

COUNTY OF UNION

DEPARTMENT OF ENGINEERING, PUBLIC WORKS & FACILITIES MANAGEMENT

Joseph A. Graziano Sr., Director

MEMO TO: TO ALL POTENTIAL BIDDERS

**BOARD OF
CHOSEN FREEHOLDERS**

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ROBERT E. BARRY, ESQ.
County Counsel

JAMES E. PELLETTIERE, RMC
Clerk of the Board

THOMAS O. MINEO, P.E.
*County Engineer,
Director, Division of
Engineering*

FROM:  Thomas O. Mineo, P.E., County Engineer

DATE: August 24, 2016

**RE: CLARIFICATION NO. 1
BA#37-2016; UC Engineering Project #2011-014B
Meisel Park Pond Improvement Project**

On the Bid Form both Items 14 and 16 are for the Aerator. Please note that the duplication is an error and only item 14 should be priced by the contractor. Item 16 will not be considered in the bid and should not be priced by the contractor. Leave Item 16 blank when submitting bids.

TOM/maf

DIVISION OF ENGINEERING

2325 South Avenue

Scotch Plains, NJ 07076

(908)789-3690

fax(908)789-3674

www.ucnj.org

We're Connected to You!

**SPECIFICATIONS
FOR
MEISEL PARK POND IMPROVEMENT PROJECT
TOWNSHIP OF SPRINGFIELD
COUNTY OF UNION, NEW JERSEY
BA#37-2016; UNION COUNTY ENGINEERING PROJECT #2011-014B**

JULY 2016

**UNION COUNTY OFFICIALS
BOARD OF CHOSEN FREEHOLDERS**

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Sergio Granados, Vice Chairman
Linda Carter, Freeholder
Angel G. Estrada, Freeholder
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James E. Pellettiere, RMC

COUNTY MANAGER
Alfred J. Faella

**DEPARTMENT OF ENGINEERING, PUBLIC WORKS AND
FACILITIES MANAGEMENT**
Joseph A. Graziano, Sr., CPWM
Director, Department of Engineering, Public Works and
Facilities Management

**COUNTY ENGINEER
DIVISION OF ENGINEERING**
Thomas O. Mineo, P.E.
2325 South Avenue
Scotch Plains, New Jersey 07076
Telephone: (908) 789-3675
Fax: (908) 789-3674

PREPARED BY:
Maser Consulting P.A.
331 Newman Springs Road
Suite 203
Red Bank, New Jersey 07701
T: 732-383-1950

**COUNTY OF UNION
NOTICE TO BIDDERS**

Sealed bids will be received by the director of the Division of Purchasing, or his designee, at the County of Union, New Jersey on August 25, 2016 at 10:30 a.m., prevailing time, in the 3rd Floor Conference Room, U.C. Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey for:

**MEISEL PARK POND IMPROVEMENT PROJECT
TOWNSHIP OF SPRINGFIELD, COUNTY OF UNION, NEW JERSEY
BA#37-2016; UNION COUNTY ENGINEERING PROJECT #2011-014B**

Bid Packages may be obtained at no charge by registering and downloading at <http://ucnj.org/bid-specs>. Bid Packages may also be obtained in person from the Division of Engineering at 2325 South Avenue, Scotch Plains, New Jersey 07076 between 8:30 a.m. and 4:00 p.m. weekdays upon payment of a non-refundable money order or bank check in the amount of \$275.00 made payable to the County of Union. No Personal / Company checks will be accepted. Requests for mailing of specifications will not be honored. For further information please call 908-789-3675.

The County reserves the right to reject any and all bids and to waive any and all informalities in the bid.

Bids shall be submitted in a sealed envelope and clearly marked with the subject of the bid, name and address of the bidder, phone & fax number, and date of the bid opening. Each bid must be delivered to reach the Division of Purchasing prior to the stated time of the opening of the bids. The County will not be responsible for late delivery by the U.S. Mail or any other carrier. If hand delivered, please note that parking and security access at the County Complex may cause delays and bidders should take them into consideration in order to submit a timely bid. **No** late bids will be accepted.

Bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.S.A.C. 17:27.

LAURA M. SCUTARI, R.P.P.S., MPA, DIRECTOR OF PURCHASING

**UNION COUNTY BOARD
OF CHOSEN FREEHOLDERS**

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NB-1

MEISEL PARK POND IMPROVEMENT PROJECT
TOWNSHIP OF SPRINGFIELD, COUNTY OF UNION, NEW JERSEY
BA#37-2016; Union County Engineering Project #2011-014B

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**UNION COUNTY BOARD OF CHOSEN FREEHOLDERS
INSTRUCTIONS TO BIDDERS AND FORMS**

DEFINITIONS

Wherever reference is made to the County, Title of Project, Bidder, or Vendor/Contractor they shall be as follows:

OWNER/COUNTY:

Union County Board of Chosen Freeholders
UC Administration Building, 6th Floor
10 Elizabethtown Plaza
Elizabeth, New Jersey 07207

ADDRESS BIDS AND SUBMIT TO:

Union County Division of Purchasing
UC Administration Building, 3rd Floor
10 Elizabethtown Plaza
Elizabeth, NJ 07207
Attn: Laura M. Scutari, R.P.P.S., MPA, Director, Division of Purchasing
Telephone: 908-527-4130
Facsimile: 908-558-2548

**TITLE OF PROJECT: Meisel Park Pond Improvement Project
Township of Springfield, County of Union, New Jersey
BA#37-2016; Union County Engineering Project #2011-014B**

BIDDER: Bidder shall be a single overall contract bidder

**ENGINEER: Maser Consulting PA
331 Newman Springs Road, Suite 203
Red Bank, New Jersey 07701**

COUNTY ENGINEER AND/OR CONSTRUCTION MANAGER (as applicable):

COUNTY ENGINEER:

Thomas O. Mineo, P.E.
Union County
Division of Engineering
2325 South Avenue
Scotch Plains, NJ 07076
Office: (908) 789-3675
Facsimile: (908) 789-3674
Email: tmineo@ucnj.org

CONSTRUCTION MANAGER:

GENERAL SPECIFICATIONS

1. BID FORM

Bids for this Work will be enclosed in a sealed envelope addressed to the Purchasing Division, County of Union, New Jersey, Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey 07207, with the full name of the Project clearly marked on the outside. Refer to the sheet marked "Notice of Bid (Advertisement)" for the correct name of the Project. Bidders must submit their bids on the attached pricing sheet (Bid Form), in a sealed envelope addressed to the County and bearing on the outside: the name of the Bidder, Bidder's business address, and the title of the Project.

The Division of Purchasing will receive the bids for this Work at the Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey on the date and time noted on the sheet marked "**Notice of Bid (Advertisement)**".

The County will not assume responsibility for bids forwarded by mail. It is the individual's responsibility to see that the bids are presented to the Purchasing Division at the time and at the place designated.

Bids will be accepted only on the Bid Form supplied. Bids on forms other than the original supplied herein will be rejected. The "complete" Bid Documents includes the Bid Bond, Bid Form, Bidder's Checklist, Consent of Surety, Ownership Disclosure Certification, Non-Collusion Affidavit, and any other documents noted in these Instructions to Bidders or Contract Document to be submitted with this Bid.

The bidder will state in the bidding sheet the price per unit of measure for each scheduled Item of Work for which he will agree to carry out the Work, and the Total Bid Price for the construction of the Project.

The prices in the Bid Form shall be typed or written in pen and ink. Erasures or alterations must be initialed by the bidder in ink.

The bidding sheet for this Project may include a fixed amount as a Bid Allowance. If applicable, all bidders are required to add this fixed amount to their base bid and to include this additional amount in their Bid Bond. This sum will be included in the Contract as well as the performance, labor and materials bond. Payment by the County will be made to the Contractor from these funds only upon the completion of extra Work pursuant to a written Change Order(s) signed by the County's Engineer or his designee and the Contractor, prior to the commencement of such Work. Work commenced prior to written approval by the County shall be done at Contractor's risk. Such payment will only be in the amount agreed to by the parties, in writing in the Change Order(s). See Section 37, Change Orders, of these general specifications for further details.

Refer to Bid Document Submission Checklist for all required documents.

In the event there is a discrepancy between the unit price given and the extended total, the unit price will govern. Any discrepancies will be mathematically adjusted.

Insert applicable alternates, if any have been specified, applicable to the Bidder's Work. All alternates MUST be bid upon. Any Bidder's failure to do so will be deemed a material, non-waivable defect and shall render the bid nonresponsive. The Bidder shall clearly designate whether the change in price is an addition or subtraction, by using either a "+" sign or the word "addition", or in the alternative, a "-" sign or the word "minus". If there is no other change in price, the Bidder shall insert "NC" or "No Charge".

When two or more low bids are equal in all respects, awards will be made according to the provisions of N.J.S.A. 40A:11-6.1(d).

Where unit prices have already been established by the Contract Documents, the Bidder agrees that such unit prices shall prevail. All unit prices, whether filled in by the Bidder or established by the Contract Documents, shall become part of the Contract. No bid will be considered or award made, unless applicable unit prices, as required, are filled in.

The County reserves the right to reject any or all bids and also reserves the right to waive any informality in the bids received so long as said waiver is not of a response which is considered to be material and non-waivable pursuant to law.

The County of Union has the right to reject any and all bids from any bidder that is in, or contemplates bankruptcy of any chapter of nature. Said bidder shall notify the County, in writing, of any condition or knowledge of the same.

Conditional bids will not be accepted. Bids may be withdrawn prior to the advertised time for the opening of bids or authorized postponement thereof or in accordance with the provisions of N.J.S.A. 40A:11-23.3 discussed below. Bids received after the advertised time shall not be considered. Bidders shall be solely responsible for premature opening or late delivery of bids not properly marked, addressed, or directed.

2. WITHDRAWAL OF BID DUE TO MISTAKE

N.J.S.A. 40A:11-23.3 authorizes a bidder to request withdrawal of a public works bid due to a mistake on the part of the bidder. A mistake is defined by N.J.S.A. 40A:11-2(42) as a clerical error that is an **unintentional and substantial computational error or an unintentional omission of a substantial quantity of labor, material, or both, from the final bid computation.**

A bidder claiming a mistake under N.J.S.A. 40A:11-23.3 must submit a request for withdrawal, **in writing**, by certified or registered mail to Michael M. Yuska, QPA, Director, Division of Purchasing, County of Union, New Jersey, Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey 07207. The

bidder must request withdrawal of a bid due to a mistake, as defined by the law, within five business days after the receipt and opening of the bids. Since the bid withdrawal request shall be effective as of the postmark of the certified or registered mailing, Michael M. Yuska, QPA, Director of the Division of Purchasing or his designee may contact all bidders, after bids are opened, to ascertain if any bidders wish to, or already have exercised a request to withdraw their bid pursuant to N.J.S.A. 40A:11-23.3.

A bidder's request to withdraw the bid **shall** contain evidence, including any pertinent documents, demonstrating that a mistake was made. Such documents and relevant written information shall be reviewed and evaluated by the County's designated staff pursuant to the statutory criteria of N.J.S.A. 40A:11-23.3.

The County will not consider any written request for a bid withdrawal for a mistake, as defined by N.J.S.A. 40A:11-2(42), by a bidder in the preparation of a bid proposal unless the postmark of the certified or registered mailing is within the five business days following the opening of bids.

3. QUALIFICATIONS OF BIDDERS AND REQUIRED SUBMISSIONS

The County may make such investigation as it deems necessary to determine the ability of the Bidders to perform the Work, which includes investigation of any and all subcontractors listed with the bid. The Bidder shall furnish any information and data for this purpose as the County may request.

4. INTERPRETATIONS AND ADDENDA

Any explanation desired by a bidder regarding the meaning or interpretation of the Contract Documents must be requested in writing to the County Engineer or Design Professional as the case may be and with reasonable time allowed for a reply to reach bidders before submission of their bids. Any interpretation or instruction made by the County Engineer will be in the form of an addendum to the Contract Documents or clarification and will be furnished to all prospective bidders. Oral explanations or instructions given before the award of the Contract will not be binding. Bidders are required to bring to the attention of the County Engineer, the discovery of any apparent ambiguity, inconsistency, error, discrepancy, omission in the Contract Documents for interpretation and correction at least ten (10) working days before opening of bids with the exception of Saturdays, Sundays and holidays.

All Addenda issued through the Offices of the County Engineer are amendments to the Contract Documents and shall be considered in preparing bids. Same shall become part of the Contract Documents.

Addenda take precedence over all earlier documents and over each other according to the latest date. Addenda unless themselves interpretive remain subject to interpretation the same as any other document incorporated in the Contract.

Addenda may be issued by the County Engineer up to seven (7) working days prior to the opening of bids. Failure of any bidder to receive an addendum shall not relieve such bidder from the obligation imposed by such addendum. Bidders are to keep themselves currently acquainted with the Contract Documents during the entire bidding period and make inquiry on their own initiative as to issuance of any Addenda. Receipts of all Addenda shall be acknowledged on the “*Acknowledgement of Receipt of Changes*” included in the bid package and must be submitted with the bid.

5. OBLIGATION OF BIDDER TO INSPECT SITE AND CONTRACT DOCUMENTS

At the time of the opening of bids, each Bidder will be presumed to have inspected the site(s) and to have read, and be thoroughly familiar with the Contract Documents. The failure or neglect of any Bidder to receive or examine any form, instrument, or document shall in no way relieve any Bidder from any obligation in respect to its bid.

The Bidder shall examine the contents of the Project Manual and the set of Drawings and assure itself that all pages of the Specifications, Drawings, and other Contract Documents are included in the documents obtained for bidding purposes. Should the Specifications, Drawings, and other Contract Documents be incomplete, the Bidder shall notify the County Engineer in writing, who will supply the Bidder with any missing pages of Specifications, Drawings, or other Contract Documents. The lack of such written notification by the Bidder will be construed as evidence that the Specifications, Drawings, or other Contract Documents supplied it for bidding purposes are full and complete and as a waiver of any subsequent claim to the contrary.

6. BID AND PERFORMANCE GUARANTEE

Each bidder must furnish a Bid Bond, Certified Check or Bank Cashier’s Check in the amount of ten percent (10%) of the Bid. Checks shall be drawn to the order of the County of Union, New Jersey, not to exceed \$20,000.

