Brown silty sand	4	7	10	8
					trace clay				
5	8	10			Brown silty sand	4	3	5	6
					trace clay				
6	10	12			Gray sand trace clay	4	6	7	8
					moist				
7	12	14			Gray sand moist	2	4	12	6
8	14	16			Brown wet sand	2	3	7	6
9	16	18			Brown wet sand	7	11	16	13
10	18	20			Brown wet sand	4	10	7	8
3:50 PM WATER IN PIPE 11 FT 9 IN.									

*A Number of blows of 140 lb. hammer dropped 30 in. required to drive 2 in. split-spoon sampler for each of three 6 in. increments.
 *B Number of blows of 300 lb. hammer dropped 18 in. required to drive in casing 12 inches.

REMARKS: Water on spoon 12 FT
Water on Aug 12 FT 9 in
Water 11 FT Cased 13 FT 10:15 AM

GROUND WATER	

ATTACHMENT 2



FLOOR DRAIN BLOCKOUTS & BELOW FLOOR PIPING

3808 N. Sullivan Bldg. #7 Spokane, WA 99216



901 N. Highway 77 Hillsboro, TX 76645

PROJECT TITLE
SANTIAGO
PROPOSAL NUMBER 15-147P

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CXT Incorporated

REV.	DESCRIPTION	APPROVAL	DATE
SCALE	3/16"=1'-0"	DATE	08-26-15
DRAWN	ROB D WALKER	FILE NO.	15-147P
CHECKED	RDW	PLLOT	48

FILED STUB UP DIMENSIONS

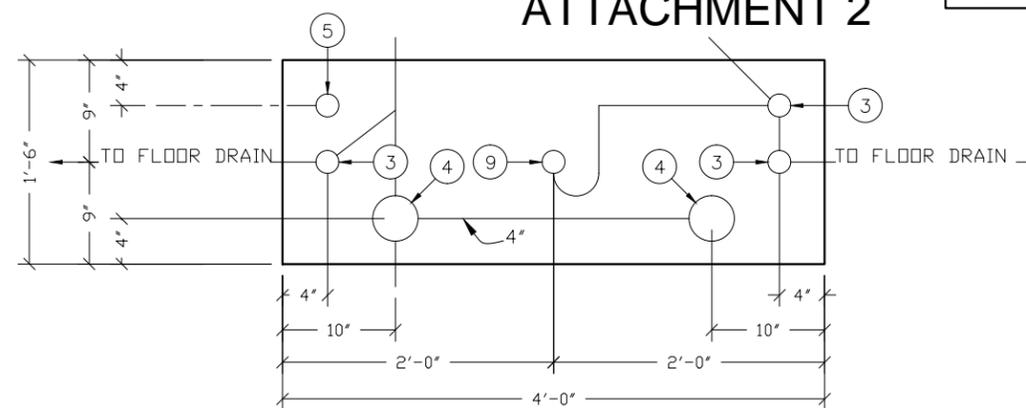
DWG NO.	SHEET	REV.

ALL PIPING INDICATED ON THIS SHEET IS NOT BY CXT

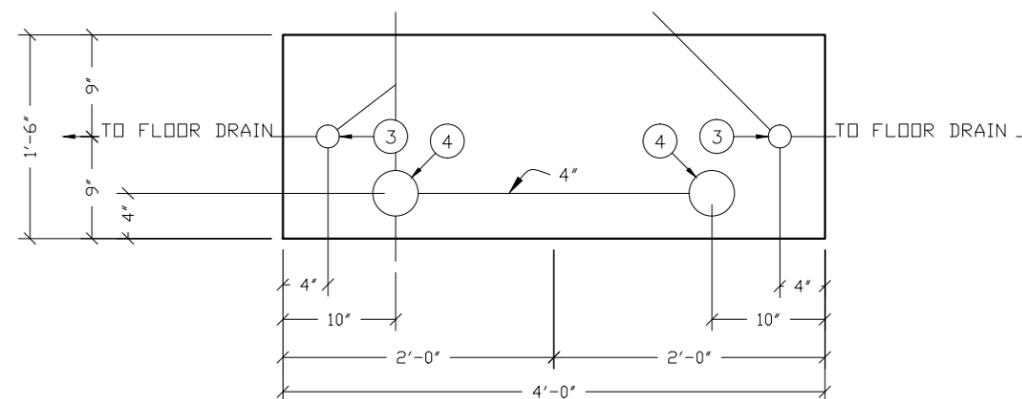
BELOW FLOOR PIPING - KEY NOTES

1. 4" CLEAN OUT TO GRADE.
2. 2" FLOOR DRAIN. FIELD INSTALLED TRAP PRIMER SYSTEM IF REQUIRED BY AUTHORITY HAVING JURISDICTION. (10" DIA BLOCKOUT)
3. 2" VENT PIPES EXTENDED 12" ABOVE FINISHED FLOOR LEVEL, PROVIDE TEST PLUGS. (18" x 48" BLOCKOUT)
4. 4" WASTE PIPE EXTENDED 12" ABOVE FINISHED FLOOR LEVEL, PROVIDE TEST PLUG. (18" x 48" BLOCKOUT)
5. 2" TYPE K ANNEALED "SOFT" COPPER WATER SERVICE EXTENDED 12" ABOVE FINISHED FLOOR LEVEL, PROVIDE CAP AT END. (18" x 48" BLOCKOUT)
6. 30" MIN. BURY, PROVIDE TRACER TAPE.
7. MIN. BURY PER LOCAL REQUIREMENTS TO PROTECT AGAINST FREEZING AND DAMAGE.
8. 2" VENT PIPES EXTENDED 12" ABOVE FINISHED FLOOR LEVEL, PROVIDE TEST PLUGS. (8" x 2'-0" BLOCKOUT)
9. 2" FLOOR DRAIN. FIELD INSTALLED TRAP PRIMER SYSTEM IF REQUIRED BY AUTHORITY HAVING JURISDICTION. (1'-6" x 4'-0" BLOCKOUT)
10. ELECTRICAL STUB UP. (6" DIA BLOCKOUT)
11. 2" WASTE PIPE EXTENDED 12" ABOVE FINISHED FLOOR LEVEL, PROVIDE TEST PLUGS. (8" x 2'-0" BLOCKOUT)
12. LP GAS STUB UP. (6" DIA BLOCKOUT)

ATTACHMENT 2



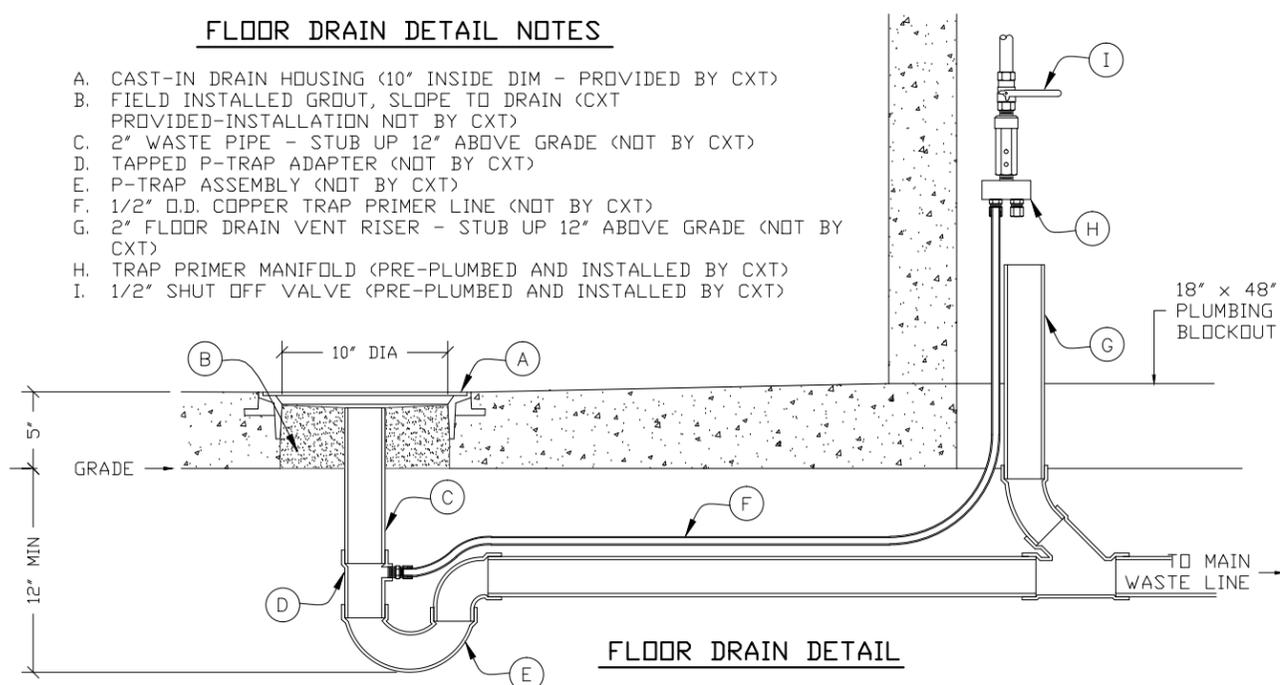
18" x 48" BLOCKOUT DETAIL "A"



18" x 48" BLOCKOUT DETAIL "B"

FLOOR DRAIN DETAIL NOTES

- A. CAST-IN DRAIN HOUSING (10" INSIDE DIM - PROVIDED BY CXT)
- B. FIELD INSTALLED GROUT, SLOPE TO DRAIN (CXT PROVIDED-INSTALLATION NOT BY CXT)
- C. 2" WASTE PIPE - STUB UP 12" ABOVE GRADE (NOT BY CXT)
- D. TAPPED P-TRAP ADAPTER (NOT BY CXT)
- E. P-TRAP ASSEMBLY (NOT BY CXT)
- F. 1/2" O.D. COPPER TRAP PRIMER LINE (NOT BY CXT)
- G. 2" FLOOR DRAIN VENT RISER - STUB UP 12" ABOVE GRADE (NOT BY CXT)
- H. TRAP PRIMER MANIFOLD (PRE-PLUMBED AND INSTALLED BY CXT)
- I. 1/2" SHUT OFF VALVE (PRE-PLUMBED AND INSTALLED BY CXT)



FLOOR DRAIN DETAIL

PIPING LEGEND

- BELOW FLOOR WASTE PIPING SCH 40 ABS TYPE DWV
- - - - BELOW FLOOR VENT PIPING SCH 40 ABS TYPE DWV
- - - - 2" TYPE "K" ANNEALED "SOFT" COPPER WATER SERVICE

3808 N. Sullivan Bldg. #7 Spokane, WA 99216



CXT Precast Products

901 N. Highway 77 Hillsboro, TX 76645

PROJECT TITLE
SANTIAGO
PROPOSAL NUMBER 15-148P

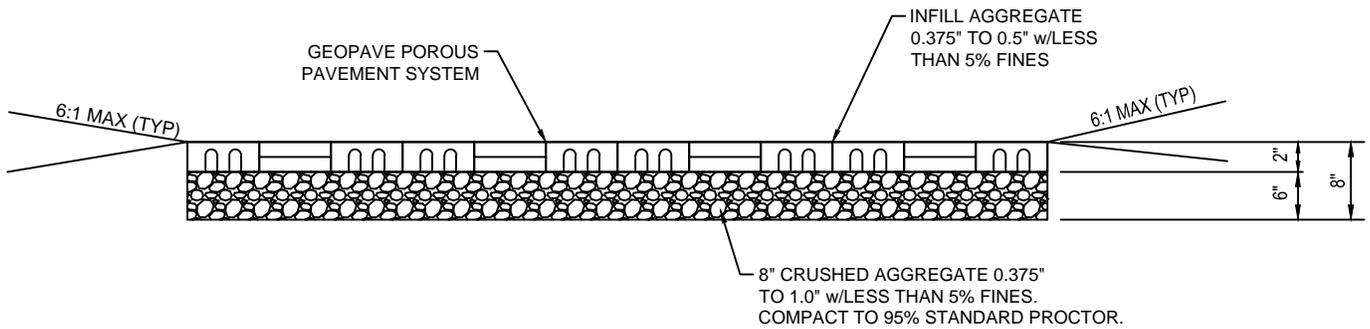
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CXT Incorporated

REV.	DESCRIPTION	APPROVAL	DATE
SCALE	3/16"=1'-0"	DATE	08-26-15
DRAWN	ROB D WALKER	FILE NO.	15-148P
CHECKED	RDW	PLOT	64

FIELD STUB UP DETAILS

DWG NO.	SHEET	REV.