Each bidder must furnish with the bid a certificate from a Surety Company, i.e. Consent of Surety, stating that in the event of the contract being awarded to said bidder, such Surety Company will provide the Contractor with Bonds guaranteeing the faithful performance of the Work in accordance with the plans and specifications, and the payment for labor, materials, and all other indebtedness which may accrue on the account of this Work. A Performance, Labor and Materials bond will be furnished by the Contractor upon an award of Contract, and will be in the amount of 100% of the contract price.

A one-year Maintenance Bond will be required upon acceptance of the Project by the County in the amount as stated in Section 15 of the General Specifications. Bonds will be written by a firm authorized to issue the bonds under the laws of the State of New Jersey and be in a form acceptable to the County Counsel.

N.J.S.A. 40A:11-1.1 et. seq. allows the prime Contractor to furnish the Performance Security for his Subcontractors. The County of Union requires Performance Security to be furnished by the prime contractor for the entire job in the total amount of the contract.

The County of Union shall award the contract or reject all bids within sixty (60) days; except that the bids of any bidders who consent thereto may, at the request of the County be held for consideration for such longer periods as may be agreed.

The County will return all certified checks or cashier's checks after the proposals have been opened, read, tabulated and checked except those of the three (3) bidders who have bid the lowest total price for carrying out the Project. The County will return the checks of these bidders when a contract is awarded to the successful bidder within ten (10) days after the award of the contract.

If the successful bidder refuses or neglects to sign the said Agreement and furnish the required bonds, the Bid Bond will be held and used by the County to offset any damages for such refusal or neglect.

7. COMMENCEMENT AND COMPLETION

Work will not commence until a Notice to Proceed is received from the County Engineer.

Upon substantial completion of the Project, the Contractor must request a joint inspection with the County Engineer. Upon completion of this inspection, the County Engineer will prepare a list of incomplete or incorrect items (punch list) and have Contractor initial and date same. The Contractor shall rectify all deficiencies noted on the punch list within 30 calendar days of receipt of the list. The County Engineer may approve extensions for extenuating circumstances.

8. BIDDER AFFIDAVIT

All Bidders are required to complete, sign, and submit with their Bid, the attached "Affidavit Regarding List of Debarred, Suspended or Disqualified Bidders". (See form enclosed)

9. BID SECURITY

All Bidders are required to submit a form of Bid Security with their bids.
(Bid Bond or Certified Funds)

The Bid Security shall be in the amount of ten percent (10%) of the Bid, but not in excess of Twenty Thousand Dollars (\$20,000.00), and payable to the order of the "County of Union."

10. LABOR AND MATERIALS

The prices will cover all costs of any nature incident to and growing out of the Work, including all labor, material, equipment, transportation, loss by damage or destruction of the Project, settlement of damages, and for replacement of defective work or materials. N.J.S.A. 54:32B-1 et seq. exempts all materials sold to the County of Union from sales or use taxes and should not be included in the prices provided on the Bidding Sheet.

11. INSURANCE REQUIREMENTS

The County of Union requires all contractors to be able to comply with the following insurance requirements. In the event a bid is accepted by the County, the contractor must accept the applicable insurance requirements, as set forth below, as part of any contract awarded to it by the County.

Contractor shall carry and maintain at all times while the contract is in full force and effect, the following insurance coverage with an insurance company or companies acceptable to the County, with limits not less than those shown below. A Certificate of Insurance shall be filed with the County prior to commencement of any Work indicating the following:

- a) Commercial General Liability (CGL): Coverage for all operations including, but not limited to, contractual, products and completed operations, and personal injury with limits no less than \$5,000,000 per occurrence/\$10,000,000 aggregate. The County of Union, its Board of Chosen Freeholders, officers, employees, agents and servants shall be included as an additional insured. Coverage is provided on a primary and non-contributory basis to the County of Union, et al.
- b) Automobile Liability: Coverage for all owned, non-owned and hired vehicles with limits not less than \$5,000,000 per occurrence, combined single limits (CSL) or its equivalent.
- c) Workers Compensation: As required by the State of New Jersey and Employers Liability with limits not less than \$1,000,000 per accident for bodily injury or disease.
- d) Professional Liability (if design/build): Coverage with limits not less than \$1,000,000 per occurrence or claim, \$2,000,000 aggregate

- e) Contractor's Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors & Omissions (if project involves environmental hazards): Coverage with limits no less than \$1,000,000 per occurrence or claim/\$2,000,000 aggregate.
- f) Builders Risk (for major renovations): During the course of construction utilizing an "All Risk" coverage form with limits equal to the completed value of the project and no coinsurance penalty provisions.

Where applicable, a waiver of subrogation in favor of the County of Union, its Board of Chosen Freeholders, officers, employees, agents, servants and the State of New Jersey is to be included in those policies of insurance where permitted by law.

Notice of Cancellation: Each insurance policy required above shall provide that coverage shall not be canceled, except with notice to the Entity.

Special Risks or Circumstances: The County reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.

12. INDEMNIFICATION REQUIREMENTS

The County of Union requires all bidders to accept the following indemnification requirements in the event the County accepts their bid. The Contract awarded by the County to the successful bidder will contain the following provision:

"To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the owner and the owner's consultants, agents, representatives, and employees from and against any and all claims, damages, losses, costs, and expenses, including, but not limited to attorneys' fees, legal costs and legal expenses arising out of or resulting from the performance of the Contractor's work under this contract, provided that such claim, damage, loss, cost, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) caused or alleged to be caused by the negligent acts, negligent omissions, and/or fault of the Contractor, anyone directly or indirectly employed or retained by the Contractor, or anyone for whose acts the Contractor may be liable regardless of whether caused in part by the negligent act or omission of a party indemnified hereunder provided it is not caused by the sole negligence of a party indemnified hereunder. Contractor shall further indemnify and hold harmless the County and the County's consultants, agents, representative, and employees from and against any and all claims, damages, losses, costs, and expenses, including, but not limited to attorneys' fees, legal costs and legal expenses, arising out of or resulting from performance of the work, provided that such claim, damage, loss, cost, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) caused or alleged to be caused by the negligent acts, negligent omissions, and/or fault of

the County or the County's consultants, agents, representatives, or employees and arises out of this project and provided such claim, damage, loss, cost, or expense is not caused by the sole negligence of a party indemnified hereunder."

13. ROYALTIES AND PATENTS

The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall hold the County harmless from loss on account thereof.

14. PLANS AND SPECIFICATIONS

In carrying out the Work, the plan(s) and the specifications will be followed by the Contractor. Minor alterations in the plan may be made or permitted by the County Engineer from time to time and, if no additional Work is necessary, there will be no additional charge for carrying out such minor alterations.

The Contractor shall provide the County Engineer a set of reproducible as-built drawings upon completion of the Project. The Contractor shall maintain an updated construction progress plan in the Project field office at all times.

When applicable, The New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, as amended, and Supplemental Specifications for State Aid Projects, herein after referred to as the "Standard Specifications", are made a part of these specifications and contract for the improvements, and will govern the construction of this Project, the material used and the execution of this Project, except as revised and modified herein. The references to these specifications are given herein for the purpose of aiding in the rapid location of the description of the various items herein specified. The entire Work must be carried on and completed to the satisfaction of the County. The Standard Specifications are amended as follows:

"Any reference to the Commissioner, Department, Department Laboratory, Engineer or Inspector should be redefined to be the County of Union".

15. GUARANTEE AGAINST DEFECTIVE WORK

Prior to final payment being made or before the release of the performance security required by Section 3 above, the Contractor and Surety shall execute and deliver to the County an original Maintenance Bond with an original signature and seal having a penal sum equal to:

- A) One hundred percent (100%) of the final adjusted Contract amount, if such amount is \$50,000.00 or less;

- B) Fifty percent (50%) of the final adjusted Contract amount, if such amount be greater than \$50,000.00 but less than \$250,000.00; and,
- C) Twenty-five percent (25%) of the final adjusted contract amount, if such amount is \$250,000.00 or more.

The Bond and Surety shall be satisfactory to the Union County Counsel. The Surety shall hold a Certificate of Authorization to do business in the State of New Jersey and shall conform to P.L. 1995 c.384, codified as N.J.S.A. 2A:44-143, 144. The Surety Disclosure Statement and Certification required by N.J.S.A. 2A: 44-143, 144, shall be attached to the Bond. Such Maintenance Bond shall remain in full force and effect for a period of one (1) year from the date of Final Completion. Such Maintenance Bond shall also provide that the Contractor and the Surety guarantee to replace for the said period of one (1) year from the date of Final Completion, all Work performed and/or all materials furnished that were not performed or were not furnished in accordance to the terms and performance requirements of the Contract Documents, and will make good any defects thereof which become apparent before the expiration of one (1) year. If, during that period, any part of the Project, in the judgment of the Engineer, is found defective, the Contractor will repair or replace same within five (5) days of receipt of notice from the County Engineer. If the Contractor refuses or neglects to do such Work in the time specified, the County Engineer may have the Work done by others and the Contractor or his Surety thereof will pay the cost.

The Contractor will furnish the County a Maintenance Bond for a percentage of the final adjusted contract price, as stated above. The one (1) year period will start the day of Final Completion of Project by the County. Final payment is conditional on the receipt of a maintenance bond in a form acceptable to County Counsel.

16. TRAFFIC AND STREET MAINTENANCE

The Work must be started and performed by the Contractor in such a manner as to minimize delays to the traveling public. It must be completed in a timely fashion, with little or no inconvenience to traffic and pedestrians, where such inconvenience may be avoided.

All municipal, county, and state roadways shall remain open to traffic unless otherwise provided for in the technical specifications.

If modified traffic patterns are authorized in order to provide a safe working or traveling environment, the Contractor is responsible for providing all equipment, barrels, cones, signs, and barricades to implement the work zone and detours, unless otherwise specified in the technical specifications. All work zones and detours shall be established in accordance with the technical plans and specifications if provided or in strict compliance with the current version of the Manual for Uniform Traffic Control Devices (MUTCD). The Contractor shall obtain approval for these work zones and

detour plans from the Municipal Police or applicable police agency and the Union County Bureau of Traffic Maintenance prior to implementation.

All traffic control plans shall provide for safe movement of vehicular, bicycle, and pedestrian traffic. Particular attention shall be given to requirements of the Americans with Disabilities Act.

No portion of any street or alleyway may be used for the storage of any materials or equipment without the approval of the Municipal Police or other applicable police agency. Sidewalks, gutters, drains, fire hydrants and private drives shall be maintained for their intended use unless specifically approved by the County Engineer.

Upon suspension of Work, at the end of the day or for protracted periods, the Contractor shall remove all rubbish and materials from the Work site to the approved storage/staging location. All road cuts, saw cuts, and trenches that may pose hazard to vehicular, pedestrian, or bicycle traffic, to include handicapped users, shall be filled to the surface of the roadway or sidewalk. At no time will steel plates or settled trenches be allowed at the daily suspension of Work, unless specifically approved by the County Engineer.

Use of Traffic Control Officers shall be determined by the County in accordance with the provisions of N.J.S.A. 40A:11-23.1(c). If applicable to the Project, the County shall have provided an allowance for same as set forth in the Bid Form.

With respect to pedestrian traffic, the Contractor shall install signs restricting access of the general public and, as necessary, Union County employees to the area of construction. The Contractor shall provide safe access to required areas and place physical barriers to restricted areas. These barriers may range from caution tape to actual barriers, at the direction of the County Engineer.

17. CONTRACTOR'S EMPLOYEES

The Contractor must employ only suitable and competent labor in the Work, and must remove from the Work any incompetent, unsuitable, or disorderly person upon complaint from the County Engineer.

The parties to any contract resulting from this proposal do hereby agree that the provisions of N.J.S.A. 10:2-1 through 10:2-4 (discrimination in employment on public works contracts): 34:11-56.25 et seq. (payment of prevailing rate of wages determined pursuant to N.J.S.A. 34:11-56.30 by the Commissioner), and the Rules and Regulations promulgated pursuant thereto, are hereby made a part of any contract and are binding upon them.

There will be no discrimination against any employee who is employed in the Work to be covered by any contract resulting from this bid because of age, race, creed, color, national origin, ancestry, marital status or sex.

Any person, firm, or corporation violating the provisions of this Section will be deemed and judged a disorderly person.

18. OWNERSHIP DISCLOSURES REQUIRED

Pursuant to P.L. 1977, N.J.S.A. 52:25-24.2, the Bidder shall submit with its Bid, or prior to receipt of bids, a statement setting forth the names and addresses of all stockholders in the corporation or partnership bidding who own ten percent (10%) or greater interest therein. (See forms attached)

19. NON-COLLUSION AFFIDAVIT

The Bidder shall submit with its bid either the attached completed "Non-Collusion Affidavit" or a statement of non-collusion with verbiage similar to same.

20. EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCES

The successful bidder shall be required to complete and submit an Initial Project Workforce Report, New Jersey Department of Treasury Form AA-201, upon notification of award. Failure to submit this completed form may result in the Contract being terminated.

The successful bidder shall also be required to submit a copy of its Monthly Project Workforce Report, New Jersey Department of Treasury Form AA-202, to the New Jersey Department of Treasury's Division of Public Contracts Equal Employment Opportunity Compliance and to the Board.

21. COMPLIANCE WITH NEW JERSEY PREVAILING WAGE ACT

The County of Union, in order to fulfill the requirements of N.J.S.A. 34:11-56a.25 et seq, requires that the following additional conditions be strictly followed. The bidders represent that he is not listed or is not on record in the Office of the Commissioner or the Department of Labor and Industry as one who failed to pay prevailing wages in accordance with the provisions of this Act. The bidder agrees to the inclusion of a contract provision upon award which specifically requires said Contractor to fully comply with each and all of the requirements of the aforesaid Act as it relates to prevailing rates

of wages on public contracts as set forth in the New Jersey Prevailing Wage Act, P.L. 1963, Chapter 150 and P.L. 1974, Chapter 64.

A Copy of the Prevailing Wage Rates is attached for your reference. Applicable rates are those wages and fringe benefit rates in effect on the date the contract is awarded. All predetermined rate increases listed at the time the contract award must also be paid, beginning on the dates specified. Rates may change between the time of issuance of this determination and the award of the public works contract. Therefore, prior to the award of the contract, verification must be made with the Public Contracts section, to insure that the rates contained in this determination are still prevailing.