ATTACHMENT 4



DRIVEWAY – PERMEABLE
NOT TO SCALE

Standard Detail & Specifications
Vegetative Stabilization

Table with columns: Mix #, Species, Seeding Rate, Optimum Seeding Dates, Planting Depth. Includes a sub-table for Temporary Seeding Rates, Depths and Dates.

- 1. Winter seeding requires 3 tons per acre of straw mulch for proper stabilization.
2. May be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
3. Applicable on slopes 3:1 or less.
4. Fifty pounds per acre of Annual Lespedeza may be added to 1/2 the seeding rate of any of the above species.
5. Use varieties currently recommended for Delaware. Contact a County Extension Office for information.
6. Warm season grasses such as Millet or Weeping Lovegrass may be used between 5/1 and 9/1 if desired. Seed at 3-5 lbs per acre. Good on low fertility and acid areas. Seed after frost through summer at a depth of 0.5".

Source: Delaware ESC Handbook
Symbol:
Detail No. DE-ESC-3.4.3
Sheet 1 of 4
Date: 12/03

Standard Detail & Specifications
Vegetative Stabilization

Table with columns: Seeding Mixture, Seeding Rate, Coastal Plain, Piedmont, All. Includes a sub-table for Permanent Seeding and Seeding Dates.

Source: Delaware ESC Handbook
Symbol:
Detail No. DE-ESC-3.4.3
Sheet 1 of 4
Date: 12/03

Standard Detail & Specifications
Vegetative Stabilization

Construction Notes:

- 1. Site Preparation
a. Prior to seeding, install needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, dikes, grassed waterways, and sediment basins.
b. Final grading and shaping is not necessary for temporary seedings.
2. Seedbed Preparation
It is important to prepare a good seedbed to insure the success of establishing vegetation. The seedbed should be well prepared, loose, uniform, and free of large clods, rocks, and other objectionable material. The soil surface should not be compacted or crusted.
3. Soil Amendments
a. Lime - Apply liming materials based on the recommendations of a soil test in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply dolomitic limestone at the rate of 1 to 2 tons per acre. Apply limestone uniformly and incorporate into the top 4 to 6 inches of soil.
b. Fertilizer - Apply fertilizer based on the recommendations of a soil test in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply a formulation of 10-10-10 at the rate of 600 pounds per acre. Apply fertilizer uniformly and incorporate into the top 4 to 6 inches of soil.
4. Seeding
a. For temporary stabilization, select a mixture from Sheet 1. For a permanent stabilization, select a mixture from Sheet 2 or Sheet 3 depending on the conditions.
b. Apply seed uniformly with a broadcast seeder, drill, cultipacker seeder or hydroseeder. All seed will be applied at the recommended rate and planting depth.
c. Seed that has been broadcast should be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used and the seed and fertilizer is mixed, they will be mixed on site and the seeding shall be done immediately and without interruption.
5. Mulching
All mulching shall be done in accordance with detail DE-ESC-3.4.5.

Source: Delaware ESC Handbook
Symbol:
Detail No. DE-ESC-3.4.3
Sheet 4 of 4
Date: 12/03

Standard Detail & Specifications
Mulching

- 1. Materials and Amounts
a. Straw - Straw shall be unrotted small grain straw applied at the rate of 1-1/2 to 2 tons per acre, or 70 to 90 pounds two bales per 1,000 square feet. Mulch materials shall be relatively free of weeds and shall be free of noxious weeds such as; thistles, Johnson grass, and quackgrass. Spread mulch uniformly by hand or mechanically. For uniform distribution of hand spread mulch, divide area into approximately 1,000 square feet sections and place 70-90 pounds two bales of mulch in each section.
b. Wood chips - Apply at the rate of approximately 6 tons per acre or 275 pounds per 1,000 square feet when available and when feasible. These are particularly well suited for utility and road rights-of-way. If wood chips are used, increase the application rate of nitrogen fertilizer by 20 pounds of N per acre (2000 pounds of 10-10-10 or 66 pounds of 30-0-0 per acre).
c. Hydraulically applied mulch - The following conditions apply to hydraulically applied mulch:
i. Definitions:
a. Wood fiber mulch shall consist of specially prepared wood that has been processed to a uniform state, is packaged for sale as a hydraulic mulch for use with hydraulic seeding equipment, and consists of a minimum of 70% virgin or recycled wood fiber combined with 30% paper fiber and additives.
b. Blended fiber mulch shall consist of any hydraulic mulch that contains greater than 30% paper fiber. The paper component must consist of specially prepared paper that has been processed to a uniform fibrous state and is packaged for sale as a hydraulic mulch for use with hydraulic seeding equipment.
c. A bonded fiber matrix (BFM) consists of long strand, specially prepared wood fibers that have been processed to a uniform state held together by a water resistant bonding agent. BFM's shall contain no paper (cellulose) mulch but may contain small percentages of synthetic fibers to enhance performance.
d. Refer to Figure 3.4.5a for conditions and limitations of use for each of the above categories of hydraulic mulch.
ii. All components of the hydraulically applied mulches shall be pre-packaged by the manufacturer to assure material performance. Field mixing of the mulch components is acceptable, but must be done per manufacturer recommendations to ensure the proper results.
iii. Hydraulic mulches shall be applied with a viable seed and a manufacturer's recommended rates. Increased rates may be necessary based on site conditions.
iv. Hydraulically applied mulches and additives shall be mixed according to manufacturer recommendations.
v. Materials within this category shall only be used when hydraulically applied mulch has been specified for use on the approved Sediment and Stormwater Plan, or supplemental approval from the plan approval agency has been obtained in writing for a specific area.

Source: Delaware ESC Handbook & Filtrax International
Symbol:
Detail No. DE-ESC-3.4.5
Sheet 1 of 3
Date: 03/13

Standard Detail & Specifications
Mulching

- v. Application:
a. Apply product to geotechnically stable slopes that have been designed and constructed to divert runoff away from the face of the slope.
b. Do not apply to saturated soils, or if precipitation is anticipated within 24-48 hours.
c. During the spring (March 1 to May 31) and fall (September 1 to November 30) seasons, hydraulic mulches may be applied in a one-step process where all components are mixed together in single-tank loads. It is recommended that the product be applied from opposing directions to achieve optimum soil coverage.
d. During the summer (June 1 to August 31) and winter (December 1 to February 28) seasons, the following two-step process is required:
Step One - Mix and apply seed and soil amendments with a small amount of mulch for visual seeding.
Step Two - Mix and apply mulch at manufacturer's recommended rates over freshly seeded surfaces. Apply from opposing directions to achieve optimum soil coverage.
e. Minimum curing temperature is 40°F (4°C). The best results and more rapid curing are achieved at temperatures exceeding 60°F (15°C). Curing times may be accelerated in high temperature, low humidity conditions on dry soils.
vi. Recommended application rates are for informational purposes only. Conformance with this standard and specification shall be performance-based and requires 100% soil coverage. Any areas with bare soil showing shall be top dressed until full coverage is achieved.
d. Compost Blanket (CB) - Loosely applied with a pneumatic blower so that a 1" compost blanket uniformly covers the soil with 100% coverage. This application can be used with seed to promote germination by applying the approved seed mix directly into the loosely blown compost. The compost blanket performs best on slopes less than 2:1 and requires no mulch anchoring.
2. Anchoring mulch - Mulch must be anchored immediately to minimize loss by wind or water. This may be done by one of the following methods, depending upon size of area, erosion hazard, and soil conditions:
a. Crimping - A crimper is a tractor drawn implement designed to punch and anchor mulch into the top two (2) inches of soil. This practice affords maximum erosion control but is limited to flatter slopes where equipment can operate safely. On sloping land, crimping should be done on the contour whenever possible.
b. Tracking - Tracking is the process of cutting mulch usually straw into the soil using a bulldozer or other equipment that runs on cleated tracks. Tracking is used primarily on slopes 3:1 or steeper and should be done up and down the slope with cleat marks running across the slope.
c. Liquid mulch binders - Applications of liquid mulch binders should be heavier at edges, in valleys, and at crests of banks and other areas where the mulch will be moved by wind or water. All other areas should have a uniform application of binder. The use of synthetic binders is the preferred method of mulch binding and should be applied at the rates recommended by the manufacturer.
d. Paper fiber - The fiber binder shall be applied at a net dry weight of 750 lbs/acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons.
e. Nettings - Synthetic or organic nettings may be used to secure straw mulch. Install and secure according to the manufacturer's recommendations.

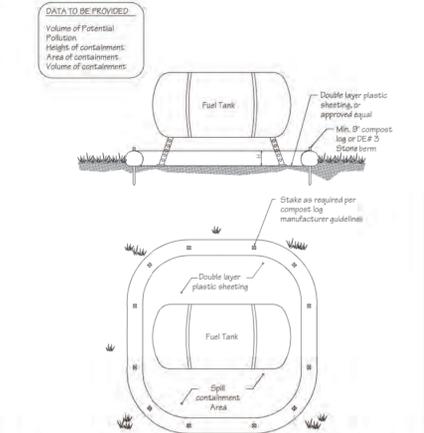
Source: Delaware ESC Handbook & Filtrax International
Symbol:
Detail No. DE-ESC-3.4.5
Sheet 2 of 3
Date: 03/13

Standard Detail & Specifications
Mulching

MULCHING MATERIAL SELECTION GUIDE table with columns: Product Name, Type of Mulch, Application Rate, Date Range, and a grid of application status (OK/Not OK).

Source: Delaware ESC Handbook & Filtrax International
Symbol:
Detail No. DE-ESC-3.4.5
Sheet 3 of 3
Date: 03/13

Standard Detail & Specifications
Construction Site Waste Mgt & Spill Control



Source: Delaware ESC Handbook
Symbol:
Detail No. DE-ESC-3.6.1
Sheet 1 of 5
Date: 03/13

Standard Detail & Specifications
Construction Site Waste Mgt & Spill Control

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

Source: Delaware ESC Handbook
Symbol:
Detail No. DE-ESC-3.6.1
Sheet 2 of 5
Date: 03/13

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. Deltergents
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 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 lidned 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: Adapted from USEPA Pub. 840-B-92-002
Symbol:
Detail No. DE-ESC-3.6.1
Sheet 3 of 5
Date: 03/13

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. Low or non-toxic substances shall be prioritized for use.

Source: Adapted from USEPA Pub. 840-B-92-002
Symbol:
Detail No. DE-ESC-3.6.1
Sheet 4 of 5
Date: 03/13

Standard Detail & Specifications
Construction Site Waste Mgt & Spill Control

- Notes (cont.)
e. Contact information for reporting spills through the DNREC 24-Hour Toll Free Number shall be prominently posted.
6. Education
a. Best management practices for construction site pollution control shall be a part of regular progress meetings.
b. Information regarding waste management, equipment maintenance and spill prevention shall be prominently posted in the construction trailer.
CONTACT INFORMATION
DNREC 24-Hour Toll Free Number 800-662-8802
DNREC Solid & Hazardous Waste Branch 302-739-9403

Source: Adapted from USEPA Pub. 840-B-92-002
Symbol:
Detail No. DE-ESC-3.6.1
Sheet 5 of 5
Date: 03/13

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE CURRENT OCCUPATIONAL SAFETY AND HEALTH ACT AND ALL RULES AND REGULATIONS THERETO AND APPLICANT.