The Contractor agrees to abide and be bound by each and all of the said statutory provisions with respect to the payment of prevailing rates of wages, and acknowledges that the County reserves the right to terminate the Contractor's (or his subcontractors') right to proceed with the scope of Work, or such portion thereof that relates to the failure to pay prevailing rates of wages. In such event or under the terms of N.J.S.A. 34:11-56.27, the Contractor and his surety will be liable to the County of Union for any excess costs occasioned by such a violation.

The Contractor or subcontractors for this Project will post the Prevailing Wage Rates for each craft and classification involved as determined by the Commissioner of Labor and Industry, including the effective date of any changes thereof, in prominent and easily accessible places at the site of the Work or at such place or places as are used by them to pay workmen their wages.

The County of Union requires a copy of payroll records from the Contractor and subcontractors. Payroll records shall be submitted with each voucher request for payment. Prevailing wage rates may be obtained from the New Jersey Labor, Division of Workplace Standards, Public Contracts Section, (609-292-2259).

In addition to compliance with the New Jersey Prevailing Wage Act, the County requires compliance with procedures established by Resolution No. 2014-0408 adopted by the Union County Board of Chosen Freeholders on May 8, 2014. The resolution is furnished in Section 51 of these General Specifications.

UNION LABOR IS PREFERRED ON ALL COUNTY WORK

The foregoing reference to specific laws will not be deemed to be a limitation of obligation of the Contractor to perform his obligations in full compliance with the provisions and requirements of all federal and state statues and local ordinances applicable to the Work to be done under the contract.

It is agreed and understood that any contracts and/or orders placed as a result of this proposal will be governed and construed and the rights and obligations of the

parties hereto will be determined in accordance with the laws of the State of New Jersey.

Upon completion of the Work, the Contractor will furnish a Certification of Compliance with the New Jersey Prevailing Wage Act. The certificate in a form acceptable to County Counsel is a condition of the final payment. (See form attached)

22. BRAND NAME OR EQUAL

When the Specifications, Forms, and other Contract Documents use “brand name or equivalent” or similar language, the listed brand name shall serve as a reference or point of comparison for the functional or operational characteristic desired for the goods or services being requested. Where a bidder attempts to submit an equivalent product for a brand name, it shall be the responsibility of the bidder to fully describe and document the product to be provided with the bid in order to establish the equivalence claim.

- A. If the Bidder proposes to offer substitute goods as an equal to those specified herein, the bidder shall so indicate with the Bid Proposal. For the purposes of this paragraph, a proposed item shall be considered equal to goods specified herein if:
 - 1. The County, in its sole discretion, determines that: (i) the goods conform substantially, even with deviations, to the brand name goods specified herein; (ii) the goods are equal to or greater than the brand name goods specified herein in terms of quality, durability, functionality, appearance, strength and design; (iii) the goods are capable, at least as well as the brand name goods specified herein, or performing with existing equipment; and (iv) the goods do not cost the County more than the brand name goods specified herein costs the County.

- B. To offer substitute goods as an equal to those specified herein, it is necessary that:
 - 1. The Bidder submits sufficient information with its bid to permit the County to determine that the goods are equivalent to the brand name goods specified herein, including, but not necessarily limited to the brand, catalog number and specifications/data sheets;
 - 2. The Bidder fully identifies and describes the variations of the goods from the brand name goods specified herein

on a separate sheet that is to be submitted with the bid proposal. Bidder's literature WILL NOT suffice in explaining exceptions to these specifications.

3. The Bidder certifies that the goods (i) are similar in substance to the brand name goods specified, and (ii) are suited to the same use as the item specified;
- C. The County shall be allowed a reasonable time within which to evaluate the Bidder's proposal to offer substitute goods as an equal to those specified herein. The County shall be the sole judge of acceptability. No "or-equal" goods shall be ordered, delivered, assembled, set-up or utilized until the County's evaluation is complete. The County's determination as to equivalency shall be deemed final and absolute.

In the event the Bidder does not provide sufficient supporting documentation with the bid, it will be presumed and required that the brand name goods and services as described in the specifications will be provided.

23. LINES AND GRADES

Normally, horizontal and vertical control points will be provided in the technical specifications. All other surveying will be the responsibility of the Contractor unless otherwise noted.

24. NUMBER OF WORKING DAYS

In accordance with NJSA 40A:11-17, the Work for the within Project shall be completed as specified on the Time of Completion Form. See form attached.

There shall be taken a deduction from the contract price, or any wages paid by the County, to any inspector(s) necessarily employed by it on the Work, for any number of days in excess of the number allowed in the specifications.

25. PROMPT PAYMENT OF CONSTRUCTION CONTRACTS (NJ Prompt Payment Act)

Pursuant to NJSA 2A:30A-1 et. seq., payment to the Contractor, other than for Work done pursuant to a contact allowance, where applicable, shall be processed and paid as follows:

1. All contractor bills shall be either approved for payment, or notice provided as to why the bill or any portion of it will not be approved by the representative(s) of the governing body no later than the

public meeting following 20 calendar days of the billing date as defined in the statute.

2. If the billing is approved, said bill shall be paid in the payment cycle following the meeting.

26. STOPPING WORK ON ACCOUNT OF BAD WEATHER

Work must only be performed in weather suitable for the type of construction planned or underway. Extremes in temperature, humidity, precipitation, evaporation, etc. can detrimentally affect the constructed product. Refer to the Standard and Technical Specifications for specific items.

27. ACCESS FOR OTHER CONTRACTORS

The Contractor for this Work will give proper access to other contractors who may be employed upon the Project and must not hinder or delay unnecessarily any Work that may be progressing under other contracts.

28. CONDEMNED MATERIALS AND WORK

Any materials and or part of the Work that may be condemned by the County Engineer will be removed and replaced by the Contractor or otherwise rectified, as may be directed by the County Engineer. No payment will be made upon the Work until such faulty work has been made good as may be directed. In the event the Contractor refuses or neglects to make good such faulty work, he will be deemed to have abandoned the contract and proceedings may be taken against him as provided herein.

29. STORAGE

In the event that it is necessary for the Contractor to stockpile or store materials or equipment on the job site, the Contractor shall inform the County of such necessity and the County may offer available space, if any, for storage of such materials or equipment. The Contractor shall use said space only for such purpose. Any and all materials which may be stored in such space or which may be brought onto the job site at any time by the Contractor will be at the Contractor's sole risk. The County will not be responsible for loss of or damage to said materials or equipment for any cause whatsoever. The Contractor shall take necessary measures to protect any such storage area and shall be responsible for any and all damages.

30. FINAL CLEAN UP

Upon completion of the Work, the Contractor will remove all equipment, unused materials, rubbish, etc., and will repair, or replace in an a manner acceptable to the County Engineer, all areas that may have been damaged in the prosecution of the Work. Same shall be a condition precedent to final payment. Should said Contractor fail to comply with this requirement, the County shall undertake the clean-up with its own forces and charge the cost of same against the Contractor's contract balance.

31. SUB-LETTING OF WORK

Except for the List of Subcontractors, pursuant to NJSA 40A:11-16 (See form attached), no portion of the Work will be sublet by the Contractor to any other entities, except with the consent of the County Engineer. A complete list of subcontractors must be submitted to the County Engineer at the preconstruction meeting. If the job does not warrant a preconstruction meeting, the Contractor must submit such list prior to the start of Work.

All Subcontractors will be subject to NJSA 34:11-56 et al.

N.J.S.A. 40A:11-16 requires the bidder to list in the bid sheets the name or names of all subcontractors involved in the following types of Work: plumbing and gas fitting and all kindred work, steam and hot water heating, ventilating apparatus, steam power plants and kindred work, electrical work, ornamental iron work, and structural steel. In addition, the County may require the identification of specific additional subcontractors. If these trades are expected to be part of the contract, such subcontractors should be listed on the "Subcontractor Identification Statement List of Subcontractors" and Bidder shall certify same on the accompanying sheet titled "Subcontractor Identification Certification". (See forms attached) **Bidder's failure to submit these two forms shall be considered a material defect and result in rejection of Bidder's bid.** Substitutions of any listed subcontractors pursuant to NJSA 40A:11-16 will not be permitted except with the consent of the County Engineer.

32. SAFETY

The Contractor shall observe all rules and regulations of the Federal, State, and local health officials. Attention is directed to Federal, State, and local laws, rules, and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to the worker's health or safety.

The Contractor shall admit to the site, without delay and without the presentation of an inspection warrant, any inspector of OSHA or other legally responsible agency involved in safety and health administration upon presentation of proper credentials.

The Contractor shall make available to the Contractor's employees, subcontractors, the County Engineer, and the public, all information pursuant to OSHA 29 CFR Part 1926.59 of The Hazard Communication Standard 29 CFR 1910.1200, and shall also

maintain a file on each job site containing all Material Safety Data Sheets (MSDS) for products in use at the Project. These Material Safety Data Sheets shall be made available to the Engineer upon request.

The Contractor shall at all times conduct the Work to provide for the safety and convenience of the general public and protection of persons and property. The safety provisions of applicable laws, OSHA regulations, building and construction codes, and the rules and regulations of the New Jersey Department of Labor and Commerce shall be observed.

33. QUALITY, SAFETY AND PERFORMANCE STANDARDS

All goods and services must be constructed and provided with the highest quality materials and workmanship. It is the intent of these specifications that only equipment equal to, or exceeding, the standard specified will be acceptable in order to protect the safety of the occupants of the Building.

34. MATTERS NOT MENTIONED IN CONTRACT DOCUMENTS

Any Work, material, or method, not specifically described in these specifications, but shown upon the plans of the Work, will be carried out as shown on said plan.

35. PERMITS

The Contractor will obtain all necessary permits required by law and provide the County with necessary approvals prior to commencement of permitted Work.

36. CONTRACTOR TO PROVIDE PROOF OF PAYMENT

Upon the completion of the Work, the Contractor will furnish a General Release as proof that all claims for labor, materials, etc., have been settled by the Contractor. The General Release, in a form acceptable to County Counsel, is a condition of final payment.

37. CHANGE ORDERS

Change Order Procedures shall comply with *N.J.A.C. 5:30-11.1 et seq.*, "Change Orders and Open End Contracts" and subsequent provisions of the New Jersey Administrative Code.

38. SUPPLEMENTAL WORK

In case any supplemental work is necessary, it will be performed by the Contractor at a price fixed by agreement between the Contractor and the County Engineer and approved by the County as specified in Section 36. The Contractor will

do no supplemental work on any character, for which the Contractor will demand pay, except upon the written order of the County.

39. FORM OF CONTRACT

The Contract will be subject to all statutory provisions on the matter of Public Works, Public Contracts, The Law Against Discrimination, the Laws Governing Affirmative Action and Prevailing Rates of Wages under the laws of New Jersey.

The Agreements shall be executed by both parties not later than twenty-one (21) days from the date of the award by the County (Sundays and holidays excluded); however, such time frame may be extended by agreement of the parties.

40. PROGRESS PAYMENTS

Monthly progress payments will be made based on the value of labor and materials incorporated in the Work and of materials suitably stored at the site. An itemized schedule of values shall be submitted with each Application for Payment.

(Refer to the Owner/Contractor Agreement for Retainage and other conditions pertaining to payment and the application of NJSA 2A:30A-1 et. seq.)

All Applications for Payment shall be accompanied by paid invoices for materials incorporated in the Work and for materials suitably stored at the site, and affidavit(s) by Subcontractors whose Work was included in the next to the last application to the effect such Work and such materials have been paid for.

No payment shall be made without Contractor having provided all submittals set forth in this Section, and the approval of same by the County.

For contracts exceeding \$100,000.00, monthly payments will be made on the Work to the extent of 98% of the value of the Work done which is considered to be retainage.

For contracts less than \$100,000.00, monthly payments will be on the Work to the extent of 90% of the value of the Work done. In lieu of the retainage, the Contractor will, at his option, deposit with the County Counsel negotiable bearer bonds of the State of New Jersey or any political subdivision thereof, equal to the amount otherwise withheld as retainage.

When the Project is completed, the final cost of the Project will be based on actual quantities of authorized Work done under each item scheduled in the bidding sheet and approved Change Orders, if any. The money due to the Contractor as determined by said final certificate after deduction of previous monthly payments on

account, will be paid to the Contractor in accordance with the terms of the contract dealing with Prompt Payment, providing, however that before such final payment is made, all outstanding claims against the Contractor must be satisfied. Before final payment is released, the Contractor must furnish: **a)** Maintenance Bond (see Section 6 of these general specifications); **b)** Certification of Compliance, New Jersey Prevailing Wage Act (see Sections 21 and 51); and **c)** General Release (see Section 36) in a form satisfactory to County Counsel; **d)** complete set of as-built plans in the latest AutoCad on compact disc; and **e)** a complete set of in-progress photos in jpg, jpeg, or bmp digital format on a compact disc.

41. INSPECTION

The Work must be done in accordance with the plans and specifications, and will be inspected by the County Engineer. An inspector may be placed upon the Work at any time by the County Engineer to see that the plans, specifications, and instructions of the County Engineer are carried out. In connection herewith, bidders are referred to N.J.S.A. 40A:11-17.

42. DAMAGES

The Contractor will be held responsible for all damages that may occur to Work, or to persons or property by reason of the nature of the Work or from the elements, or by reason of inadequate protection of the Work, or from any carelessness or negligence on his part or on the part of his employees. The County will withhold payments on the Work until all suits or claims for damages sustained on, or by reason of, this Work will have been settled by the Contractor.

The construction and final completion of this Work will be guaranteed by the Contractor. Any damages that may be done to the Work or any part thereof, by the elements or otherwise, during its construction, will be made good by the Contractor.

43. LIQUIDATED DAMAGES

If the Project is not completed within the time specified herein or within such further time as may have been granted by the County Engineer, then the Contractor hereby agrees to pay to the County as liquidated damages, but not as a penalty, \$1,000.00 per day for each and every calendar day that he is in default on time to complete the Work. The said sum will be deducted from moneys due the Contractor and if the damages exceed this amount, then the Contractor or his Surety Company will pay the excess. These damages may be waived at the option of the County.

44. AFFIRMATIVE ACTION REQUIREMENTS

EXHIBIT B (Revised 4/10)

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE N.J.S.A. 10:5-31 et seq. (P.L. 1975, C. 127) N.J.A.C. 17:27

CONSTRUCTION CONTRACTS

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, up-grading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. 17:27-7.2; provided, however, that the Division may, in its discretion, exempt a contractor or subcontractor from

compliance with the good faith procedures prescribed by the following provisions, A, B and C, as long as the Division is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Division, that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

(A) If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et. seq., as supplemented and amended from time to time and the Americans with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the contractor or subcontractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this chapter, the contractor or subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

(B) If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions:

(1) To notify the public agency compliance officer, the Division, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;

(2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;

(3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;

(4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;

(5) If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and non-discrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;

(6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:

(i) The contractor or subcontractor shall interview the referred minority or women worker.

(ii) If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Division. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.

(iii) The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Division, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.

(iv) If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Division.

(7) To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Division and submitted promptly to the Division upon request.

(C) The contractor or subcontractor agrees that nothing contained in (B) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the contractor or subcontractor shall consider for employment persons referred pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall

not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Division an initial project workforce report (Form AA 201) electronically provided to the public agency by the Division, through its website, for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7. The contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Division and to the public agency compliance officer.

The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women.

(D) The contractor and its subcontractors shall furnish such reports or other documents to the Division of Public Contracts Equal Employment Opportunity Compliance as may be requested by the Division from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Public Contracts Equal Employment Opportunity Compliance for conducting a compliance investigation pursuant to **Subchapter 10 of the Administrative Code (NJAC 17:27)**.

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45. INVESTMENT ACTIVITIES IN IRAN

Pursuant to P.L. 2012, c.25, codified as NJSA 2:32-55 *et seq*, prohibits State and local public contracts with persons or entities engaging in certain investment activities in energy or finance sectors of Iran.

46. COMPLIANCE WITH THE PUBLIC WORKS CONTRACTOR REGISTRATION ACT - (NJSA 34:11-56.48 *et. seq.*)

Pursuant to the above-referenced law, Bidders are required to be registered with the New Jersey Department of Labor and to possess a current certificate by said Department indicating compliance with the Act prior to the time and date that bids are received. Bidders are notified of this requirement of their compliance. Such certificates or applications shall also be provided for each Subcontractor furnishing plumbing and gas fitting, steam and hot water heating and ventilating apparatus, and all kindred work, steam power plants and kindred work, electrical work, structural steel and ornamental iron work, and such other subcontractors as the specifications require relative to prior identification.

47. UTILITIES

Attention of the bidder is directed to the fact that the approximate locations of known utility structures and facilities that may be encountered within and adjacent to the limits of the Work are shown on the plans and described herein. The accuracy and completeness of this information is not guaranteed by the County Engineer and the bidder is advised to ascertain for himself all the facts concerning the location of these and other utilities.

The Contractor will not proceed with his Work until he has made diligent inquiries of all public utility and municipal officials to determine the exact location of all underground structures and pipes within the site of the Project. The Contractor will notify utility owners not less than ten (10) days in advance of the time he proposes to perform any Work that will endanger or affect their facilities in compliance with **New Jersey One-Call**. In excavating in any part of the Work, care must be taken not to remove or damage any gas, water, sewer, or other pipe, conduit, or structure, - public or private - without the concurrence of the owner and the County Engineer. The Contractor will, at his own expense, shore up, secure and maintain a continuous flow in such structures, and will keep them in repair until final acceptance of the Work.

When pipes or other structures are encountered or when the removal, relocation or protection of these utilities are necessary in carrying out the Project as planned, the Contractor will cooperate with the owner of said utilities and will permit the owners or their agents access to the site of the Work in order to relocate or protect their facilities

and not hinder or delay unnecessarily the Work of the owners in moving same. No extra allowance of payment will be made to the Contractor for the use of any materials, equipment, etc., or for the performance of any Work in connection with the moving of said structures unless the Contractor is specifically ordered by the County Engineer to furnish such materials, equipment, or services. If directed by the County Engineer to do any Work or furnish any materials or equipment, payment will be allowed the Contractor in accordance with the unit prices bid for such Work, or, if such items are not scheduled in the proposal, such Work shall be allowed "Supplemental Work" as provided in Section 39 of these general specifications. The corporations, companies, agencies or municipalities owning or controlling the utilities, and the name, and telephone numbers are listed in the beginning of the Technical Specifications.

48. MATERIAL COMPLIANCE AND SHOP DRAWINGS

The Contractor will require the manufacturer or supplier to furnish three (3) copies of Certification of Compliance with each delivery of materials, components and manufactured items for the Project. Two (2) copies will be furnished to the County Engineer; one copy will be retained by the Contractor. Certificates of Compliance will contain the following information:

1. Project to which material is consigned;
2. Name of the Contractor to which the material is supplied;
3. Kind of material supplied;
4. Quantity of material represented by the Certificate;
5. Means of identifying the consignment, such as label marking, seal number, etc.;
6. Date and method of shipment;
7. That the material is in conformity with the pertinent specifications stated in the certificate; and
8. Signature of a person having legal authority to bind the supplier.

The Contractor will submit to the County Engineer for his approval five (5) copies of complete and fully detailed shop or working drawings for those items listed in the beginning of the technical specifications.

Each drawing will identify the name of the job, location and Contractor.

All drawings will be approved in accordance with the standard specifications. Refer to the Technical Specifications for specific items.

All materials or articles used in the Work will be of American manufacture, insofar as same are available, in conformance with N.J.S.A. 40A:11-18.

49. PRECONSTRUCTION

In order to provide full coordination of this Project among the parties concerned, the County Engineer will arrange for a preconstruction meeting between the Contractor, County Engineer and other interested parties as soon as possible after the contract is executed. At this meeting the Contractor will present his proposed schedule of Work which shall be subject to review and approval of the County through its designated representatives.

50. DISPUTES UNDER THE CONTRACT

A dispute arising under the Contract shall be submitted in writing to the County Engineer with all facts and supporting data. The County Engineer will review the dispute and issue his decision or request additional facts or documentation after which he will render his decision.

In the event the dispute is not then resolved, the matter shall, pursuant to law, be submitted to mediation before being submitted to a court of competent jurisdiction venued in Union County.

The County Engineer will notify the County Counsel when a matter is to be submitted to mediation. The County Counsel will communicate with the parties and inform them of the procedures to be followed in making such a submission.

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**51. RESOLUTION NO. 2014-0408 ADOPTED ON MAY 8, 2014
BY THE UNION COUNTY BOARD OF CHOSEN FREEHOLDERS**

In addition to compliance with the New Jersey Prevailing Wage Act, the Contractor shall comply with the requirement as set forth in Resolution No. 2014-0408 adopted on May 8, 2014 by the Union County Board of Chosen Freeholders.

**UNION COUNTY BOARD OF CHOSEN FREEHOLDERS RESOLUTION NO. 2014-0408
DATED: 05/08/2014**

WHEREAS, the County of Union recognizes there is a need to ensure that all work on significant public construction and maintenance contracts is performed by responsible, qualified firms that maintain the capacity, expertise, personnel, and other qualifications and resources necessary to successfully perform public contracts in a timely, reliable, and cost-effective manner; and

WHEREAS, in order to effectuate the purpose of selecting responsible contractors for significant public contracts and to protect Union County's capital investments in such contracts prospective contractors and subcontractors should be required to meet pre-established, clearly-defined, minimum standards relating to contractor responsibility, including requirements and criteria concerning qualifications, competency, expertise, adequacy of resources, including equipment, financial and personnel, and satisfactory records regarding past project performance, safety, legal compliance and business integrity; and

WHEREAS, the County has a compelling interest in assuring that its Public Works Projects meet the highest standard of safety and quality; and

WHEREAS, due to the critical impact that skilled construction craft labor has on public works projects, and due to the limited availability of skilled construction craft labor and imminent craft labor skill shortages, it is necessary to require contractors and subcontractors to participate in established, formal apprenticeship training programs for the purpose of both promoting successful project delivery and ensuring future workforce development; and

WHEREAS, an apprenticeship program is a structured system of training designed to prepare individuals for occupations and life long careers in skilled trades and crafts by providing a wage-paying job that incorporates extensive workplace and classroom training under the supervision of experienced workers, in preparation for highly skilled occupations; and

WHEREAS, apprenticeship programs are a critical component in public safety, by ensuring that workers on public projects are properly trained, able, competent and capable craftsmen, and provide assurance of compliance with the County's bid specifications and achieve high quality standards; and

WHEREAS, for an apprenticeship program to be fully effective, the public and private sectors must recognize its value and commit to supporting its mission; and

WHEREAS, Union County has long recognized the value of apprenticeship programs through its support of the Union County Vocational-Technical Schools, which offer training programs to help ensure that Union County will continue to produce a skilled

and educated work force in the trade specialties, and thus, strengthen Union County's economy by fostering the development of highly paid trade and craft careers; and

WHEREAS, the use of apprenticeship programs or apprenticeship trained employees on Union County Public Works Projects will serve the dual goal of providing the County with assurance that its public works projects are completed with a well-trained workforce, in a highly skilled and timely fashion, while creating opportunities for careers in the skilled trades and craft industry for County residents.

WHEREAS, the County of Union also recognizes that it is beneficial to their employees to utilize fair business, employment, and training practices that have a positive impact on local communities affected by such contracts.

NOW, THEREFORE, BE IT RESOLVED by the Board of Chosen Freeholders of the County of Union as follows:

1. The County of Union shall require compliance with the provisions of this Resolution by business entities seeking to provide services to the County of Union as specified herein. The requirements of this Resolution are intended to supplement, not replace, existing contractor qualifications and performance standards or criteria currently required by law, public policy or contracting documents, including but not limited to Union County's DPMC classification and Project Labor Agreement policies
2. All contractors and subcontractors that perform significant work on any public facility or public works project, including construction, alteration, renovation, repair, service, or maintenance work, shall meet the requirements of this Resolution. For purposes of this Resolution, the term "significant work" shall be defined as any work or activity covered under the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 et seq.
3. All firms engaged in contracts covered by this Resolution shall be qualified responsible contractors or subcontractors that have sufficient capabilities in all respects to successfully perform contracts on which they are engaged, including the necessary experience, equipment, technical skills and qualifications and organizational, financial and personnel resources. Firms bidding on public contracts shall also be required to have a satisfactory past performance record and a satisfactory record of legal compliance, integrity and business ethics. Compliance with these standards shall be established by compliance with the requirements set forth in paragraph 8 of this Resolution.
4. As a condition of performing work on public works contracts over the public works threshold, the general contractor shall provide certification that he and each subcontractor working on the project shall have at least one (1) employee who has successfully completed the OSHA 10-hour construction safety and health course. As a condition of performing work on public works contracts of \$500,000.00 or more total cost of project, the general contractor shall provide certification that each subcontractor working on the project shall

have at least one (1) employee who has successfully completed the OSHA 30-hour construction safety and health course.

5. All contractors and subcontractors that perform significant work on any public facility or public works project shall be required to affirmatively provide evidence of and confirm compliance with proof of participation in an Apprenticeship Program currently registered and approved by the United States Department of Labor ("USDOL"), the New Jersey Department of Labor ("NJDOL") or any state having equal to or higher requirements as either the USDOL or NJDOL apprenticeship programs. Additionally, Apprenticeship Programs shall meet the criteria set forth in Section 8(i) of this Resolution.

6. As a condition of performing work on public works contracts subject to this Resolution, a general contractor seeking award of a contract shall submit a Contractor Responsibility Certification at the time it submits its bid for contract.

7. The Contractor Responsibility Certification shall be completed on a form provided by the Union County Purchasing Department and shall reference the project for which a bid is being submitted by name and contract or project number.

8. In the Contractor Responsibility Certification, general contractors and subcontractors shall certify the following facts regarding their past performance and work history and its current qualifications and performance capabilities:

a. The firm has all valid, effective licenses, registrations or certificates required by federal, state, county, or local law, including, but not limited to, licenses, registrations, certificates required to: (1) do business in the designated locale; and (2) perform the contract work it seeks to perform. These shall include, but not be limited to, licenses, registrations or certificates for any type of trade work or specialty work, which the firm proposes to self-perform.

b. The firm meets the bonding requirements for the contract, as required by applicable law or contract specifications and any insurance requirements, as required by applicable law or contract specifications, including general liability insurance, workers compensation insurance and unemployment insurance requirements.

c. The firm has not been debarred by any federal, state or local government agency or authority in the past three (3) years.

d. The firm has not defaulted on any project in the past three (3) years.

e. The firm has not had any type of business, contracting or trade license, registration, or other certification suspended or revoked in the past three (3) years.

f. The firm has not been cited and found guilty for a willful violation of federal or state safety laws in the past three (3) years.

g. The firm and/or its owners have not been convicted of any crime relating to the contracting business by a final decision of a court or government agency in the past three (3) years.

h. The firm will pay all craft employees that it employs on the project the current wage rates and benefits as required under applicable Federal or State prevailing wage laws.

i. The firm participates in an Apprenticeship Program that is currently registered with the USDOL, the NJDOL or any state having equal to or higher requirements as either the USDOL or NJDOL apprenticeship programs, for each craft or trade in which it apprentices. The firm shall provide proof of meeting this qualification standard by submitting appropriate documentation as an attachment to this Certification. The firm shall continue to participate in applicable apprenticeship programs for the full duration of the contract work. The apprenticeship program in which the firm participates shall have graduated at least one (1) enrollee in each of the past three (3) years.

9. The County of Union may conduct any additional inquiries to verify that the prospective awardee and its subcontractors have the technical qualifications and performance capabilities necessary to successfully perform the contract and that the firms have a sufficient record of legal compliance and business integrity to justify the award of a public contract. In conducting such inquiries, the County of Union may seek relevant information from the firm, its prior clients or customers, its subcontractors or any other relevant source.

10. If any provision of this Resolution shall be held to be invalid or unenforceable by a court of competent jurisdiction, any such holding shall not invalidate any other provisions of this Resolution and all remaining provisions shall remain in full force and effect.

NOW, THEREFORE, BE IT RESOLVED by the Board of Chosen Freeholders of the County of Union that it hereby establishes and adopts the Responsible Contractor Policy, and it hereby authorizes the County Manager to sign any and all documents necessary to make said Policy effective immediately.

52. CONTRACTOR BUSINESS REGISTRATION CERTIFICATE New Mandatory Requirement -Effective 1/18/2010

The recently enacted **P.L. 2009, c.315**, requires that effective January 18, 2010; a contracting agency must receive proof of the bidder's business registration prior to the award of a contract. However, the proof must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

If subcontractors are named on the bid, proof of the business registration for each subcontractor must be provided prior to the award of bid. Similarly to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

Proof of business registration shall be

- A copy of a Business Registration Certificate issued by the Department of the Treasury, Division of Revenue; or
- A copy of the web version provided by the NJ Division of Revenue, or

Register online at <http://www.state.nj.us/treasury/revenue/busregcert.htm>. Click the “online” link and then select “Register for Tax and Employer Purposes or call the Division at 609-292-1730.