JURS logo and address: 4051 GOLETOWN ROAD, SUITE 300, NEW CASTLE, DE 19720, WWW.JURSCORP.COM

Table with columns: REVISIONS, NO., DATE, DESCRIPTION. Includes a section for COMMENTS and SUBMITTALS.

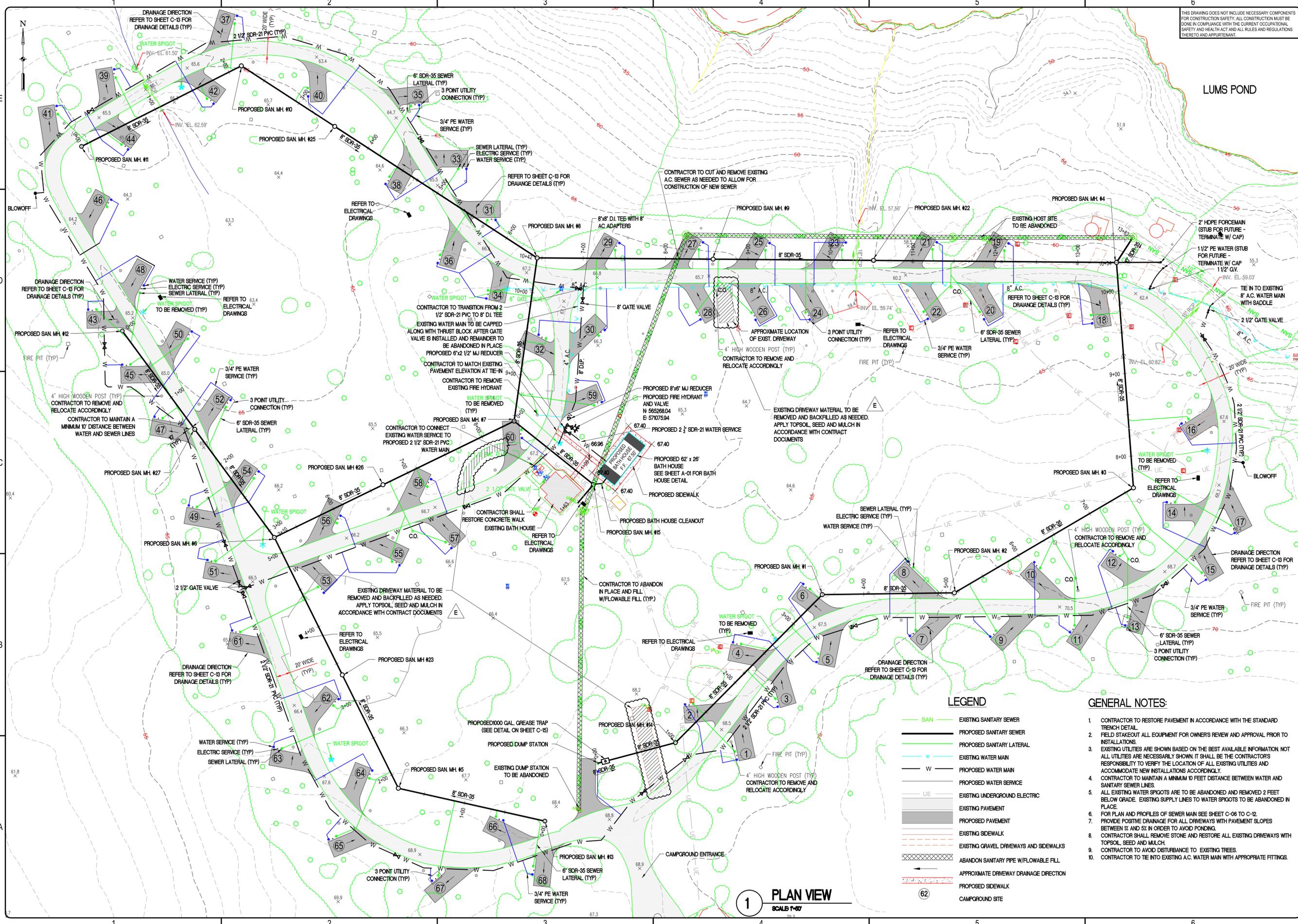
Scale bar (0 to 12 feet), orientation (HORIZONTAL, VERTICAL), and drawing information (DRAWN BY, DESIGNED BY, REVIEWED BY, APPROVED BY).

E&S NOTES AND DETAILS 2, PROJECT INFORMATION (DATE: 05/14/15, REVISION: D, PROJECT NO: 20712904, SHEET NO: ES-06), SHEET SEQUENCE: 06 OF 10.

V:\Projects\1501\DE_DNREC\20712909\CAD\Current\SEDMEN & STORMWATER\ES-06.rvt, 8/27/2015 1:45 PM, Tynn, Woods, DWG to PDF.pc3, ARCH, export D (24.00 x 36.00 inches), 1:1

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE CURRENT OCCUPATIONAL SAFETY AND HEALTH ACT AND ALL RULES AND REGULATIONS HERETO AND APPURTENANT.

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 4051 COLETTOWN ROAD, SUITE 300
 NEW CASTLE COUNTY, DE 19700
 WWW.JURSCORP.COM



LUMS POND

LEGEND

- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY LATERAL
- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- PROPOSED WATER SERVICE
- EXISTING UNDERGROUND ELECTRIC
- EXISTING PAVEMENT
- PROPOSED PAVEMENT
- EXISTING SIDEWALK
- EXISTING GRAVEL DRIVEWAYS AND SIDEWALKS
- ABANDON SANITARY PIPE W/FLOWABLE FILL
- APPROXIMATE DRIVEWAY DRAINAGE DIRECTION
- PROPOSED SIDEWALK
- CAMPGROUND SITE

GENERAL NOTES:

1. CONTRACTOR TO RESTORE PAVEMENT IN ACCORDANCE WITH THE STANDARD TRENCH DETAIL.
2. FIELD STAKEOUT ALL EQUIPMENT FOR OWNERS REVIEW AND APPROVAL PRIOR TO INSTALLATIONS.
3. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION. NOT ALL UTILITIES ARE NECESSARILY SHOWN. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES AND ACCOMMODATE NEW INSTALLATIONS ACCORDINGLY.
4. CONTRACTOR TO MAINTAIN A MINIMUM 10 FEET DISTANCE BETWEEN WATER AND SANITARY SEWER LINES.
5. ALL EXISTING WATER SPOGOTS ARE TO BE ABANDONED AND REMOVED 2 FEET BELOW GRADE. EXISTING SUPPLY LINES TO WATER SPOGOTS TO BE ABANDONED IN PLACE.
6. FOR PLAN AND PROFILES OF SEWER MAIN SEE SHEET C-06 TO C-12.
7. PROVIDE POSITIVE DRAINAGE FOR ALL DRIVEWAYS WITH PAVEMENT SLOPES BETWEEN 1% AND 5% IN ORDER TO AVOID PONDING.
8. CONTRACTOR SHALL REMOVE STONE AND RESTORE ALL EXISTING DRIVEWAYS WITH TOPSOIL, SEED AND MULCH.
9. CONTRACTOR TO AVOID DISTURBANCE TO EXISTING TREES.
10. CONTRACTOR TO TIE INTO EXISTING A.C. WATER MAIN WITH APPROPRIATE FITTINGS.

1 PLAN VIEW
 SCALE: 1"=60'

NO.	DATE	DESCRIPTION	BY
08/15/15	CTC		
08/05/15	CTC		
07/15/15	CTC		
08/01/12	CTC		
11/10/10	CTC		
11/10/10	CTC		

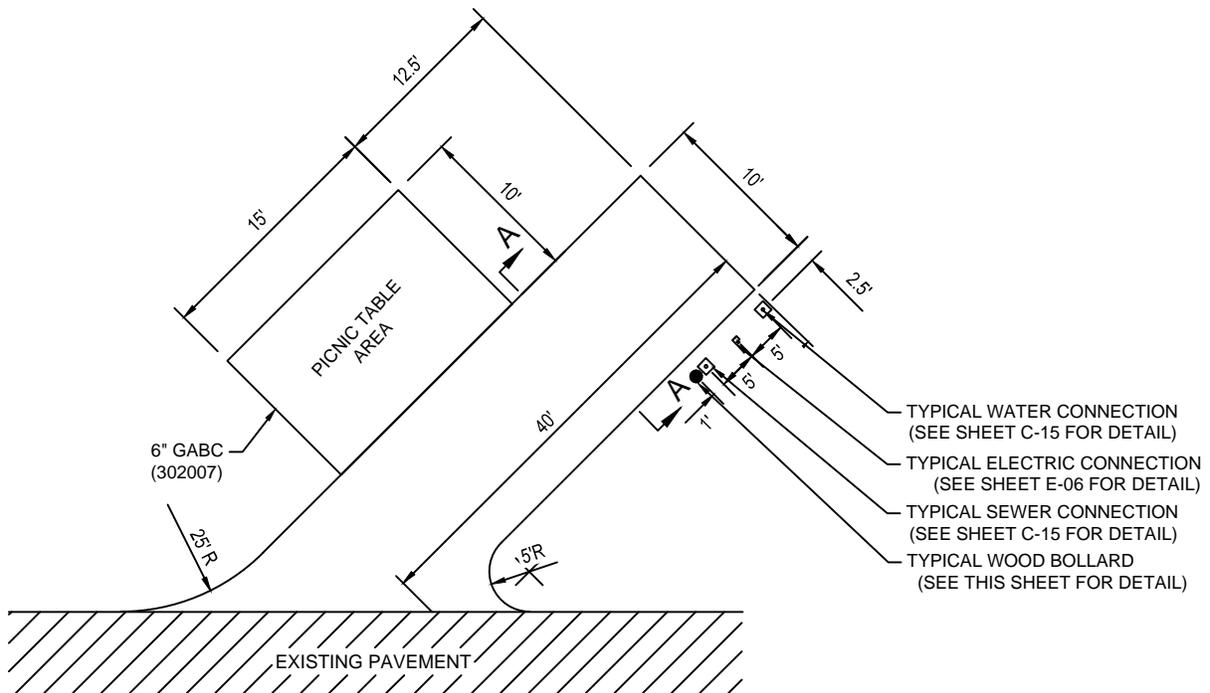
NO.	DATE	DESCRIPTION	BY
08/15/15	CTC		
08/05/15	CTC		
07/15/15	CTC		
08/01/12	CTC		
11/10/10	CTC		
11/10/10	CTC		

CAMPGROUND UTILITY PLAN
 LUMS POND STATE PARK
 UTILITY IMPROVEMENTS - PHASE II
 NEW CASTLE COUNTY, DELAWARE

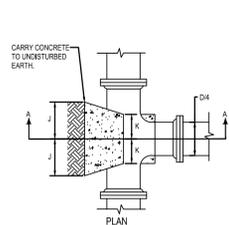
DATE	08/21/15
REVISION	E
PROJECT NO.	20712904
SHEET NO.	C-04
SHEET SEQUENCE	16 OF 46

V:\Projects\1501\1501_AMEC\20150804\Drawings\C-04 CONSTRUCTION PLAN.dwg, 8/19/2015 11:32 AM, Drawn by: John E. (Newark), DWG to PDF, plot, MCH, 1600 x 1600, 1:1

ATTACHMENT 3

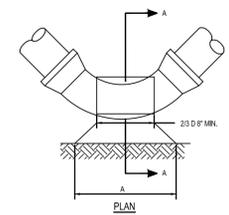
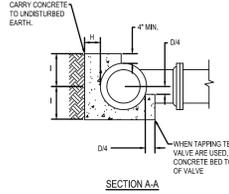


TYPICAL DRIVEWAY DETAIL
NOT TO SCALE

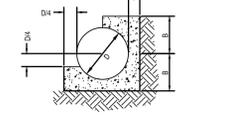


NOTES:
 1. BUTTRESS DIMENSIONS SHOWN ARE BASED UPON SOIL BEARING PRESSURE OF 3000 PSF AND STATIC WATER PRESSURE OF 150 PSF WHERE WATER MAIN PRESSURE EXCEEDS 150 PSF OR WHERE SOIL BEARING PRESSURE IS LESS THAN 3000 PSF SPECIAL BUTTRESS DESIGN IS REQUIRED.
 2. MINOR VARIATIONS IN BUTTRESS SHAPE WILL BE PERMITTED, PROVIDED THE MINIMUM BEARING AGAINST SOLID GROUND IS MAINTAINED.