Note: A NJ Certificate of Authority is not acceptable.

FAILURE to submit proof of registration of the bidder or any subcontractor named on the bid prior to the award of contract shall be cause to reject the bid.

FAILURE of the bidder or any subcontractor named on the bid to be registered prior to the receipt of bids is cause for a **MANDATORY REJECTION** of bids. (A NON-WAIVABLE DEFECT). This covers construction Work as well as non-construction bids.

IN ADDITION:

N.J.S.A. 52:32-44 imposes the following requirements on Contractors and all subcontractors that knowingly provide goods or perform services for a Contractor fulfilling this contract:

- 1) the Contractor shall provide written notice to its subcontractors and suppliers to submit proof of business registration to the Contractor;
- 2) subcontractors through all tiers of a project must provide written notice to their subcontractors and suppliers to submit proof of business registration and subcontractors shall collect such proofs of business registration and maintain them on file;
- 3) prior to receipt of final payment from a contracting agency, the Contractor must submit to the contacting agency an accurate list of all subcontractors and suppliers or attest that none was used; and,
- 4) during the term of this contract, the Contractor and its affiliates shall collect and remit, and shall notify all subcontractors and their affiliates that they must collect and remit, to the Director, New Jersey Division of Taxation, the use tax due pursuant to the Sales and Use Tax Act, (*N.J.S.A. 54:32B-1 et seq.*) on all sales of tangible personal property delivered into this State.

A Contractor, subcontractor or supplier who fails to provide proof of business registration or provides false business registration information shall be liable to a penalty of \$25 for each day of violation, not to exceed \$50,000 for each business registration copy not properly provided or maintained under a contract with a contracting agency. Information on the law and its requirements are available by calling (609) 292-9292.

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53. BID PROTEST – LEGAL FEES AND COSTS

In the event a Bidder unsuccessfully challenges a Bid Submission by filing an action in a court of law concerning same, said Bidder shall be responsible for payment of reasonable legal costs and fees incurred by the County relating to said protest.

54. AMERICAN GOODS AND PRODUCTS WHERE POSSIBLE

Bidder shall comply with the requirements of NJSA 40A:11-18 and use only manufactured and farm products of the United States, wherever available, for the Project.

55. NEW JERSEY PAY-TO-PLAY REQUIREMENTS

This Contract is required by law to be publicly advertised for bids. As such, lists of political contributions pursuant to NJSA 19A:44A-1 et. seq. are NOT REQUIRED to be provided with the bids.

56. STATEMENT OF EQUIPMENT TO BE USED IN CONSTRUCTION

Pursuant to NJSA 40A:11-20 entitled Certificate of Bidder Showing Ability to Perform Contract, the County requires a Certification from all bidders submitting a bid showing that the Bidder owns, leases, or controls all necessary equipment required by the Project Plans and Specifications. All bidders shall provide this information at the time of the bid opening using the attached form entitled, "CERTIFICATE OF BIDDER SHOWING ABILITY TO PERFORM CONTRACT".

If the Bidder is not the actual owner of the equipment, it shall state the source from which the equipment will be obtained and shall attach a certificate from the owner or person in control of the equipment demonstrating that the equipment owner has granted the Bidder control of the requisite equipment during such time as may be necessary for completion of the portion of the contract for which the equipment is necessary.

57. NEW JERSEY SALES AND USE TAX REQUIREMENTS,

Contractors are required to comply with the following:

New Jersey Sales and Use Tax Requirements: All contractors with subcontractors, or any of their affiliates, who enter into contracts for the provision of goods or services with or for New Jersey local government entities, are required to collect and remit to the New Jersey Director of Taxation in the Department of the Treasury the use tax due on all of their sales of tangible personal property delivered into the State of New Jersey pursuant to the "Sales and Use Tax Act," (NJSA 54:32B-1 et, seq.),

regardless of whether the tangible personal property is intended for a contract with the contracting agency. This tax shall be remitted for the term of the Contract.

For purposes herein "affiliate" shall mean any entity that: (a) directly, indirectly, or constructively controls another entity, (b) is directly, indirectly, or constructively controlled by another entity, or (c) is subject to the control of a common entity. For purposes of the immediately preceding sentence, an entity controls another entity if it owns, directly or indirectly, more than fifty percent (50%) of the ownership interest in that entity. NJSA 52:32-44(g)(3).

ALFRED J. FAELLA
COUNTY MANAGER

LAURA M. SCUTARI, DIRECTOR
DIVISION OF PURCHASING

BID DOCUMENT SUBMISSION CHECKLIST

ALL SIGNATURES AND SEALS SHALL BE ORIGINALS UNLESS OTHERWISE SPECIFIED
BID SHEETS SHOULD NOT BE SUBMITTED DOUBLE SIDED PAGES, (SINGLE SIDE ONLY)

EACH BIDDER SHOULD COMPLETE THIS FORM AND INITIAL EACH ENTRY.

DATE COMPLETED: _____

PLEASE SUBMIT BID DOCUMENTS ON SINGLE SIDED PAPER ONLY, WITH THE EXCEPTION OF THE SURETY AND BID BOND DOCUMENTS.

IN ACCORDANCE WITH THE BID SPECIFICATIONS I HAVE REVIEWED, COMPLETED / EXECUTED AND INCLUDED THE FOLLOWING FORMS:

_____ Bid Form Page (**Signed, Dated and Bid on all alternatives applicable to the Work**).

_____ Security in the form of:

- _____ Bid bond in an amount equal to 10% of the total amount of this bid not to exceed \$20,000.00; or
- _____ Certified check or cashier's check in the amount of 10% of this bid not to exceed \$20,000.00

_____ Consent of Surety form signed by a Surety Company if the total amount of your Bid is over \$36,000.00. If your bid is accepted, the Surety Company that provided the Consent shall be required to furnish a Performance, Labor and Materials Bond in the amount of 100% of the award of the contract. The County of Union has provided its Consent of Surety form for your use. The use of this form by your Surety Company will expedite the bid review process and eliminate the possibility of having your bid rejected. If, however, you should need to use another form, please use language similar to that used on the Union County form and avoid making any additions or deletions to the Union County form language. In lieu of the Consent of Surety you may submit a Certified Check in the full amount of the bid.

_____ STATEMENT OF BIDDER OWNERSHIP. Pursuant to N.J.S.A. 52:25-24.2, which includes **BOTH** of the following documents:

- Bidder Signature Page
- Bidder Disclosure Statement (**Fill out 2 pages completely**)

_____ SUBCONTRACTOR IDENTIFICATION. Pursuant to N.J.S.A. 40A:11-16, which includes **BOTH** of the following documents:

- Subcontractor Identification Statement: List of Subcontractors (**only for certain types of work**)
- Subcontractor Identification Certification

_____ Acknowledgement of Addendum form: (**This form is to be used only when an addendum has been added to the specifications**).

_____ A copy of the State of New Jersey Department of the Treasury, Division of Revenue, **Business Registration Certificate ("BRC")** should be included with the bids as it must be received by the County prior to the award of the contract. The BRC provided must show that the Bidder was registered at the time of receipt of bids or the bid will be rejected.

_____ A copy of the State of New Jersey Department of the Treasury, Division of Revenue, **Business Registration Certificate ("BRC")** of all named or listed subcontractors (List of Subcontractors) in a Construction bid should be included with the bid as the BRC(s) must be received by the County prior to the award of the contract. Each subcontractor's certificate provided must show that the subcontractor was registered at the time of the receipt of bids or the bid will be rejected.

- _____ Affirmative Action Requirement
- _____ Experience Statement
- _____ Certificate of Bidder showing ability to perform Contract
- _____ Non-Collusion Affidavit – Fill out completely and notarize
- _____ Certificates from New Jersey Department of Labor – Public Works Contractor Registration Act. **(Only for certain types of work)**
- _____ Federal Attachments **(If applicable)**
- _____ NJDPMC Certificate / Notice of Classification **(If applicable)**
- _____ Americans with Disabilities Act
- _____ Contractor Responsibility Certification
- _____ Affidavit of General Contractor and Subcontractor OSHA Compliance
- _____ Statement of Bidder's Qualifications
- _____ Contractor Performance Record
- _____ Affidavit Regarding List of Debarred, Suspended or Disqualified Bidders
- _____ Prior Negative Experience Questionnaire
- _____ Contractor's Certification of Compliance – New Jersey Prevailing Wage Act
- _____ Uncompleted Contracts Affidavit **(For Bidder, if applicable) MUST ALSO PROVIDE DPMC FORM 701**
- _____ Certificate of Insurance Statement
- _____ Collection of Use Tax on Sales to Local Government Statement
- _____ Time of Completion
- _____ Disclosure of Investment Activities in Iran form

I HAVE TAKEN THE FOLLOWING ACTIONS:

- _____ Visited the site and attended the Pre-Bid Meeting **(Where applicable)**
- _____ Reviewed the Contract Documents (including any permits the County or its professionals may have obtained), Work, Site, Locality, and Local Conditions and Laws and Regulations that in any manner may affect Cost, Progress, Performance or Furnishing of Work.
- _____ Reviewed Bond Requirements
- _____ Provided Proof of Compliance with New Jersey Prevailing Wage Act
- _____ Reviewed Form of Owner/Contractor Agreement and General Conditions to the Contract

NOTE: QUESTIONS PERTAINING TO THIS BID ARE TO BE DIRECTED TO DIVISION OF ENGINEERING AT 908-789-3675

BIDDING DOCUMENTS

The Bidding Documents consist of the following items:

- **ADDENDA, if issued**
- **CLARIFICATIONS, if issued**
- **INSTRUCTION TO BIDDERS**
- **BID FORM**
- **SPECIFICATIONS:** **As outlined in the Table of Contents and included in the Project Manual.**
- **DRAWINGS:** **As per List of Drawings, indicated on the Project Title Sheet.**

Bidder's Name _____

BID FORM

I/We have carefully examined the plans, specifications, and advertisement for bid for the

**MEISEL PARK POND IMPROVEMENT PROJECT
TOWNSHIP OF SPRINGFIELD, COUNTY OF UNION, NEW JERSEY
BA #37-2016; Union County Engineering Project #2011-014B**

that is on file in the Union County Division of Engineering. I/We have inspected the site of the work and will contract to do all the work and furnish all materials mentioned in said plans and specifications. Work will be accomplished in the manner prescribed therein.

BASE BID ITEMS:

ITEM NO.	DESCRIPTION	UNITS	CONTRACT QUANTITY	UNIT PRICE	AMOUNT
1	CLEARING SITE	LS	1		
2	MOBILIZATION	LS	1		
3	SURVEY- EXISTING CONDITIONS BATHYMETRIC SURVEY	LS	1		
4	AS-BUILT SURVEY-POST CONSTRUCTION BATHYMETRIC SURVEY	LS	1		
5	SOIL EROSION AND SEDIMENT CONTROL	LS	1		
6	GRAVEL ACCESS DRIVE AND TEMPORARY STAGING AREA	LS	1		
7	DREDGING	CY	5,200		
8	BANK STABILIZATION	SY	1,200		
9	OUTLET STRUCTURE	LS	1		
10	24" CONCRETE HEADWALL	UN	1		
11	36" CONCRETE HEADWALL	UN	1		
12	24" REINFORCED CONCRETE END SECTION	UN	1		
13	24" REINFORCED CONCRETE PIPE	LF	67		
14	AERATOR	LS	1		
15	BIOLOGS	LF	20		
16	AERATOR	LS	1		
17	GOOSE FENCE	LF	1,722		
18	BENCH	UN	2		
19	SHADBLOW SERVICEBERRY, 5-6'	UN	4		
20	RIVER BIRCH, 5-6'	UN	3		
21	CAROLINA SILVERBELL, 5-6'	UN	3		
22	SUMMERSWEET CLETHRA, 18-24"	UN	20		
23	GRAY DOGWOOD, 18-24"	UN	12		
24	VIRGINIA SWEETSPIRE, 18-24"	UN	14		
25	SPICEBUSH, 18-24"	UN	15		
26	SWEETFLAG, 12-15"	UN	22		
27	SWAMP ROSE-MALLOW, 12-15"	UN	16		
28	BLUEFLAG IRIS, 2" PLUG	UN	20		
29	BLUEFLAG IRIS, 12-15"	UN	15		

30	CANADA RUSH, 2" PLUG	UN	20		
31	TOPSOILING, 4" THICK	SY	3367		
32	FERTILIZING AND SEEDING, TYPE A-3	SY	3367		
33	STRAW MULCHING	SY	3367		
34	WOODCHIPS	SY	21		
35	FINAL CLEANUP	LS	1		

Written

Figures

BID CONTINGENCY: (To be used if and when directed by the County)

One hundred and eighty five thousand dollars
Written

\$185,000.00
Figures

TOTAL BASE BID ITEMS PLUS BID CONTINGENCY AMOUNT:

Written

Figures

NOTE: Bid Contingency may include one-half of one percent of contract amount set aside for local training if and when directed by the County.

Bidder's Name _____

CONSENT OF SURETY
TO ACCOMPANY PROPOSAL (BID)

_____ (hereinafter called Surety), organized and existing under the laws of the State of _____ duly authorized and qualified to transact business in the State of New Jersey, in consideration of the sum of One Dollar (\$1.00), lawful money of the United States of America, to it in hand paid, receipt whereof is hereby acknowledged, and in consideration, hereby certifies and agrees that if the contract for which the attached proposal is made be awarded to _____ (hereinafter called Contractor) for the performance of certain work and labor or the supplying of certain materials, or both, as more particularly set forth in said proposal and described for purposes of this instrument as a proposal for _____ to the COUNTY OF UNION and if Contractor shall enter into the contract, Surety will become bound as surety for its faithful performance, labor and material payment and will provide the Contractor with a performance, labor and material payment bond in the full amount of the contract price.

NOTE:
Expiration date
Needed if Annual
Surety

NAME OF INSURANCE COMPANY
ADDRESS: _____

ORIGINAL SIGNATURE
ATTORNEY-IN-FACT FOR INSURANCE CO.

NOTE: PROOF OF AUTHORITY OF OFFICERS OF SURETY COMPANY TO EXECUTE THIS DOCUMENT MUST BE SUBMITTED.