SIZE OF BRANCH (D)		12"	16"	20"	24"	30"	36"
D	6"	10"	12"	16"	20"	24"	30"
E	8"	12"	16"	20"	24"	30"	36"
F	10"	16"	20"	24"	30"	36"	42"
G	12"	16"	20"	24"	30"	36"	42"
H	14"	18"	24"	30"	36"	42"	48"
I	16"	20"	24"	30"	36"	42"	48"
J	18"	24"	30"	36"	42"	48"	54"
K	20"	24"	30"	36"	42"	48"	54"
L	24"	30"	36"	42"	48"	54"	60"

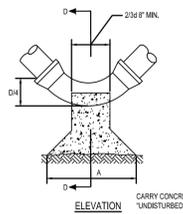


BEND	D	6"	8"	10"	12"	16"	20"	24"	30"	36"
A	6"	10"	12"	16"	20"	24"	30"	36"	42"	48"
B	8"	12"	16"	20"	24"	30"	36"	42"	48"	54"
C	10"	16"	20"	24"	30"	36"	42"	48"	54"	60"
D	12"	16"	20"	24"	30"	36"	42"	48"	54"	60"
E	14"	18"	24"	30"	36"	42"	48"	54"	60"	66"
F	16"	20"	24"	30"	36"	42"	48"	54"	60"	66"
G	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"
H	20"	24"	30"	36"	42"	48"	54"	60"	66"	72"
I	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"

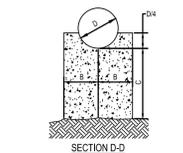


NOTE: CARRY CONCRETE TO UNDISTURBED EARTH.

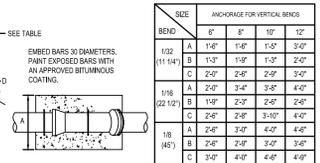
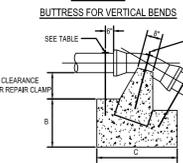
BUTTRESS DETAIL
SCALE: NONE



BEND	D	6"	8"	10"	12"	16"	20"	24"	30"	36"
A	6"	10"	12"	16"	20"	24"	30"	36"	42"	48"
B	8"	12"	16"	20"	24"	30"	36"	42"	48"	54"
C	10"	16"	20"	24"	30"	36"	42"	48"	54"	60"
D	12"	16"	20"	24"	30"	36"	42"	48"	54"	60"
E	14"	18"	24"	30"	36"	42"	48"	54"	60"	66"
F	16"	20"	24"	30"	36"	42"	48"	54"	60"	66"
G	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"
H	20"	24"	30"	36"	42"	48"	54"	60"	66"	72"
I	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"

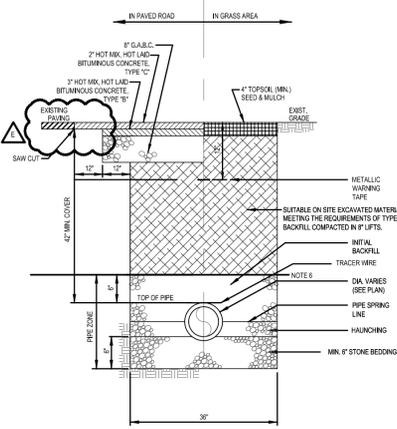


SIZE	6"	8"	10"	12"
A	3#4	3#4	3#4	3#4
B	3#4	3#4	3#4	3#4
C	3#4	3#4	3#4	3#4
D	3#4	3#4	3#4	3#4
E	3#4	3#4	3#4	3#4
F	3#4	3#4	3#4	3#4
G	3#4	3#4	3#4	3#4
H	3#4	3#4	3#4	3#4
I	3#4	3#4	3#4	3#4



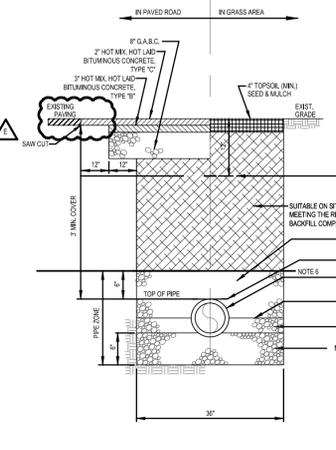
NOTES:
 1. BUTTRESS DIMENSIONS ARE BASED UPON A SOIL BEARING PRESSURE OF 3000 PSF AND STATIC PRESSURE OF 150 PSF WHERE PRESSURE EXCEEDS 150 PSF OR WHERE SOIL BEARING PRESSURE IS LESS THAN 3000 PSF A SPECIAL BUTTRESS DESIGN IS REQUIRED.
 2. ANCHORAGE DIMENSIONS ARE FOR BENDS 6" TO 12" INCLUSIVE.
 3. BUTTRESS DIMENSIONS ARE FOR BENDS 6" TO 30" INCLUSIVE.
 4. MINOR VARIATIONS IN BUTTRESS SHAPE WILL BE PERMITTED, PROVIDED THE MINIMUM BEARING AGAINST UNDISTURBED EARTH IS MAINTAINED.
 5. ANCHORING BARS TO CONCRETE TO PIPE O.D. PROVIDE A CONTINUOUS BEARING SURFACE FOR ONE HALF THE PIPE PERIMETER.
 6. WHEN ANCHORING PVC PIPE THE STRAPPING IN CONTACT WITH THE PIPE SURFACE SHALL BE 1" WIDE x 1/4" THICK STEEL (NOT SHOWN), THE REMAINING PORTION OF THE STRAP SHALL BE A REINFORCING BAR SIZED IN ACCORDANCE WITH THE PERTINENT CHART.

BUTTRESS DETAIL
SCALE: NONE



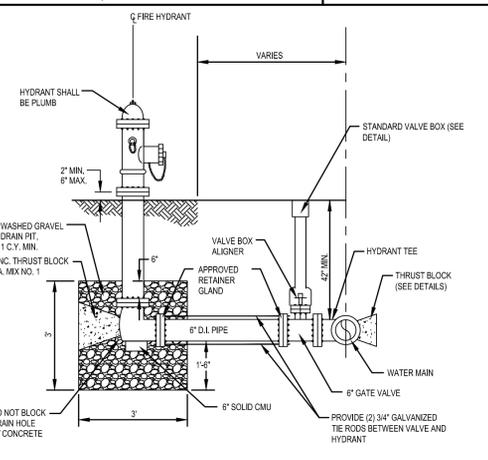
NOTES:
 1. ALL BACKFILL MATERIAL SHALL BE COMPACTED IN 6" LIFTS TO 95% OF THE MAXIMUM DRY DENSITY AS MEASURED BY THE STANDARD PROCTOR.
 2. ALL BEDDING, HAUNCHING AND INITIAL BACKFILL SHALL BE AASHTO #7 STONE.
 3. HAND WORK STONE BEDDING TO SPRING LINE OF PIPE TO SUPPORT HAUNCHES.
 4. BOTTOM OF TRENCH SHALL BE FIRM, REMOVE ALL LOOSE MATERIAL.
 5. REMOVE ROCK TO A MIN. OF 6" BELOW THE BOTTOM OF THE PIPE & REPLACE W/ AASHTO #7 STONE BEDDING.
 6. FILTER CLOTH SHALL BE PLACED OVER STONE BEDDING. FILTER CLOTH SHALL CONSIST OF TYRAN 340-400293 OR AN APPROVED EQUIVALENT MEETING THE REQUIREMENTS OF AASHTO #38B.

TYPICAL TRENCH DETAIL (WATER)
SCALE: NONE



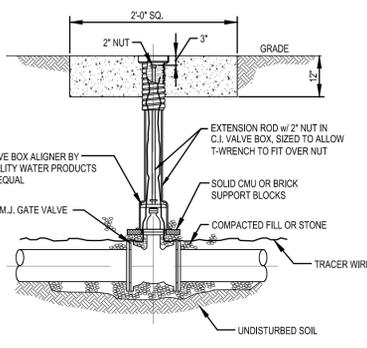
NOTES:
 1. ALL BACKFILL MATERIAL SHALL BE COMPACTED IN 6" LIFTS TO 95% OF THE MAXIMUM DRY DENSITY AS MEASURED BY THE STANDARD PROCTOR.
 2. ALL BEDDING, HAUNCHING AND INITIAL BACKFILL SHALL BE AASHTO #7 STONE.
 3. HAND WORK STONE BEDDING TO SPRING LINE OF PIPE TO SUPPORT HAUNCHES.
 4. BOTTOM OF TRENCH SHALL BE FIRM, REMOVE ALL LOOSE MATERIAL.
 5. REMOVE ROCK TO A MIN. OF 6" BELOW THE BOTTOM OF THE PIPE & REPLACE W/ AASHTO #7 STONE BEDDING.
 6. FILTER CLOTH SHALL BE PLACED OVER STONE BEDDING. FILTER CLOTH SHALL CONSIST OF TYRAN 340-400293 OR AN APPROVED EQUIVALENT MEETING THE REQUIREMENTS OF AASHTO #38B.

TYPICAL TRENCH DETAIL (SANITARY)
SCALE: NONE

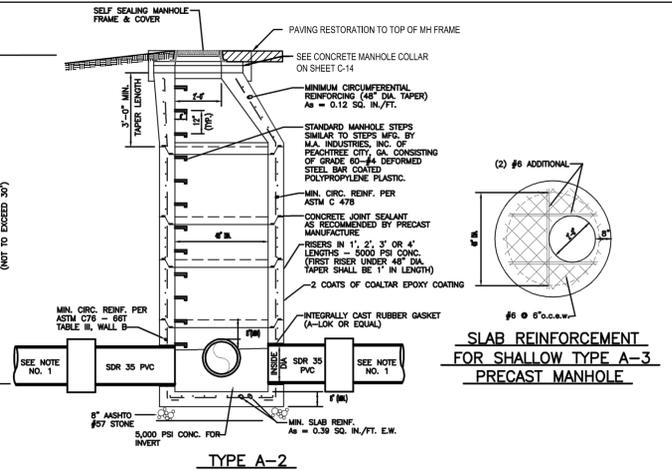


NOTES:
 1. FIRE HYDRANT SHALL BE MUELLER A-423 SUPER CENTURION 250 HYDRANTS.
 2. FIRE HYDRANT SPECIFICATIONS:
 TRAFFIC TYPE, PAINTED RED, OPEN LEFT OPERATING NUT - 5 SIDED MECHANICAL JOINT BASE - 6" BRONZE LINED
 4.375" FITCH DIA.
 2-2 1/2" HOSE NOZZLES - HOSE THD. 3 1/32" DIA. 8 THDS/INCH
 3. FIRE HYDRANT SHALL BE INSTALLED AS SHOWN ON THE SITE PLANS ADJOINING LOTS. ORIENTATION OF STEAMER NOZZLE SHALL BE AS DIRECTED BY THE FIRE MARSHALL.
 4. PROVIDE 2" REFLECTIVE TAPE AROUND THE BARREL UNDER THE TOP FLANGE.
 5. PROVIDE A WATER TEST ON THE HYDRANTS, ONCE THEY HAVE BEEN INSTALLED AND BEFORE THEY ARE PLACED INTO SERVICE IN ACCORDANCE WITH NFPA 291. THE FURNISHED RESULTS WILL INCLUDE THE NAME OF THE INDIVIDUALS OR FIRM WHICH PERFORMED THE TESTS AND THEIR QUALIFICATIONS.