BIDDER SIGNATURE PAGE

THE BIDDER MUST READ THE FOLLOWING INSTRUCTIONS TO COMPLETE THIS PAGE:

1. If doing business under a **trade name, partnership or a sole proprietorship**, you must submit the bid under exact title of the trade name, partnership, or proprietorship, and the bid must be signed by either the **owner**, or a **partner** and **witnessed** by a **notary public**.
2. If a **Corporation**, the bid must be signed by the **President** or **Vice President** and **witnessed** by a **Corporate Secretary** (corporate title must be exact) and **affix corporate seal**. If a Corporate Secretary does not exist, President or Vice President's signature shall be witnessed by a Notary Public.
3. Other persons **authorized** by **corporate resolution** to execute agreements in its behalf may also sign the bid documents (pages). **Copy of a resolution must accompany the bid**.
4. The person who signs this bid form **must also** sign the **Non-Collusion Affidavit**.
5. You **cannot** witness your own signature.

NAME OF BIDDER

ADDRESS OF BIDDER

**ORIGINAL SIGNATURE
CORPORATE SECRETARY**

**PRINT NAME AND TITLE
CORPORATE SECRETARY**

TEL: _____
FAX: _____
E-Mail: _____

BY: _____
ORIGINAL SIGNATURE

Corporate Seal

PRINT OR TYPE NAME AND TITLE

WARNING: IF YOU FAIL TO FULLY, ACCURATELY, AND COMPLETELY SUPPLY THE INFORMATION REQUESTED ON THIS PAGE, YOUR BID MAY BE REJECTED.

Bidder's Name _____

BIDDER DISCLOSURE STATEMENT

N.J.S.A. 52:25-24.2 (P.L. 1977 c. 33)

Failure of the bidder/respondent to submit the required information is cause for automatic rejection.

CHECK ONE

I certify that the list below contains the names and home addresses of all stockholders holding 10% or more of the issued and outstanding stock of the undersigned.

OR

I certify that no one stockholder owns 10% or more of the issued and outstanding stock of the undersigned.

LEGAL NAME OF BIDDER: _____

Check the box that represents the type of business organization:

Partnership

Corporation

Sole Proprietorship

Limited Partnership

Limited Liability Company

Limited Liability Partnership

Subchapter S Corporation

Complete if the bidder/respondent is one of the 3 types of corporations:

Date Incorporated: _____ **Where Incorporated:** _____

BUSINESS ADDRESS:

Street Address	City	State	Zip Code
-----------------------	-------------	--------------	-----------------

Telephone #	Fax #
--------------------	--------------

Pursuant to N.J.S.A. 52:25-24.2, also referred to as P.L. 1977, c. 33, no corporation or partnership shall be awarded any contract for the performance of any work or the furnishing of any materials or supplies, unless, prior to the receipt of the bid or accompanying the bid of said corporation or partnership, there is submitted a statement setting forth the names and addresses of all stockholders in the corporation or partnership who own ten (10) percent or more of its stock of any class, or of all individual partners in the partnership who own a ten (10) percent or greater interest therein. Further, the Attorney General has concluded that the provisions of N.J.S.A. 52:25-24.2, in referring to corporations and partnerships, are intended to apply to all forms of business entities, including, but not limited to, corporations, limited partnerships, limited liability companies, limited liability partnerships, Subchapter S corporations, partnerships and sole proprietorships.

Bidders are required to disclose whether they are a partnership, corporation, limited liability company or sole proprietorship. The Stockholder Disclosure Certification form shall be completed, signed and notarized. Failure of the bidder to submit the required information is cause for automatic rejection of the bid.

BIDDER DISCLOSURE STATEMENT – (Continued)

N.J.S.A. 52:25-24.2, also referred to as **P.L. 1977, Ch. 33**, requires all corporate, limited liability and partnership bidders for state, county, municipal or school district contracts to submit a list of names and addresses of all stockholders owning 10% or more of their stock or 10% or more of the stock of the corporate stockholders or in the case of partnership or limited liability company, the names and addresses of those partners or owners owning 10% or greater interest in the partnership or limited liability company. Furthermore, the Union County Board of Chosen Freeholders requires a statement from all Bidders, which must indicate all Principals of Bidders.

You must set forth the name, home address, title and percentage of ownership of every person who is an owner of the bidder. You must also set forth the business form of the bidder.

II. Principals:

	NAME	HOME ADDRESS	TITLE	% OF OWNERSHIP
1.				
2.				
3.				
4.				

If one or more of the owners of the Bidder is itself a corporation, limited liability company or partnership, then for that corporation, limited liability company or partnership owner you must set forth the name, home address, title and percentage of ownership of every person who is an owner of that corporation, limited liability company or partnership.

	NAME	HOME ADDRESS	TITLE	% OF OWNERSHIP
1.				
2.				
3.				
4.				

Bidder's Name _____

SUBCONTRACTOR IDENTIFICATION STATEMENT

LIST OF SUBCONTRACTORS

This form is ONLY required for plumbing and gas fitting, steam and hot water heating and ventilating apparatus, steam power plants, electrical work, structural steel, ornamental iron work, and any other trades required to be identified by the specifications (including, but not limited, to satisfying any DPMC Classification requirements).

CHECK THIS BOX IF NONE OF THE ABOVE LISTED TRADES OR THOSE REQUIRED TO BE IDENTIFIED IN THE SPECIFICATIONS ARE TO BE USED TO PERFORM THE WORK

In compliance with N.J.S.A. 40A:11-16 and the bid specifications, the undersigned hereby lists the name or names of the following subcontractors:

Company Name: _____

Address: _____

Telephone: _____ Subcontract Amount: \$ _____

Specific Scope of Work Subcontracted: _____

License No. _____

Company Name: _____

Address: _____

Telephone: _____ Subcontract Amount: \$ _____

Specific Scope of Work Subcontracted: _____

License No. _____

Company Name: _____

Address: _____

Telephone: _____ Subcontract Amount: \$ _____

Specific Scope of Work Subcontracted: _____

License No. _____

IF MORE THAN THREE SUBCONTRACTORS, PLEASE COPY THIS SHEET AS NECESSARY AND ATTACH TO THE BID PACKAGE.

(Continued on following page)

Bidder's Name _____

SUBCONTRACTOR IDENTIFICATION CERTIFICATION

Note the law does not permit the listing of alternate subcontractors. However, multiple subcontractors for the same trade are permitted to be named provided the bidder meets the following requirements:

- Bidder identifies each subcontractor named for that category;
- Bidder states the scope of work, goods and services (the portion of the work) to be performed by each subcontractor; and
- Bidder provides the price quote provided by each subcontractor.

The bidder is advised that any change of subcontractor(s) from ones listed herein is subject to the County's approval. Change of subcontractor(s) will be approved only if made for good cause and not as a result of an arbitrary purpose.

The undersigned Bidder certifies and declares that the subcontractors listed above shall be used as subcontractors to complete certain portions of the work in this project as set forth in N.J.S.A. 40A: 11-16.

Witness

Date _____

NAME OF BIDDER

ADDRESS

By: _____
ORIGINAL SIGNATURE ONLY

PRINT NAME AND TITLE

Bidder's Name: _____

ACKNOWLEDGMENT OF ADDENDUM

COUNTY OF UNION

(Name of Construction /Public Works Project)

(Project or Bid Number)

Pursuant to N.J.S.A. 40A:11-23.1a., the undersigned bidder, hereby acknowledges receipt of the following notices, revisions, or addenda to the bid advertisement, specifications or bid documents. By indicating date of receipt, bidder acknowledges the submitted bid takes into account the provisions of the notice, revision or addendum. Note that the County of Union's record of notice to bidders shall take precedence and that failure to include provisions of changes in a bid proposal may be subject for rejection of the bid.

Local Unit Reference Number or Title of Addendum/Revision	How Received (mail, fax, pick-up, etc.)	Date Received

ACKNOWLEDGMENT BY BIDDER:

NAME OF BIDDER: _____

ORIGINAL SIGNATURE: _____

PRINTED NAME AND TITLE: _____

DATE: _____

CONTRACTOR BUSINESS REGISTRATION CERTIFICATE

New Mandatory Requirement - Effective 1/18/2010

The recently enacted **P.L. 2009, c.315**, requires that effective January 18, 2010; a contracting agency must receive proof of the bidder's business registration prior to the award of a contract. However, the proof must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

If subcontractors are named on the bid, proof of the business registration for each subcontractor must be provided prior to the award of bid. Similarly to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

Proof of business registration shall be

- A copy of a Business Registration Certificate issued by the Department of the Treasury, Division of Revenue; or
- A copy of the web version provided by the NJ Division of Revenue, or

Register online at www.nj.gov/treasury/revenue/taxreg.htm. Click the "online" link and then select "Register for Tax and Employer Purposes or call the Division at 609-292-1730.

Note: A NJ Certificate of Authority is not acceptable.

FAILURE to submit proof of registration of the bidder or any subcontractor named on the bid prior to the award of a contract shall be cause to reject the bids.

FAILURE of the bidder or any subcontractor named on the bid to be registered prior to the receipt of bids is cause for a **MANDATORY REJECTION** of bids. (A NON-WAIVABLE DEFECT). This covers construction work as well as non-construction bids.

IN ADDITION:

The contractor shall provide written notice to all **subcontractors and suppliers** not specifically named on the bid of the responsibility to register and submit proof of business registration to the contractor. The requirement of proof of business registration extends down through all levels (tiers) of the project.

Before final payment on the contract is made by the contracting agency, the contractor shall submit an accurate list and the proof of business registration of each subcontractor or supplier used in the fulfillment of the contract, or shall attest that no subcontractors were used.

For the term of the contract, the contractor and each of its affiliates and a subcontractor and each of its affiliates [N.J.S.A. 52:32-44(g)(3)] shall collect and remit to the Director, New Jersey Division of Taxation, the use tax due pursuant to the Sales and Use Tax Act on all sales of tangible personal property delivered into this State, regardless of whether the tangible personal property is intended for a contract with a contracting agency.

A business organization that fails to provide a copy of a business registration as required pursuant to section 1 of P.L.2001,c.134 (C.52:32-44 et al.) or subsection e. or f. of section 92 of P.L.1977,c.110 (C.5:12-92), or that provides false business registration information under the requirements of either of those sections, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000 for each business registration copy not properly provided under a contract with a contracting agency.

Bidder's Name _____

BUSINESS REGISTRATION
Mandatory Requirement

P.L. 2009, c.315, requires that effective January 18, 2010; a contracting agency must receive proof of the bidder's business registration prior to the award of a contract. However, the proof must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

If subcontractors are named on the bid, proof of the business registration for each must be provided prior to the award of a contract. Similarly to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

Proof of business registration shall be:

- A copy of a Business Registration Certificate issued by the Department of Treasury, Division of Revenue; or
- A copy of the web printed version provided by the NJ Division of Revenue

STATE OF NEW JERSEY
BUSINESS REGISTRATION CERTIFICATE
FOR STATE AGENCY AND CASINO SERVICE CONTRACTORS

DEPARTMENT OF TREASURY
DIVISION OF REVENUE
PO BOX 352
TRENTON, NJ 08646

TAXPAYER NAME: TAX REG TEST ACCOUNT
TRADE NAME: CLIENT REGISTRATION
TAX REGISTRATION TEST ACCOUNT
TAXPAYER IDENTIFICATION: 070-007-382/000
SEQUENCE NUMBER: 0107510
ADDRESS: 847 ROEBLING AVE
TRENTON NJ 08611
ISSUANCE DATE: 07/14/04
EFFECTIVE DATE: 01/01/01
FORM BRC(04/01)

Accepted for
John S. Tully

This Certificate is NOT assignable or transferable. It must be conspicuously displayed at above address.

STATE OF NEW JERSEY
BUSINESS REGISTRATION CERTIFICATE

Taxpayer Name: TAX REG TEST ACCOUNT
Trade Name:
Address: 847 ROEBLING AVE
TRENTON, NJ 08611
Certificate Number: 1093907
Date of Issuance: October 14, 2004

For Office Use Only:
20041014112623533

ATTACH BRC HERE

Bidder's Name _____

AFFIRMATIVE ACTION REQUIREMENT

REQUIRED AFFIRMATIVE ACTION EVIDENCE

General Requirements of P.L. 1975, c. 127: You are hereby put on notice that:

CONSTRUCTION CONTRACTS: The successful contractor must submit within three (3) days of the notice of intent to award or the signing of the contract the initial project manning report (A.A.201). This report should be submitted at the time the signed contract is returned to the County of Union. Attention: *Affirmative Action Officer*.

If the successful contract does not submit the initial project manning report (A.A.201) within the three (3) days from the time the signed contract is returned to the County of Union, the County of Union WILL declare the contractor non-responsive and award the contract to the next lowest responsible bidder.

NAME OF BIDDER

ORIGINAL SIGNATURE

PRINT OR TYPE NAME AND TITLE

DATE THIS FORM IS COMPLETED

EXPERIENCE STATEMENT

I hereby certify that my company has performed the following private or public work, which is relevant to this bid. I further certify that my company has never defaulted under any contract. Should you not sign this form due to prior defaults, please provide details on an attached sheet.

Witness

Date

NAME OF BIDDER

ADDRESS

By: _____
ORIGINAL SIGNATURE ONLY

PRINT NAME AND TITLE

YOU MAY ATTACH ADDITIONAL SHEETS, BUT YOU MUST SIGN AND WITNESS THIS SHEET.

Contractor Registration Advisement
For Public Works Projects

A new law, known as "The Public Works Contractor Registration Act" (P.L. 1999, c.238), became effective April 11, 2000. Under the Act, no contractor/subcontractor will be permitted to bid on or engage in any contract for public work, as defined in Section 2 of P.L. 1963, c.150 (C:34:11-56.26), unless that contractor/subcontractor is registered with the New Jersey Department of Labor. The Act provides that upon registration with the Department, a public works contractor/subcontractor will be issued a certificate by the Department indicating compliance with the Act's requirements. The registration fee has been set at \$300.00 per year. Upon the effective date of the Act, public bodies will be expected to request production of such a certificate from those bidding on or engaging in public works projects.