FIRE HYDRANT DETAIL
SCALE: NONE



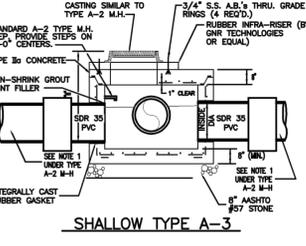
TYPICAL VALVE & VALVE BOX
SCALE: NONE



NOTE 1: CONTRACTOR IS REQUIRED TO CONNECT NEW SDR 35 PVC PIPE TO THE EXISTING PIPE WITH COUPLINGS TO BE APPROVED BY THE ENGINEER.

PIPE SIZE	MIN. MH BASE HEIGHT	MIN. H FOR A-2	MIN. H FOR A-3
18" TO 24" DIA.	3'	6.5'	7.5'

NOTES:
 1. UNLESS OTHERWISE NOTED, MANHOLE TAPERS, RISERS, AND BASES SHALL BE FURNISHED IN STRICT ACCORDANCE WITH ASTM DESIGNATION C478 (LATEST) FOR PRECAST REINFORCED CONCRETE MANHOLES.
 2. MANHOLE BASES SHALL BE OF 5,000 P.S.I. PRECAST CONCRETE.
 3. REINFORCING FOR TYPE A-3 MANHOLE SAME AS TYPE A-2 MANHOLE, EXCEPT AS NOTED.
 4. MANHOLE STEPS SHALL BE SPACED AS SHOWN IN A SINGLE VERTICAL ALIGNMENT. THE STEPS SHALL NOT BE STAGGERED.
 5. PRECAST UNIT SHALL BE CHAMFERED TO SUPPORTING HIGHWAY LINE LOADS (H-20, ETC.) AS REQUIRED BY AASHTO.
 6. FLOW CHANNEL IN MANHOLE TO BE PRECAST CONCRETE. NO CAST IN PLACE FLOW CHANNELS.
 7. RIM ELEVATION SHALL BE AS INDICATED ON THE PLANS. IF NOT ELEVATION IS SHOWN, SET FRAME 1" TO 2" ABOVE SURROUNDING FINISH GRADE AND TAPER SOIL TO TOP OF RIM. SET RIM 1" ABOVE FINISHED GRADE IN WOODED OR UNMAINTAINED AREAS.



48" Ø MANHOLE DETAIL
SCALE: NONE

JURS
 4051 COLETTOWN ROAD, SUITE 300
 NEW CASTLE, DE 19720
 (302) 764-5000
 WWW.JURSCORP.COM

NO.	DATE	DESCRIPTION
E		RE-USED DESIGN PER DIRECTOR COMMENTS
D		RE-USED DESIGN PER DIRECTOR COMMENTS
C		RE-USED DESIGN PER DIRECTOR COMMENTS
B		RE-USED DESIGN PER DIRECTOR COMMENTS
A		RE-USED DESIGN PER DIRECTOR COMMENTS

REVISIONS	BY	DATE
09/01/15	CTC	
08/05/15	CTC	
07/15/15	CTC	
11/10/10	CTC	

DETAIL SHEET III
 LUMS POND STATE PARK
 UTILITY IMPROVEMENTS - PHASE II
 NEW CASTLE COUNTY, DELAWARE

DATE: 08/21/15
 REVISION: E
 PROJECT NO.: 20712904
 SHEET NO.: C-16
 SHEET SEQUENCE: 28 OF 46

UTILITY IMPROVEMENTS – PHASE II
LUMS POND STATE PARK
DIVISION OF PARKS AND RECREATION CONTRACT No. 2015-LP-100

BID FORM

BID FORM

For Bids Due: October 2, 2015, 11:00 AM To: Dept. of Natural Resources and Environmental Control
Division of Parks and Recreation
Office of Design and Development
89 Kings Highway, Dover DE 19901

Name of Bidder: _____

Delaware Business License No.: _____ **Taxpayer ID No.:** _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

(Other License Nos.): _____

Phone Number: () _____ **Fax Number:** () _____

The basis of award will be the base bid plus the contingencies plus any selected alternatives. The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the following price(s):

Base Bid					
Item No.	Description	Unit	Quantity	Unit Price	Total Price
1	Mobilization (Max of 5% of the total of the Base and any Contingency Bid Items)	LS	1		
2	Traffic Control	LS	1		
3	Clearing	LS	1		
4	Restoration	LS	1		
5	Install 8" and 10" PVC Gravity Sewer Pipe	LF	4000		
6	New 6" PVC Gravity Sewer Lateral Connections	LF	3600		
7	Pre-Cast Manholes:				
	7A -- 4'-0" Diameter Manhole at 0'-0" to 8'-0" Deep	EA	14		
	7B – Remove and Replace Existing Manhole 0'-0" to 8'-0" Deep	EA	2		
	7C – 4'-0" Diameter Manhole per vertical foot greater than 8'-0" Deep	EA	6		

UTILITY IMPROVEMENTS – PHASE II
LUMS POND STATE PARK
DIVISION OF PARKS AND RECREATION CONTRACT No. 2015-LP-100

BID FORM

8	Grease Trap	LS	1		
9	Abandon Existing Manholes in Place	EA	3		
10	Abandon Existing Sewer Pipe in Place	CY	30		
12	PVC Water Main Pipe:				
	12A -- 2 1/2" PVC Water Main	LF	3800		
	12B -- 8" DIP Water Main	LF	200		
13	Water Service Installation:				
	13A -- 3/4" Water Service Connection from New PVC Pipe	EA	52		
	13B -- 3/4" Water Service Connection from New DIP Pipe	EA	2		
	13C -- 3/4" Water Service Connection from Existing AC Pipe	EA	14		
	13D -- 1-1/2" Water Service and Future Stub (adjacent to camp site 18)	EA	1		
	13E -- 2-1/2" Water Service Connection from new PVC Pipe	EA	1		
14	Gate Valves:				
	14A -- 2 1/2" Gate Valve	EA	16		
	14B -- 1 1/2" Gate Valve	EA	1		
	14C -- 3/4" Gate Valve	EA	1		
	14D -- 8" Gate Valve	EA	1		
15	Fire Hydrants	EA	1		
16	Water Connections to Existing Pipe				
	16A -- 8" Water Connection to Existing Pipe	EA	1		
	16B -- 2-1/2" Water Connection to Existing Pipe	EA	1		
17	Proposed Bathhouse Foundation, Stub-ups and Final Connections	LS	1		
18	Proposed Lift Station Modifications				
	18C -- Proposed Lift Station Modifications LS-3	LS	1		
19	Hot Mix Patching	SY	1100		
20	Cleaning and Television Inspection of Pipe	LF	4000		
23	Manhole / Precast Concrete Structure Rehabilitation:				
	23A -- Pressure grouting a brick base section	EA	1		
	23B -- Pressure grouting a precast concrete joint or pipe penetration	EA	1		
24	Grout	GAL	50	\$10	\$500.00

UTILITY IMPROVEMENTS – PHASE II
LUMS POND STATE PARK
DIVISION OF PARKS AND RECREATION CONTRACT No. 2015-LP-100

BID FORM

25	Replacement Manhole Frame and Cover:				
	25A -- Replace Manhole Frame and Cover out of Roadway	EA	1		
26	Driveway Construction	SY	8000		
29	Proposed Electrical System Improvements	LS	1		
Subtotal Base Bid Total					
Contingent Bid Items					
11	Well Pointing	LF	800		
15	Fire Hydrants	EA	2		
21	Undercut Excavation and Backfill	CY	500		
22	Type C Borrow Backfill	CY	3000		
27	Milling	SY	13500		
28	Asphalt Paving	SY	13500		
Subtotal Contingency Bid Items					

Total Bid (Base Bid + Contingency Bid)	
---	--

Alternate Bid Items					
Item No.	Description	Unit	Quantity	Unit Price	Total Price
18	Proposed Lift Station Modifications:				
	18A -- Proposed Lift station Modifications LS-1	LS	1		
18	Proposed Lift Station Modifications:				
	18B -- Proposed Lift Station Modifications LS-2	LS	1		
23	Manhole / Precast Concrete Structure Rehabilitation:				
	23A -- Pressure grouting a brick base section	EA	14		
	23B -- Pressure grouting a precast concrete joint or pipe penetration	EA	19		
24	Grout	GAL	470	\$10	\$4,700.00
25	Replacement Manhole Frame and Cover:				
	25A -- Replace Manhole Frame and Cover out of Roadway	EA	16		
	25B -- Manhole Chimney Reconstruction in excess of 12"	VF	5		
30	Wastewater Treatment Primary Feeder	LS	1		

UTILITY IMPROVEMENTS – PHASE II
LUMS POND STATE PARK
DIVISION OF PARKS AND RECREATION CONTRACT No. 2015-LP-100

BID FORM

31	Asbestos Abatement	LB	1000		
32	Driveway Construction - Permeable	SY	200		

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for thirty (30) days from the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid.

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

Should I/We be awarded this contract, I/We pledge to achieve substantial completion of all the work within _____ calendar days of the Notice to Proceed.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

UTILITY IMPROVEMENTS – PHASE II
LUMS POND STATE PARK
DIVISION OF PARKS AND RECREATION CONTRACT No. 2015-LP-100

BID FORM

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's/General Partner's /Corporate Name)

(State of Corporation)

Business Address: _____

Witness: _____

(Seal)

By: _____
(Authorized Signature)

(Title)

Date: _____

ATTACHMENTS

Sub-Contractor List

Non-Collusion Statement

Bid Security

(Others as Required by Project Manual)

UTILITY IMPROVEMENTS – PHASE II
LUMS POND STATE PARK
DIVISION OF PARKS AND RECREATION CONTRACT No. 2015-LP-100

BID FORM

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date to the Office of Design and Development, Division of Parks and Recreation.

All the terms and conditions of the Lums Pond State Park Utility Improvements – Phase II have been thoroughly examined and are understood.

NAME OF BIDDER _____

AUTHORIZED REPRESENTATIVE
(TYPED): _____

AUTHORIZED REPRESENTATIVE
(SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

E-MAIL: _____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ of 20_____.

My commission expires _____ NOTARY PULIC _____

THIS PAGE MUST BE SIGNED AND NOTORIZED FOR YOUR BID TO BE CONSIDERED.

SECTION 01025- MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 GENERAL

- A. Payment for the work completed under this Contract will be made at the lump sum and unit prices bid, which shall include the furnishing of all labor, tools, equipment and materials, and performance of all work required to complete the project as indicated and specified in accordance with all requirements of the Contract Documents and to the entire satisfaction of the Owner's Engineer.
- B. All incidental and miscellaneous items, work, and materials for which no specific bid item is shown and which are necessary to complete the project in accordance with the contract documents and to maintain and/or repair the work are incidental to the bid items listed below and shall be done and furnished by the Contractor without extra charge.

1.02 AUTHORITY

- A. The Contractor shall provide the services of a Delaware registered surveyor to take all measurements and compute quantities. The Engineer will verify measurements and quantities.

1.03 UNIT QUANTITIES SPECIFIED

- A. Quantities and measurements indicated in the Bid Tab are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Engineer shall determine payment. The State of Delaware is not liable to the Contractor for any additional compensation based on any variance between the estimated quantities and the actual quantities installed during the course of the Project. The Contractor shall be paid solely for the actual quantities of items installed at the bid price.
- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit sum/prices contracted.