It is important to note that the term "contractor," is defined in the, Act as, "a person, partnership, association, joint stock company, trust, corporation or other legal business entity or successor thereof who enters into a contract which is subject to the provision of the "New Jersey Prevailing Wage Act," P.L. 1963, c.150 (C.34:11-56.25, et seq.) for the construction, reconstruction, demolition, alteration, repair or maintenance of a public building regularly open to and used by the general public or a public institution, and includes any subcontractor or lower tier subcontractor as defined herein: except that, for the purposes of the act, no pumping station, treatment plant or other facility associated with utility and environmental construction, reconstruction, demolition, alteration, repair or maintenance shall be regarded as a public building regularly open to and used by the general public or a public institution."

Registration forms, copies of the Act, and other relevant information can be obtained by contacting:

Contractor Registration Unit
New Jersey Department of Labor
Division of Wage & Hour Compliance
PO Box 389
Trenton, New Jersey 08625-0389
Telephone: 609-292-9464
Fax: 609-633-8591
E-mail: contreg@dol.state.nj.us

Bidder's Name _____

AMERICANS WITH DISABILITIES ACT
EQUAL OPPORTUNITY FOR INDIVIDUALS WITH DISABILITIES

The contractor and the County of Union (hereafter "Owner") do hereby agree that the provisions of Title II of the Americans With Disabilities Act of 1990 (the "Act") (42 U.S.C.S12.101 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs and activities provided or made available by public entities, and the rules and regulations promulgated pursuant thereto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the Owner pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the Act. In the event the contractor, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the contractor shall defend the Owner in any action or administrative proceeding commenced pursuant to this Act. The contractor shall indemnify, protect, and save harmless the Owner, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the Owner's grievance procedure, the contractor agrees to abide by any decision of the Owner which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the Owner, or if the Owner incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

The Owner shall, as soon as practicable after a claim has been made against it, give written notice thereof to the contractor along with full and complete particulars of the claim. If any action or administrative proceeding is brought against the Owner or any of its agents, servants, and employees, the Owner shall expeditiously forward or have forwarded to the contractor every demand, complaint, notice, summons, pleading, or process received by the Owner or its representatives.

It is expressly agreed and understood that any approval by the Owner of the services provided by the contractor pursuant to this contract will not relieve the contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the Owner pursuant to this paragraph.

It is further agreed and understood that the Owner assumes no obligation to indemnify or save harmless the contractor, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the contractor expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the contractor's obligations assumed in this Agreement, nor shall they be construed to relieve the contractor from any liability, nor preclude the Owner from taking any other actions available to it under any other provisions of this Agreement or otherwise at law.

Name _____ (Please print or type)

Signature _____ Date _____

Bidder's Name _____

CONTRACTOR RESPONSIBILITY CERTIFICATION

STATE OF NEW JERSEY / _____)

Specify, if Other) SS:

COUNTY OF _____)

I, _____, of the (City, Town, Borough, etc.) of _____ State of _____, of full age, being duly sworn according to law on my oath depose and say that:

I am _____ of the firm of _____, the Bidder making the proposal for the following Project ("Contractor"):

_____, and that I executed said proposal with full authority to do so;

With respect to past performance, work history, current qualifications and performance capabilities, I certify the following with respect to the Bidder/General Contractor and all of the subcontractors on this Project, I certify the following:

- a. The firms have all valid, effective licenses, registrations or certificates required by federal, state, county, or local law, including, but not limited to, licenses, registrations, certificates required to: (1) do business in the designated locale; and (2) perform the contract work it seeks to perform. These include, but are not limited to, licenses, registrations or certificates for any type of trade work or specialty work to be self-performed by Bidder and/or subcontractors.
- b. The firms meet the bonding requirements for the contract, as required by applicable law or the specifications and any insurance requirements, as required by applicable law or the specifications, including general liability insurance, workers compensation insurance and unemployment insurance requirements.
- c. The firms have not been debarred by any federal, state or local government agency or authority in the past three (3) years.
- d. The firms have not defaulted on any project in the past three (3) years.
- e. The firms have not had any type of business, contracting or trade license, registration, or other certification suspended or revoked in the past three (3) years.

f. The firms have not been cited and found guilty for a willful violation of federal or state safety laws in the past three (3) years.

g. The firms and/or its owners have not been convicted of any crime relating to the contracting business by a final decision of a court or government agency in the past three (3) years.

h. The firms will pay all craft employees that it employs on the project the current wage rates and benefits as required under applicable Federal or State prevailing wage laws.

i. The firms participates in an Apprenticeship Program that is currently registered with the USDOL, the NJDOL or any state having equal to or higher requirements as either the USDOL or NJDOL apprenticeship programs, for each craft or trade in which it apprentices. The apprenticeship program in which the firm participates shall have graduated at least one (1) enrollee in each of the past three (3) years.

***** Proof of meeting this qualification standard shall be attached to this form. Bidder shall provide proof of meeting this qualification for those subcontractors required to be identified either pursuant to law or the requirements of the specifications.**

The firms shall continue to participate in the applicable apprenticeship programs for the full duration of the contract work.

Name of Bidder/General Contractor

By: _____
(Signature of Authorized Representative)

Subscribed and sworn to before me
this _____ day of _____, 20__.

(Seal) Notary Public of New Jersey/

Specify Other State

My Commission expires _____, 20__.

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name _____

AFFIDAVIT OF GENERAL CONTRACTOR & SUBCONTRACTOR

OSHA COMPLIANCE

STATE OF NEW JERSEY / _____)

Specify, if Other) SS:

COUNTY OF _____)

In accordance with Union County Resolution 2014-0408 I, _____
_____, of the (City, Town, Borough, etc.) of _____
_____ State of _____, of full age, being duly sworn according to law on my oath
depose and say that:

- 1) I am _____ of the firm of _____
_____, the Bidder and General Contractor making the Proposal for the above named Project.
- 2) I have executed the said Proposal with full authority to do so.
- 3) Said Bidder/General Contractor and each subcontractor working on the Project have at least one (1) employee who has successfully completed the OSHA 10-hour construction safety and health course.
- 4) If this Project is in excess of \$500,000.00, the Bidder/General Contractor and each subcontractor working on the Project has at least one (1) employee who has successfully completed the OSHA 30-hour construction safety and health course.

Name of Bidder/General Contractor

By: _____
(Signature of Authorized Representative)

AFFIDAVIT OF GENERAL CONTRACTOR & SUBCONTRACTOR

OSHA COMPLIANCE – (Continued)

Subscribed and sworn to before me

this _____ day of _____, 20__.

(Seal) Notary Public of New Jersey/

Specify Other State

My Commission expires _____, 20__.

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name _____

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. Questions may be answered on separate attached sheets. The Bidder may submit any additional information it desires.

1. _____
(Name of Bidder)

2. _____
(Permanent Main Office Address)

3. _____
(When Organized)

4. _____
(If a Corporation, where incorporated)

5. Number of years your organization has been engaged in construction or contracting business under present firm or trade name? _____

6. How many years of experience in construction work has your organization had (a) as a general contractor? And/or (b) As a subcontractor? _____

7. Contracts on hand: (Attach a list or table showing gross amounts of each Contract and the appropriate dates of completion) _____

8. General character of work performed by you. _____

9. Have you ever failed to complete any work awarded to you? _____

10. Have you ever defaulted on a Contract? _____ If so, complete details, including where and why?

Bidder's Name _____

STATEMENT OF BIDDER'S QUALIFICATIONS - (continued)

11. Has any officer or partner of your organization ever failed to complete a construction contract handled in its own name? If so, state name of individual, name of owner, location and type of project, and reason for the failure to complete. _____

12. List your major equipment available for this Contract.

13. Experience in the construction work similar in importance to this Project.

14. Have you had any material adverse changes from the trades as listed in NJ Notice of Classification within last five (5) years? _____. If so, list prior classification.

15. Background and experience of the principal members of your organization, including the officers.

Individual's Name	Present Position or Office	Yrs. of Construction Experience	Magnitude & Type of Work	In What Capacity

16. Bank Reference. (Name, Address, Phone, Representative) _____
17. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the proper agency? _____
18. The undersigned, hereby authorizes and requests any person, firm or corporation to furnish any information requested by the proper agency in verification of the responses comprising this Statement of Bidder's Qualifications.
17. Bidder's telephone number, fax number and e-mail address (if applicable).
- Phone _____
- Fax _____
- E-mail _____
- Mobile _____

Dated at _____ this _____ day of _____, 20__.

BIDDER (Signature)

BIDDER (Print Name)

Subscribed and sworn to before me
this _____ day of _____, 20__.

(Seal) Notary Public of New Jersey/
Specify Other State
My Commission Expires _____, 20__.

**NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH
YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.**

Bidder's Name _____

CONTRACTOR PERFORMANCE RECORD

List all contracts completed by you below or provide separate form.

Name of Owner	Name & Location of Project: Type Of Work	Prime or Sub-Cont.	Engineer or Architect in Charge for Owner	Contract Price (Omit Cost)	Date Completed	Was Time* Extension Necessary	Were Any Penalties Imposed	Were Liens* Claims or Stop Notice Filed

* If answer is YES, provide explanation of details in connection with non-completion of contracts, time extensions, penalties imposed, labor troubles, liens, claims and notices filed against contracts listed in preceding item "Performance Record" on an attached sheet.

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name _____

CONTRACTOR PERFORMANCE RECORD
CERTIFICATION

The information above is true and complete to the best of my knowledge and belief.

(Name of Organization)

(Signature)

(Title)

Subscribed and sworn to before me

this _____ day of _____, 20__.

(Seal) Notary Public of New Jersey/
Specify Other State

My Commission Expires _____, 20__.

PRIOR NEGATIVE EXPERIENCE QUESTIONNAIRE

(N.J.S.A. 40A:11-4)

1. Within the past ten (10) years, have you been found, through either court adjudication, arbitration, mediation, or other contractually stipulated alternate dispute resolution mechanism, to have: failed to provide or perform goods or services; or failed to complete a contract in a timely manner; or otherwise performed unsatisfactorily under a prior contract with a public entity?

_____ yes _____ no If yes, please provide full, detailed explanation.

2. Within the past ten (10) years, have you defaulted on a contract, thereby requiring a public entity to utilize the services of another contractor to provide the goods or perform the services or to correct or complete the contract?

_____ yes _____ no If yes, please provide full, detailed explanation.

3. Within the past ten (10) years, have you defaulted on a contract, thereby requiring a public entity to look to your surety for completion of the contract or tender of the costs of completion?

_____ yes _____ no If yes, please provide full, detailed explanation.

4. Within the past ten (10) years, have you been debarred or suspended from contracting with any of the agencies or department of the executive branch of the State of New Jersey at the time of the contract award, where the action was based on failure to perform a contract for goods or services with a public entity?

_____ yes _____ no If yes, please provide full, detailed explanation.

Bidder's Name _____

PRIOR NEGATIVE EXPERIENCE CERTIFICATION

I hereby certify that the above statements are true and accurate as of this _____
day of _____, 20__.

Name of Contractor

By _____
(Signature of Authorized Representative)

Subscribed and sworn to before me
this _____ day of _____, 20__.

(Seal) Notary Public of New Jersey/
Specify Other State

My Commission Expires _____, 20__.

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name _____

TO BE COMPLETED ONLY WHEN FINAL PAYMENT IS REQUESTED

CONTRACTOR'S CERTIFICATION OF COMPLIANCE - NEW JERSEY PREVAILING WAGE ACT

TO: County of Union
Division of Engineering
2325 South Avenue
Scotch Plains, New Jersey 07076

CONTRACT: _____

PROJECT: _____

In accordance with the requirements of the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56 et al *, the undersigned contractor on the public work being performed for:

COUNTY OF UNION

hereby certifies that he/she has complied with the contract requirements regarding the payment of the minimum prevailing wages established under "The New Jersey Prevailing Wage Act" N.J.S.A. 34:11-56 et al.

CONTRACTOR: _____
ADDRESS: _____

BY: _____
ORIGINAL SIGNATURE ONLY

STATE OF NEW JERSEY
COUNTY OF _____

Being by me duly sworn according to law, on his oath deposes and says that _____ is _____ of _____ the above named contractor, and that the facts set forth in the above statement are true.

Subscribed and sworn before me
this ____ day of _____, 200__.

Notary Public: _____
My Commission Expires: _____

* N.J.S.A. 34:11-56.33 requires the contractor and subcontractor to file written statements with the public body in form satisfactory to the Commissioner certifying to the amounts then due and owing from such contractor and subcontractor filing such statement to any and all workmen for wages due on account of the public work, setting forth therein the names of the persons whose wages are unpaid and the amount due to each respectively. Union County will withhold the amount so deducted for the benefit of the workmen whose wages are unpaid as shown by the verified statement filed, and will pay directly to any workman the amount shown by such statement to be due to him for such wages. Such payment shall thereby discharge the obligation of the contractor to the person receiving such payment to the extent of the amount thereof.

Bidder's Name _____

UNCOMPLETED CONTRACTS AFFIDAVIT
(To be Submitted with DPMC Form 701)

PURSUANT TO N.J.A.C. 17:19-2.13, BIDDER DECLARES THE FOLLOWING WITH RESPECT TO ITS UNCOMPLETED CONTRACTS, ON ALL WORK, FROM WHATEVER SOURCE (PUBLIC AND PRIVATE), BOTH IN NEW JERSEY AND FROM OTHER GOVERNMENTAL JURISDICTIONS

ENTITY	PROJECT TITLE	ORIGINAL CONTRACT AMOUNT	UNCOMPLETED AMOUNT AS OF BID OPENING DATE	NAME AND TELEPHONE NUMBER OF PARTY TO BE CONTACTED FROM ENTITY FOR VERIFICATION

TOTAL AMOUNT OF UNCOMPLETED CONTRACTS \$ _____

Sworn and Subscribed to Before me

This _____ day of _____, 20____

Notary Public

BIDDER:

(Signature)

(Print Name)

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name _____

CERTIFICATE OF INSURANCE STATEMENT

The Bidder fully understands the County of Union insurance requirements as stated in the Instructions to Bidders as well as the Owner/Contractor Agreement and agrees to provide all insurance required by these documents prior to the issuance of the Notice to Proceed.

BIDDER (Signature)

BIDDER (Print Name)

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name _____

COLLECTION OF USE TAX ON SALES TO LOCAL GOVERNMENTS STATEMENT

The Bidder fully understands the requirements of the use tax on sales to local governments as stated in the General Conditions to the Contract for Construction and the Instructions to Bidders, and agrees at all times to comply with the "Contractor Use Tax Collection Legislation", as defined therein, and the terms relating thereto contained in the Contract Documents.