1.04 MEASUREMENT OF QUANTITIES

- A. Lineal Foot
 - 1. Measurement of lineal feet to be paid under this section shall be the actual number of lineal feet of material installed in accordance with these specifications, measured as described further in this section, complete, in place and accepted.
 - 2. The cost of any connections of couplings shall be included in the price bid per linear foot for this item.
- B. Square Yards
 - 1. Measurement of square yards of material to be paid under this section shall be the actual number of square yards of material installed in accordance with these specifications, measured from end to end, complete, in place and accepted.
- C. Cubic Yards
 - 1. Measurement of cubic yards of material to be paid under this section shall be the actual volume of cubic yards of material installed in accordance with these specifications, measured from end to end, complete, in place and accepted.

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2. The maximum payment width for pipe trenches shall be as shown on the drawings.
- D. Each
1. The number of each item installed shall be measured on the actual number of each unit installed in accordance with the plans and specifications, complete, in place and accepted.
 2. The cost of any incidentals shall be included in the price bid for this item.
- E. Lump Sum
1. This item will not be measured.
- F. Tonnage
1. The quantity of tonnage to be measured will be the actual number of tons provided, as documented by certified weight slips, complete, in place and accepted.
- 1.05 PAYMENT
- A. Payment includes: Full compensation for all required labor, Products, tools, equipment, plant, transportation, services and incidentals, erection, application or installation of an item of the Work; overhead and profit.
- B. Final payment for work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the engineer multiplied by the unit price for work which is incorporated in or made necessary by the work.
- C. Lineal Foot
1. The number of lineal feet as determined above shall be paid for at the contract unit price per lineal foot bid for this item.
- D. Square Yards
1. The square yards of material as measured above shall be paid at the contract unit price bid for the item.
- E. Cubic Yards
1. The cubic yards of material as measured above shall be paid at the contract unit price bid for the item.
- F. Each
1. The number of each item as determined above shall be paid for at the contract unit price bid for the item.
- G. Lump Sum
1. The contract lump sum price will be made under this item in proportion to the amount of work done as determined by the Engineer.

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H. Tonnage

1. Tonnage will be paid at the contract unit bid price for this item upon receipt of certified weight slips.

1.06 Bid Items

A. Bid Item 1- Mobilization

1. Measurement - The Lump Sum payment for this item will be full compensation for providing initial services and facilities required to mobilize for and commence the work of this project as shown, specified and required to provide a complete project.
2. Payment: The payment for mobilization will be made at 50 % on the first payment requested with the remainder paid in even monthly increments spread out over the Contract Time. Costs to be included under this item shall include such items as bonds, insurance, shop drawings, submittals, temporary facilities and controls, permits, progress schedules, common use field office, notifications along with other costs and incidentals associated with initiating the work. The maximum amount bid for this item shall not exceed 5% of the sum of the Base and any Contingency Bid Items.

B. Bid Item 2 - Traffic Control

1. Measurement – This item will not be measured. The lump sum payment for this item is for the control of traffic throughout the course of the project in accordance with the latest edition of the Delaware Manual on Uniform Traffic Control Devices.
2. Payment – Payment will be based upon completion of the work in accordance with the DE MUTCD, Plans and Specifications. The price bid shall include, but not be limited to furnishing, transporting and setting up all lights, signs including campground closure sign, flags, equipment, materials and labor including flagmen when required to complete the work in accordance with the latest edition of the Delaware Manual on Uniform Traffic Control Devices.

C. Bid Item 3 - Clearing

1. Measurement – The lump sum payment for this item will be full compensation for all work related to the Site Clearing required to complete the work in accordance with the plans and specifications.
2. Payment - The contract lump sum price to be paid will be paid under this item in proportion to the amount of work completed by the Contractor as determined by the Engineer and shall include, but not be limited to notifications, E&S controls and the demolition, removal and legal disposal of all items necessary to complete the work including trees, shrubs, surface debris, existing sidewalks, curb and gutter designated to be replaced, existing stone and asphalt driveways designated to be removed, pipes, water spigots to be abandoned, inlets, signs, etc. along with protection of items designated to remain. The lump sum price for this item shall also include the proper and legal disposal of the materials removed to complete the work of this Contract.

D. Bid Item 4 – Restoration

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1. Measurement - The Lump Sum payment for this item will be full compensation for all work related to provide the temporary and permanent restoration of the project work area (not including asphalt paving restoration) in accordance with the contract documents, complete, in place and accepted. Payment will be based upon percentage of Restoration completed in accordance with the Plans and Specifications as determined by the Engineer.
2. Payment - The contract lump sum price will be paid under this item in proportion to the amount of work done as determined by the Engineer. The price bid shall include, but not limited to: furnishing and setting up all equipment, labor, and materials necessary to restore the project site in accordance with the requirements of the contract documents including notifications, coordination, environmental protection, the restoration of incidental obstructions to original or better conditions including concrete curb and sidewalk, placement of 6" of topsoil (imported topsoil may be required), temporary seeding, permanent seeding, trees, shrubs, signs, removal of E&S Controls, storage facilities, clean up, restoration of staging areas, removal and proper disposal of surplus materials, restoration, construction facilities and temporary controls and all other work necessary to restore areas disturbed by construction.

The restoration of the concrete walk at the existing bathhouse is included in this bid item.

E. Bid Item 5 – Install 8" and 10" PVC Gravity Sewer Pipe

1. Measurement - Measurement of lineal feet to be paid under this section shall be the actual number of lineal feet of 8" and 10" SDR 35 PVC gravity sewer pipe installed in accordance with the plans and specifications, measured along the centerline of installed pipe from center of manhole to center of manhole.
2. Payment – The number of lineal feet as determined above shall be paid for at the contract unit price bid per lineal foot for 8" to 10" SDR 35 PVC gravity sewer pipe installed and tested per the requirements of the Contract Documents. The unit price bid for these items will be full compensation for providing all labor, material, equipment, tools and incidentals necessary to furnish and install the pipe including notifications, test pits to locate utilities, saw cutting and removal of existing bituminous and/or concrete roadway surface and base pavement, sidewalk, curb, E&S controls, bypass pumping wastewater, excavation, shoring, soil, dewatering, the placement of AASHTO # 57 stone bedding around main and lateral pipes, placing backfill full depth of main pipe and lateral pipes, fittings, compaction, testing of backfill, connection to existing sewer, placement of GABC, temporary paving, and all other items of work necessary to furnish and install the gravity piping per the plans and specifications.

F. Bid Item 6 – New 6" PVC Gravity Sewer Lateral Connections

1. Measurement – Measurement of lineal feet to be paid under this section shall be the actual number of lineal feet of SDR 35 PVC gravity lateral pipe installed in accordance with the plans and specifications, measured along the centerline of installed pipe horizontally from center of sewer main to center of proposed clean out to be installed at camper locations.
2. Payment – The number of lineal feet as determined above shall be paid for at the contract unit price bid per lineal foot for 4" and 6" SDR 35 PVC gravity sewer lateral pipe installed and tested per the requirements of the Contract Documents. The price bid to install and connect the 4" and 6" PVC lateral pipes shall include but not be limited saw cutting and removal of existing bituminous and/or concrete

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roadway pavement, sidewalk, curb, test pits to locate existing utilities, E&S controls, excavation, shoring, dewatering, the installation of new 4" and 6" PVC lateral piping, AASHTO #57 stone bedding and initial backfill, the installation of new clean outs and clean out boxes, the installation of the RV Sewer and Dump Station connection points including the hinged cover, all fittings, furnish, place and compact backfill the full depth of pipe, GABC, disposal of existing material, temporary paving, testing and all other items incidental and necessary to complete the work as specified and shown in the contract documents.

G. Bid Item 7 – Pre Cast Concrete Manholes

1. Measurement – Measurement will be based on the actual number of new manholes 0'-0" to 8'-0" deep installed per the requirements of the contract documents plus the additional vertical footage of manholes over 8'-0" deep measured from interior downstream invert to top of precast manhole structure.
2. Payment – Payment will be based on the contract unit price bid for each new manhole installed plus the additional vertical footage for manholes greater than 8'-0" deep as measured above. The price bid to install manholes includes all work necessary to furnish and install the new manhole per the requirements of the Contract Documents including a physical survey of manholes to be placed to determine configuration of flow channel and coordination with precast supplier to provide the correct configuration, notifications, test pits to locate existing utilities, saw cutting and removal of existing bituminous and/or concrete roadway pavement, sidewalk, curb, E&S controls, excavation, shoring, dewatering, removal and disposal of existing manhole and soil material, furnishing and placement of manhole, bedding, place and compact backfill the full depth around structures, testing, GABC, manhole grade adjustment, manhole frame and cover, temporary paving, permanent paving and all other items incidental and necessary to complete the work as specified and shown in the contract documents.

Bid Item 7A – 4'-0" Diameter Manhole at 0'-0" to 8'-0" Deep.

Bid Item 7B – Replace Existing Manhole 0'-0" to 8'-0" Deep

Bid Item 7C – 4'-0" Diameter Manhole per vertical foot greater than 8'-0" Deep.

H. Bid Item 8 – Grease Trap

1. Measurement – This item will not be measured. The Lump Sum payment for this item will be full compensation for providing all labor, equipment and material required to install a the Grease Trap and related piping complete in place and in accordance with the Contract Documents.
2. Payment – The lump sum payment for this item will be full compensation for all work related to the installation of the grease trap shown on the plans and related piping including but not limited to environmental protection, notifications, coordination with Park personnel, clearing and removal of incidental obstructions, excavation, dewatering, test pits to locate utilities, E&S controls, furnish and install grease pit, furnish and install inlet piping, RV Sewer and Dump Station and connection to existing piping, furnish and install outlet piping to the downstream manhole, backfill, testing, temporary seeding, permanent seeding, and all other items incidental and necessary to complete the work in accordance with the Contract Documents. Payment will be based upon percentage of work completed in accordance with the Plans and Specifications as determined by the Engineer.

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I. Bid Item 9 – Abandon Existing Manholes in Place

The abandonment shall be accomplished by saw cutting the paved surface around the manhole, removing asphalt and / or concrete base material, removing the existing cone section or at least 4'-0" off the top of the manhole if constructed of brick, filling the remainder of the MH with Type C Borrow material, compacted and tested in accordance with the requirements of the Contract Documents.

1. Measurement - Measurement will be based on the actual number of existing manholes abandoned in place and accepted.
2. Payment - The number of each item as determined above shall be paid for at the contract unit price bid for this item. The unit price bid for this item will be full compensation for providing all labor, Products, material, equipment, tools and incidentals necessary to abandon existing manholes as specified including but not limited to notification to affected property owners, saw cutting and removal of existing bituminous and/or concrete roadway pavement, sidewalk, curb, base course, concrete collar, brick, cone section and existing manhole frame and cover, and disposal of all material including soil generated during the demolition. Also included in this item shall be costs to plug all pip penetrations with non-shrink grout, furnish and place Type C Borrow backfill, compaction, temporary paving, permanent paving, tack coat, any necessary surface preparation, curb and sidewalk replacement (where applicable), topsoiling, fertilizing, seeding, mulching, and anything else necessary for or incidental to complete this work in accordance with the plans and specifications.

J. Bid Item 10 – Abandon Existing Sewer Pipe in Place

1. Measurement - Measurement will be based on the actual number of cubic yards of flowable fill placed to properly abandon pipe and manholes.
2. Payment – Payment will be based on the unit bid price per cubic yard to properly fill pipes to be abandoned per the requirements of the Contract Documents. All work required to gain access to the abandoned pipe, construct appropriate bulkheads and vents, place/pump the flowable fill, and restore the work area and to satisfy these Specifications shall be incidental to this Bid Item and shall not be measured and paid separately.

K. Bid Item 11 - Well Pointing

Dewatering is considered incidental to all Bid Items described above, however "Well Pointing" may be required to properly dewater excavations. Dewatering by well pointing involves installing a series of small PVC or steel wells (well points) into the ground about 1.5 inches in diameter. Each well point is connected to a common header pipe. The header pipe is then connected to a pump with a large amount of vacuum power. The vacuum power produced by the pump sucks the ground water up through thin slits cut into the walls of the well points. The water then travels to the header pipe, through the pump and is discharged through an outfall line away from the site. The Contractor shall assume the well points are driven about 3 feet apart to the depth required to dewater a 15'-0" deep trench with a static groundwater table depth of 3'-0" below existing grade.

1. Measurement – Well Pointing shall be paid on a linear foot basis. The linear footage for this item shall be equal to the linear footage of sewer pipe being installed for which well pointing is required, regardless of the actual footage of well pointing installed to achieve the necessary dewatering. Well pointing for manholes, or other items will be included in the footage for the pipe therefore, no

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additional footage will be calculated for these items. Well pointing for laterals will only be paid if additional well point piping is required and installed specifically for lateral excavation.

2. Payment - The number of linear feet of well pointing measured as described above shall be paid at the contract price for this item which price and payment shall constitute full compensation for all labor, equipment, materials, tools, coordination with DNREC, permit preparation and application to DNREC for withdrawal and discharge permits, well point and header piping, sound attenuated vacuum pump/pumps, notifications, noise control, restoration to areas disturbed by well pointing equipment and discharge piping and incidentals required to keep the excavation dry for the entire period needed to complete the work described in the Contract Documents. The price shall include all items identified in the above description of work without regard to the time needed to achieve the necessary dewatering. The duration of the well point operation will not, therefore, be factored into the payment for this item.

L. Bid Item 12 – PVC and DIP Water Main Pipe

1. Measurement - Measurement of lineal feet to be paid under this section shall be the actual number of lineal feet of PVC and DIP Water Main Pipe installed in accordance with the plans and specifications, measured along the centerline from end to end.
2. Payment - The number of lineal feet as determined above shall be paid for at the contract unit price per lineal foot bid for each size of water main pipe. The unit price bid for this item will be full compensation for providing all labor, material, equipment, tools and incidentals necessary to install the pipe in accordance with the plans and specifications including notifications and coordination with DNREC, coordination of water shutdowns, excavation, test pits to locate existing facilities, dewatering, transportation, furnish and place new water main pipe, blow offs, couplings, fittings, connections to existing water pipe, disinfection, backfill, testing, concrete thrust blocks, restoration, traffic control and all other items incidental and necessary to complete the work as specified and shown in the Contract Documents.

Bid Item 12A – 2-1/2" PVC Water Main

Bid Item 12B – 8" DIP Water Main

M. Bid Item 13 – Water Service Installation

1. Measurement – Measurement will be based on the actual number of water services installed in accordance with the plans and specifications, complete, in place and accepted.
2. Payment – Payment will be based on the number of water services installed at the contract unit price bid for each service. The price bid to install a water service shall include but not be limited to all work necessary to complete the work including survey and layout, notifications, excavation, test pits to locate existing utilities, dewatering, installation of tapped tee or wet tap to existing main, furnishing and placement of service pipe, fittings, saddles, corporation stop, curb stop, valve boxes, construction of yard hydrant per the details on the plans, E&S controls, testing, disinfection, backfill, compaction, and all other items incidental and necessary to complete the work as specified and shown in the contract documents.

Bid Item 13A – 3/4" Water Service Connection from New PVC Pipe

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Bid Item 13B – ¾" Water Service Connection from New DIP Pipe
Bid Item 13C – ¾" Water Service Connection from Existing AC Pipe
Bid Item 13D – 1-1/2" Water Service and Future Stub (adjacent to camp site 18)
Bid Item 13E – 2-1/2" Water Service Connection from New PVC Pipe

N. Bid Item 14 – Gate Valves

1. Measurement – Measurement will be based on the actual number of each size of gate valve installed in accordance with the plans and specifications complete, in place and accepted.
3. Payment – Payment will be based on the number of each size of gate valve installed at the contract unit price bid for each installation. The price bid to install the gate valves shall include but not be limited to furnishing of all labor, equipment and materials necessary to complete the work including survey and layout, notifications, coordination of water shut downs, test pits to locate existing facilities, dewatering, excavation, installation of new valve with pipe and couplings, disinfection, valve box, restoration, backfill, compaction, traffic control and all other items necessary to complete the work as specified and shown in the contract documents.

The gate valves required at connections to the existing piping are incidental to the pay item for "Connections to Existing Water Pipe" and are not included in this Bid Item.

The 6" gate valves to be installed at fire hydrants are incidental to the pay item for "Fire Hydrants" and are not included in this Bid Item.

Bid Item 14A – 2-1/2" Gate Valve
Bid Item 14B – 1- 1/2" Gate Valve
Bid Item 14C – 3/4" Gate Valve
Bid Item 14D – 8" Gate Valve

O. Bid Item 15—Fire Hydrants

1. Measurement – Measurement will be based on the actual number of fire hydrants installed in accordance with the plans and specifications complete, in place and accepted.
3. Payment – Payment will be based on the number of fire hydrant installed at the contract unit price bid for each installation. The price bid to install the new hydrants shall include but not be limited to furnishing of all labor, equipment and materials necessary to complete the work including survey and layout, notifications, coordination of water shut downs, test pits to locate existing facilities, E&S controls, dewatering, excavation, removal and abandonment of existing fire hydrants and piping, installation of new hydrant with pipe, hydrant tee, 6" gate valve, valve box, thrust restraint, disinfection, concrete, restoration, backfill, compaction, traffic and all other items necessary to complete the work as specified and shown in the contract documents.

P. Bid Item 16 – Water Connections to Existing Pipe

1. Measurement – Measurement will be based on the actual number of water connections to existing pipe completed in accordance with the plans and specifications complete, in place and accepted.

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2. Payment – Payment will be based on the number of water connections to existing pipe completed at the contract unit price bid for each installation. The price bid to complete the connections shall include but not be limited to furnishing of all labor, equipment and materials necessary to complete the work including survey and layout, notifications, coordination of water shut downs, test pits to locate existing facilities, E&S controls, dewatering, excavation, pipe fittings required to make the connections, physical connection to existing pipe, gate valves, valve boxes, thrust restraint, disinfection, concrete, restoration, backfill, compaction, traffic control and all other items necessary to complete the work as specified and shown in the contract documents.

Bid Item 16A – 8” Water Connection to Existing Pipe

Bid Item 16B – 2-1/2” Water Connection to Existing Pipe

Q. Bid Item 17 –Bathhouse Foundation, Stub-ups and Final Connections

1. Measurement – This item will not be measured. The Lump Sum payment for this item will be full compensation for providing all labor, equipment and material required to furnish and install the proposed bathhouse foundation and utility rough in complete, in place and in accordance with the requirements of the Contract Documents.
2. Payment – The lump sum payment for this item will be full compensation for all work related to the site preparation for the proposed bathhouse shown on the plans including but not limited to environmental protection, notifications, coordination with Park personnel, clearing and removal of incidental obstructions, strip topsoil, excavation, dewatering, test pits to locate utilities, E&S controls, building permit, installation of PVC main building sewer including one clean out on either side of the building, installation of waste pipe to floor drains stubbed 12 inches above finished floor including trap primer piping and connections, installation of two inch vent pipe stubbed 12 inches above finished floor, PVC water main stubbed 12 inches above finished floor, power supply, test plugs, traps, fittings, placement and compaction of stone foundation, sidewalk surrounding building, testing and testing equipment, final building piping connections after building is set, final cleaning, temporary seeding, permanent seeding, and all other items incidental and necessary to complete the work in accordance with the Contract Documents. Payment will be based upon percentage of work completed in accordance with the Plans and Specifications as determined by the Engineer.

R. Bid Item 18 – Proposed Lift Station Modifications

1. Measurement – This item will not be measured. The Lump Sum payment for this item will be full compensation for providing all labor, equipment and material required to complete the modifications to the lift stations at the site complete, in place and in accordance with the requirements of the Contract Documents.
2. Payment – The lump sum payment for this item will be full compensation for all work related to the modifications of the lift stations shown on the plans including but not limited to environmental protection, notifications, coordination with Park personnel, clearing and removal of incidental obstructions, excavation, dewatering, test pits to locate utilities, E&S controls, bypass pumping wastewater around the work for the duration of the work at each pump station including temporary piping/connections to existing pipe, demolition, concrete rehabilitation, core drilling existing valve vault, furnish and install new pre-cast concrete valve vault, furnish and installation of new equipment, furnish and installation of new force main (if required), modifications to the existing structure, fencing, proposed

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pipng and valving, concrete thrust blocks, proposed grading including furnish and place borrow fill material if required to achieve final grades, all mechanical and electrical work, all safety measures required to protect the public from the work, start up, testing, final cleaning, temporary seeding, permanent seeding, final restoration, O&M Manuals, spare parts and all other items incidental and necessary to complete the work in accordance with the Contract Documents. Payment will be based upon percentage of work completed in accordance with the Plans and Specifications as determined by the Engineer.

Bid Item 18A – Proposed Lift Station Modifications LS-1 (Alternate Bid Item)

Bid Item 18B – Proposed Lift Station Modifications LS-2 (Alternate Bid Item)

Bid Item 18C – Proposed Lift Station Modifications LS-3

S. Bid Item 19 - Hot Mix Patching

1. Measurement - Measurement of square yards of material to be paid under this section shall be the actual number of square yards of material installed in accordance with these specifications, measured from end to end complete, in place and accepted.
2. Payment - The square yards of Hot Mix Patching as measured above shall be paid at the contract unit price bid for the item. Price shall include full compensation for saw cutting existing pavement, pavement removal, removing pavement sub base material, placement of filter fabric, replacing pavement sub base (GABC) base to dimensions shown on plans, the installation of hot mix asphalt to the depths shown on the Contract Plans and application of bituminous joint sealant in accordance with DeIDOT Standard Construction Specifications, striping and other incidentals required to complete the work per the requirements of the Contract Documents.

It is the intent of this pay item to reimburse the Contractor for hot mix asphalt restoration at proposed roadway utility crossings (maximum payment width of 7'-0"). The pay item is not intended for asphalt restoration to asphalt damaged as a result of general construction traffic, etc. The cost for asphalt restoration beyond the scope described (maximum payment width of 7'-0") for roadway utility crossings shall be considered incidental to other items of work included in the project.

T. Bid Item 20 – Cleaning and Television Inspection of Pipe

The 8" and 10" sanitary sewer pipe installed as a part of this Project shall be cleaned and televised by the Contractor per the requirements of the Contract Documents.

1. Measurement - Measurement of lineal feet to be paid under this section shall be the actual number of lineal feet of pipe cleaned and televised in accordance with these specifications, measured along the pipe line from center of MH to center of MH.
2. Payment - The number of lineal feet as determined above shall be paid for at the contract unit price per lineal foot bid for this item measured from center of manhole to center of manhole horizontally along the center line of the pipe. Payment includes full compensation for all required labor, Products, tools, equipment, transportation, notifications, services, construction facilities and temporary controls, water and incidentals required to complete the televising and cleaning of sewers in accordance with the specifications including the removal and legal disposal of material removed from the pipe as a result of cleaning.

U. Bid Item No. 21 – Undercut Excavation and Backfill

Undercut Excavation shall consist of all materials, labor, and equipment necessary to remove material below planned sub grade determined by the Engineer to be unsuitable and replacement of excavated material with AASHTO # 57 stone or Crusher Run borrow material as directed by the Engineer. The limits of Undercutting Excavation and Backfill shall be approved in advance by the Engineer.

Any Undercut Excavation and Backfill performed by the Contractor without prior approval of the Engineer, and/or any Undercut Excavation and Backfill performed outside the approved limits shall not be a pay item.

Undercut Excavation and Backfill required to correct unstable sub grade caused by the Contractor's methods, as determined by the Engineer, will not be measured and paid separately. It is the intent of the Contract Documents that Undercut Excavation and Backfill is for the correction of existing, in place unstable sub grade material not meeting the requirements of the specification and it is not intended as payment to reimburse the Contractor for the removal and replacement of unstable sub grade that results from poor construction practices including improper dewatering of excavations.

1. Measurement of cubic yards of material to be paid under this section shall be the actual volume of cubic yards of material removed and replaced in accordance with these specifications, measured from end to end, complete, in place and accepted.
2. Payment - The cubic yards of material as measured above shall be paid at the contract unit price bid for the item. The unit price per cubic yard for "Undercut Excavation and Backfill" shall be full compensation for performing all work and providing all material, labor and equipment necessary for excavation, backfill (including importing approved material from off-site), removal and proper disposal of excavation spoil and all incidental items.

V. Bid Item 22 – Type C Borrow Backfill

It is the intent of the Contract Documents that the Contractor properly dewater excavations and re-use existing excavated material to backfill excavations per the requirements of the Contract Documents. In cases where an excavation has been properly dewatered and the existing excavated material does not meet the requirements of Type C Borrow, the Contractor, as directed by the Engineer, shall import borrow material meeting the requirements of Type C Borrow as defined by DelDOT and place and compact the Borrow backfill material per the requirements of the Contract Documents.

1. Measurement - Measurement of cubic yards of material to be paid under this section shall be the actual number of cubic yards of material installed in accordance with these specifications, measured from end to end for a maximum trench payment width of 4'-0" regardless of the actual amount of borrow material placed complete, in place and accepted.

Those areas removed or disturbed outside of the maximum payment width requiring the installation of Borrow backfill shall be replaced at no additional cost to the Owner.

2. Payment - The cubic yards of Type C Borrow Backfill as measured above shall be paid at the contract unit price bid for the item. Price shall include full

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compensation for the removal and disposal of existing excavated material, the furnishing and placement of imported Type C Borrow material, compaction of borrow, testing of backfill and other incidentals required to complete the work per the requirements of the Contract Documents.

W. Bid Item 23 – Manhole / Precast Concrete Structure Rehabilitation - Pipe Penetration, Wall, Base Section Grouting

1. Measurement - Measurement will be based on the actual number of joints, base sections, pipe penetrations grouted to stop infiltration into the structures per the requirements of the contract documents and accepted.
2. Payment - The number of each item as determined above shall be paid for at the contract unit price bid for this item. The unit price bid for this item will be full compensation for providing all labor, products, material (except grout), equipment, tools and incidentals necessary to pressure grout and chemically seal manhole base sections, walls and pipe penetrations. The bid item also includes clean up, removal of excess grout from the mainline sewer, disposal of debris and record keeping. The gallons of grout used will be paid separately under another bid item.

Bit Item 23A – Pressure grouting a precast brick base section. A base section includes all pipe penetrations at the bottom of the manhole, the flow channel and the joint at the wall / bench interface.

Bit Item 23B – Pressure grouting a precast joint or pipe penetration (above the base section)

X. Bid Item 24 – Grout

1. Measurement – The quantity of grout will be measured by the actual number of gallons of grout used to stop active infiltration into the existing manholes to be pressure grouted under this project.
2. Payment – The unit price for this item has been fixed by the Engineer at \$10.00 per gallon of grout which will be full compensation for providing all labor, material, equipment, tools, construction facilities and temporary controls and incidentals necessary to furnish the grout to seal points of suspected or active infiltration into pipe and structures.

Y. Bid Item 25 – Replace Manhole Frame and Cover

1. Measurement - Measurement will be based on the actual number of manhole frames and covers replaced complete, in place and accepted.
2. Payment - The number of each item as determined above shall be paid for at the contract unit price bid for this item. The unit price bid for this item will be full compensation for providing all labor, Products, material, equipment, tools and incidentals necessary to replace the manhole frames and covers as specified including but not limited to notification of Park personnel, E&S controls, saw cutting and removal of existing bituminous and/or concrete roadway pavement, sidewalk, curb, base course, concrete collar, loose brick and mortar, existing manhole frame and cover, grade rings to top of precast (if precast manhole) and disposal of all material including soil generated during the demolition. Also included in this item shall be costs to furnish and install new manhole frames and covers, up to 12” of concrete grade adjustment rings, concrete collars, stainless steel hardware, Infra-Risers, marine grade silicone sealant, Flex Coat Chimney Seal, Type C Borrow backfill, compaction, temporary paving, permanent paving,

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tack coat, any necessary surface preparation, curb and sidewalk replacement (where applicable), topsoiling, fertilizing, seeding, mulching, and anything else necessary for or incidental to complete this work in accordance with the plans and specifications. The unit price bid for this item also includes the placement of additional concrete grade rings during the process described above to raise the top elevation of manholes (0" to 12") if necessary and as directed by the Engineer to provide positive drainage away from the manholes.

Bid Item 25A - Replace Manhole Frame and Cover out of Roadway. In cases where the existing manhole chimney sections are in excess of 12" measured from the top of the existing precast concrete manhole to the bottom of the existing frame and cover, a per vertical foot bid item has been included to complete the additional manhole demolition, furnish and install additional grade rings, add to the depth of the concrete collar to encompass grade rings, furnish and place additional Type C Borrow material and furnish and apply additional flex coat chimney seal to completely cover all grade rings.

Bid Item 25B – Manhole Chimney Reconstruction in excess of 12".

Z. Bid Item 26 – Driveway Construction

1. Measurement - Measurement of square yards of material to be paid under this section shall be the actual number of square yards of material installed in accordance with these specifications, measured from end to end complete, in place and accepted.
2. Payment - The square yards of Hot Mix Patching as measured above shall be paid at the contract unit price bid for the item. Price shall include full compensation for E&S controls, strip topsoil, excavating to sub grade depth (bottom of GABC), placing of filter fabric, placing of pavement sub base (GABC) base, the installation of hot mix asphalt to the depths shown on the Contract Plans and grading of surrounding area and other incidentals required to complete the work per the requirements of the Contract Documents in accordance with DELDOT Standard Construction Specifications.

AA. Bid Item 27 - Milling

1. Measurement - Measurement of square yards of milling to be paid under this section shall be the actual number of square yards of pavement milling completed to the specified depth of 2" in accordance with the plans and specifications, measured from end to end, complete, in place and accepted.
2. Payment - The square yards of material as measured above shall be paid at the contract unit price bid per square yard of pavement milling at 2" deep and shall be full compensation for providing all labor, material, equipment, tools and incidentals necessary to complete the work and properly dispose of millings in accordance with the Contract Documents and DELDOT requirements.

AB. Bid Item 28 – Asphalt Paving

1. Measurement - Measurement of square yards of material to be paid under this section shall be the actual number of square yards of 2" Type C Hot Mix paving placed in accordance with DELDOT requirements, measured from end to end, complete, in place and accepted.

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Separate measurement for payment will not be made for incidentals including but not limited to, preparation for paving, tack coat, etc.

2. Payment - The square yards of material as measured above shall be paid at the contract unit price bid of 2" of Type C Hot Mix paving placed and shall be full compensation for providing all labor, material, equipment, tools and incidentals necessary to complete the work including but not limited to adjustment of existing utility covers, notifications and coordination with DNREC, tack coat application, Independent Testing and Observation of the paving work, protection of installed work, striping, , the furnishing and placement of asphalt paving and all other incidental items required to complete the work as required by the plans and specifications and DELDOT requirements.

The Contractor will furnish the Engineer one copy of all delivery tickets for paving material delivered and placed at the site.

AC. Bid Item 29 – Proposed Electrical Systems Improvements

1. Measurement – This item will not be measured. The Lump Sum payment for this item will be full compensation for providing all labor, equipment and material required to complete the modifications to the campgrounds electrical system in accordance with the requirements of the Contract Documents.
2. Payment – The lump sum payment for this item will be full compensation for all work related to the replacement of the existing primary and secondary electrical system thru out the Park's campground with new primary and secondary distribution equipment, camp site power pedestals, power supply to new bath house, associated feeders, but not limited to coordination, clearing and removal of incidental obstructions, trenching, backfilling, locating existing utilities, demolition of existing electrical work becoming inactive, concrete equipment pads, testing, conduit sleeves under paved areas, final cleaning, temporary seeding, permanent seeding, final restoration and all other items incidental and necessary to complete the work in accordance with the Contract Documents. Payment will be based upon percentage of work completed in accordance with the Plans and Specifications as determined by the Engineer.

AD. Bid Item 30 – Wastewater Treatment Primary Feeder

1. Measurement – This item will not be measured. The Lump Sum payment for this item will be full compensation for providing all labor, equipment and material required to replace the existing wastewater treatment plant's utility service with a new primary supply from the campground's primary distribution system in accordance with the requirements of the Contract Documents.
2. Payment – The lump sum payment for this item will be full compensation for all work related to the installing an underground primary cable from Transformer T-2 to existing Transformer T-1 at the wastewater treatment plant, disconnect and removal of the existing Utility Primary Service, removal of existing primary metering cabinet, removal of existing primary pond feeder switchgear and pad, existing sectionalizing cabinet and pad with the existing primary cable cut back and abandoned in place. Works shall include, but not be limited to coordination with Delmarva, coordination with DELDOT for work within right of way including permitting, clearing and removal of incidental obstructions, trenching, backfilling, locating existing utilities, demolition of existing electrical work becoming inactive, concrete equipment pads, terminations, testing, final cleaning, temporary

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seeding, permanent seeding, final restoration and all other items incidental and necessary to complete the work in accordance with the Contract Documents. Payment will be based upon percentage of work completed in accordance with the Plans and Specifications as determined by the Engineer.

AE. Bid Item 31 – Asbestos Abatement

1. Measurement – Measurement of weight of material to be paid under this section shall be the actual pounds of material disposed of at landfill approved for disposal of asbestos containing material as determined by weigh tickets provided by the Contractor.
2. Payment – The payment for this item will be full compensation for all work related to the proper removal and disposal of asbestos containing material identified on the site by a certified Contractor in accordance with the Contract Documents and the State of Delaware rules and regulations including, but not limited to coordination, paperwork, clearing and removal of incidental obstructions, locating existing utilities, saw cutting of pipe, removal from trench, bagging, onsite storage, hauling, chain of custody and offsite disposal and all other items incidental and necessary to complete the work in accordance with the Contract Documents. Payment will be based upon the weight of material disposed of at the landfill in accordance with the Plans and Specifications as determined by the Engineer. A maximum of 10 feet of pipe will be eligible for payment for disposal at each location.

The Contractor will furnish the Engineer one copy of all weight tickets for disposal of ACM at the landfill within 24 hours of disposal.

AF. Bid Item 31 – Driveway Construction - Permeable

1. Measurement – Measurement of square yards of material to be paid under this section shall be the actual number of square yards of material installed in accordance with these specifications, measured from end to end complete, in place and accepted.
2. Payment – The square yards of permeable driveway as measured above shall be paid at the contract unit price bid for the item. Price shall include full compensation for E&S controls, strip topsoil, excavating to sub grade depth, placing of filter fabric, placement and compaction of stone base, the installation of Presto Geopave porous pavement system, anchoring of units with #4 rebar, placement and compaction of infill stone as shown on the Contract Plans and grading of surrounding area and other incidentals required to complete the work per the requirements of Attachment 4 in accordance with DeIDOT Standard Construction Specifications.

PART 2 PRODUCTS

Not Required

PART 3 EXECUTION

Not Required

END OF SECTION 01025 – MEASUREMENT AND PAYMENT