BIDDER (Signature)

BIDDER (Print Name)

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name _____

TIME OF COMPLETION

The undersigned proposed that if awarded the Contract, the scope of work will be started within ten (10) calendar days and will be substantially completed within **ninety (90) calendar days** from the date of the notice to proceed.

I, _____ of _____
NAME (Print or type) COMPANY

Agree to complete work in the time frame specified _____
SIGNATURE

SITE VISIT – GENERAL CONTRACTOR

I, _____ of _____
NAME (Print or type) COMPANY

Visited the site of the work on _____
SIGNATURE

**COUNTY OF UNION NEW JERSEY
Division of Purchasing**

DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

Solicitation Number: _____ Bidder/Offeror: _____

Pursuant to Public law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that the person or entity, or one of the person or entity's parents, subsidiaries, or affiliates, is not identified on a list created and maintained by the Department of the Treasury as a person or entity engaging in investment activities in Iran. If the Director finds a person or entity to be in violation of the principles which are the subject of the law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the person or entity.

I certify, pursuant to Public Law 2012, c. 25, that the person or entity listed above for which I am authorized to bid/renew:

is not providing goods or services of \$20,000,000 or more in the energy sector of Iran, including a person or entity that provides oil or liquefied natural gas tankers, or products used to construct or maintain pipe lines used to transport oil or liquefied natural gas, for the energy sector of Iran,
AND

is not a financial institution that extends \$20,000,000 or more in credit to another person or entity, for 45 days or more, if that person or entity will use the credit to provide goods or services in the energy sector in Iran.

In the event that a person or entity is unable to make the above certification because it or one of its parents, subsidiaries, or affiliates has engaged in the above-referenced activities, a detailed, accurate and precise description of the activities must be provided in part 2 below to the Division of Purchase under penalty of perjury. Failure to provide such will result in the proposal being rendered as non-responsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

PART 2: PLEASE PROVIDE FURTHER INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN. You must provide, accurate and precise description of the activities of the bidding person/entity, or one of its parents, subsidiaries or affiliates, engaging in the investment activities in Iran outlined above by completing the boxes below.

Name _____ Relationship to Bidder/Offeror _____

Description of Activities _____

Duration of Engagement _____ Anticipated Cessation Date _____

DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN – (Continued)

Bidder/Offeror
Contact Name _____ Contact Phone Number _____

Certification: I, being duly sworn upon my oath, hereby represent and state that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I attest that I am authorized to execute this certification on behalf of the above referenced person or entity. I acknowledge that Union County is relying on the information contained herein and hereby acknowledge that I am under a continuing obligation from the date of this certification through the completion of any contracts with the County to notify the County in writing of any changes to the answers of information contained herein. I acknowledge that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I recognize that I am subject to criminal prosecution under the law and that it will also constitute a material breach of my agreement(s) with Union County, New Jersey and that the County at its option may declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print) _____ Signature _____

Title _____ Date _____



STATE OF NEW JERSEY
Department of Labor and Workforce Development
Division of Wage and Hour Compliance - Public Contracts Section
PO Box 389
Trenton, NJ 08625-0389

PREVAILING WAGE RATE DETERMINATION

The New Jersey Prevailing Wage Act (N.J.S.A. 34:11-56.25 et seq.) requires that the Department of Labor and Workforce Development establish and enforce a prevailing wage level for workers engaged in public works in order to safeguard their efficiency and general well being and to protect them as well as their employers from the effects of serious and unfair competition.

Prevailing wage rates are wage and fringe benefit rates based on the collective bargaining agreements established for a particular craft or trade in the locality in which the public work is performed. In New Jersey, these rates vary by county and by the type of work performed.

Applicable prevailing wage rates are those wages and fringe benefits in effect on the date the contract is awarded. All pre-determined rate increases listed at the time the contract is awarded must also be paid, beginning on the dates specified. Rates that have expired will remain in effect until new rates are posted.

Prevailing Wage Rate

The prevailing wage rate for each craft will list the effective date of the rate and the following information:

W = Wage Rate per Hour **B** = Fringe Benefit Rate per Hour* **T** = Total Rate per Hour

* Fringe benefits are an integral part of the prevailing wage rate. Employers not providing such benefits must pay the fringe benefit amount directly to the employee each payday. Employers providing benefits worth less than the fringe benefit amount must pay the balance directly to the employee each payday.

Unless otherwise stated in the Prevailing Wage Rate Determination, the fringe benefit rate for overtime hours remains at the straight time rate.

When the Overtime Notes in the Prevailing Wage Rate Determination state that the overtime rates are "inclusive of benefits," the benefit rate is increased by the same factor as the wage rate (i.e. multiplied by 1.5 for time and one-half, multiplied by 2 for double time, etc.).

Apprentice Rate Schedule

An "apprentice" is an individual who is registered with the United States Department of Labor - Office of Apprenticeship and enrolled in a certified apprenticeship program during the period in which they are working on the public works project.

The apprentice wage rate is a percentage of the journeyman wage rate, unless otherwise indicated. The apprentice benefit rate is the full journeyman benefit rate, unless otherwise indicated.

If there is no apprentice rate schedule listed, the individual must be paid at least the journeyman rate even if that individual is in a certified apprentice program for that trade.

If there is no ratio of apprentices to journeymen listed for a particular craft, then the ratio shall be one (1) apprentice to every four (4) journeymen.

Comments/Notes

For each craft listed there will be comments/notes that cover the definition of the regular workday, shift differentials, overtime, recognized holidays, and any other relevant information.

Public Works Contractor Registration

The Public Works Contractor Registration Act (N.J.S.A. 34:11-56.48, et seq.) requires that **all** contractors, subcontractors, or lower tier subcontractors who are working on or who bid on public works projects register with the Department of Labor and Workforce Development. Applications are available at www.nj.gov/labor (click on Wage & Hour and then go to Registration & Permits).

Pursuant to N.J.S.A. 34:11-56.51:

No contractor shall bid on any contract for public work as defined in section 2 of P.L.1963, c. 150 (C.34:11-56.26) unless the contractor is registered pursuant to this act. No contractor shall list a subcontractor in a bid proposal for the contract unless the subcontractor is registered pursuant to P.L.1999, c.238 (C.34:11-56.48 et seq.) at the time the bid is made. No contractor or subcontractor, including a subcontractor not listed in the bid proposal, shall engage in the performance of any public work subject to the contract, unless the contractor or subcontractor is registered pursuant to that act.

Snow Plowing

Snow plowing contracts are not subject to the New Jersey Prevailing Wage Act or the Public Works Contractor Registration Act.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Air Conditioning & Refrigeration - Service and Repair

PREVAILING WAGE RATE

	03/14/16
Journeyman (Mechanic)	W37.18 B21.68 T58.86

Expiration Date: 02/28/2017

Craft: Air Conditioning & Refrigeration - Service and Repair

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	As Shown	Mo. 1-3	Mo. 4-12	2nd Year	3rd Year	4th Year	5th Year		Wage = %	of Jnymn
Wage and Bene	50%	55%	60%	65%	75%	85%		Bene = %	of Jnymn	Bene

Ratio of Apprentices to Journeymen - 1:4

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 3-1-13:

INTERVAL	PERIOD AND RATES							
As Shown	1st Year	2nd Year	3rd Year	4th Year	5th Year		Wage =% of Jnymn Wage	
Wage and Benefit	40%	50%	60%	70%	80%		Bene. =% of Jnymn Wage	

Craft: Air Conditioning & Refrigeration - Service and Repair

COMMENTS/NOTES

THESE RATES MAY BE USED FOR THE FOLLOWING:

- Service/Repair/Maintenance Work to EXISTING facilities.
- Replacement or Installation of air conditioning and refrigeration equipment when the combined tonnage does not exceed 15 tons for refrigeration, or 25 tons for air conditioning.
- Replacement or Installation of "packaged" or "unitary" rooftop-type units when the combined tonnage of the units does not exceed 75 tons.

NOTE: These rates may NOT be used for any work in new construction (including work on new additions).

The regular workday shall consist of 8 hours, starting between 6:00 AM and 10:00 AM, Monday through Friday.

SHIFT DIFFERENTIALS:

- The second and third shifts shall be paid an additional 15% of the hourly rate.
- All shifts must run for a minimum of 5 consecutive days.

OVERTIME:

Hours worked in excess of 8 per day or before or after the regular workday, that are not shift work, and all hours on Saturday shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Boilermaker PREVAILING WAGE RATE

	01/01/16
Foreman	W47.00 B41.02 T88.02
General Foreman	W49.00 B42.00 T91.00
Journeyman	W42.00 B39.42 T81.42

Expiration Date: 12/31/2016

Craft: Boilermaker APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
1000 Hours	65%	70%	75%	80%	85%	90%	95%			
Benefit =	33.33	34.20	35.08	35.94	36.82	37.69	38.55			

Ratio of Apprentices to Journeymen - *

* 1 apprentice will be allowed for the first 5 journeymen, 1 apprentice for the next 10 journeymen and 1 apprentice for each succeeding 20 journeymen up to a maximum of 5 apprentices per contractor on any one job.

Craft: Boilermaker COMMENTS/NOTES

HIGH WORK: All apprentices working on the erection, repair, or dismantling of smoke stacks, standpipes, or water towers shall be paid the Journeyman rate.

The regular workday shall consist of 8 hours, between 8:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall work 7½ hours and receive 8 hours pay, at a rate equal to the regular hourly rate plus 10%.
- The third shift shall work 7 hours and receive 8 hours pay, at a rate equal to the regular hourly rate plus 20%.
- For "Municipal Water Works" projects only, the following shall apply: Two, four day, 10 hour shifts may be worked at straight time Monday through Thursday. The day shift shall work four days, at 10 hours, for 10 hours pay. The second shift shall work four days, at nine and a half hours, for 10 hours pay, plus 10% the hourly rate for new work and .25 cents on repair work. Friday may be used as a make-up day at straight time, due to weather conditions, holiday or any other circumstances beyond the employer's control.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays (except Labor Day) shall be paid at double the hourly rate. All hours on Labor Day shall be paid at four times the hourly rate.
- If any other craft employed by the same contractor, or a subcontractor thereof, receives double time in lieu of time and one-half, then the Boilermaker shall receive double time in lieu of time and one-half.
- For "Municipal Water Works" projects only, the following shall apply: Four 10 hour days may be worked Monday through

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Thursday at straight time. Friday may be used as a make-up day for a day lost to inclement weather, holiday or other conditions beyond the control of the employer. Overtime shall be paid for any hours that exceed 10 hours per day or 40 hours per week.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Boilermaker - Minor Repairs

PREVAILING WAGE RATE

	02/26/16
Foreman	W31.54 B16.17 T47.71
General Foreman	W32.04 B16.17 T48.21
Mechanic	W30.04 B16.17 T46.21

Expiration Date: 12/31/2016

Craft: Boilermaker - Minor Repairs

COMMENTS/NOTES

NOTE: These rates apply to MINOR REPAIR WORK ONLY (repair work in the field for which the contract amount does not exceed \$125,000.00).

OVERTIME:

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays (except Labor Day) shall be paid at double the hourly rate. All hours on Labor Day shall be paid at four times the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Thanksgiving Day, day after Thanksgiving, Christmas Day. Saturday holidays observed the preceding Friday, Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Bricklayer, Stone Mason

PREVAILING WAGE RATE

	05/01/16
Deputy Foreman	W42.25 B30.68 T72.93
Foreman	W45.25 B30.68 T75.93
Journeyman	W39.25 B30.68 T69.93

Expiration Date: 10/31/2016

Craft: Bricklayer, Stone Mason

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
6 Months	40%	50%	55%	60%	65%	70%	75%	80%		
Benefits	3.72	4.65	5.12	5.58	20.28	21.62	22.97	24.31		

Ratio of Apprentices to Journeymen - 1:5

Craft: Bricklayer, Stone Mason

COMMENTS/NOTES

The regular workday shall consist of 8 hours, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:

- When a 2 shift schedule (including a day shift) is established, the first, or day shift, shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 10%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 10%, inclusive of benefits, and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 10%, inclusive of benefits, and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When an irregular shift must be established, this shift shall receive the regular rate plus 10%, inclusive of benefits.

OVERTIME:

- The first 2 hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, shall be paid at time and one-half the regular rate, inclusive of benefits. Any additional overtime shall be paid at double the regular rate, inclusive of benefits. The first 10 hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. Any additional overtime shall be paid at double the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Saturday may be used as a make-up day for hours lost to inclement weather.
- When Bricklayers/Stone Masons work on Saturday with Laborers, and no other crafts are working on the project for the day, benefits may be paid at straight time. If other crafts are present, the applicable overtime rate for benefits shall be paid.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Carpenter PREVAILING WAGE RATE

	05/06/16
Foreman	W52.83 B30.11 T82.94
Journeyman	W45.94 B26.19 T72.13

Expiration Date: 10/31/2016

Craft: Carpenter APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	Yearly	40%	55%	65%	80%	90%				
Benefit	57% of	Appren	tice	Wage	for all	intervals				

Ratio of Apprentices to Journeymen - 1:4

Craft: Carpenter COMMENTS/NOTES

FOREMAN REQUIREMENTS:

- When there are 2 or more Carpenters on a job, 1 shall be designated as a Foreman.
- When there are 21 or more Carpenters on a job, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours, starting between 7:00 AM and 9:00 AM.

SHIFT DIFFERENTIALS:

- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.

OVERTIME:

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Carpenter - Resilient Flooring

PREVAILING WAGE RATE

	05/06/16
Foreman	W52.83 B30.11 T82.94
Journeyman	W45.94 B26.19 T72.13

Expiration Date: 10/31/2016

Craft: Carpenter - Resilient Flooring

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	40%	55%	65%	80%	90%					
Benefit	57%	of	Appren	tice	Wage	for all	intervals			
					Rate					

Ratio of Apprentices to Journeymen - *

* 1 apprentice shall be allowed to every 2 journeymen or major fraction thereof. No more than 3 apprentices on any one job or project.

Craft: Carpenter - Resilient Flooring

COMMENTS/NOTES

FOREMAN REQUIREMENTS:

- On any job where there are 4 or more Carpenters of Resilient Flooring, 1 must be designated a Foreman.

FOR SYNTHETIC TURF INSTALLATION ONLY:

- The rate shall be 90% of the wage and benefit rate.

The regular workday consists of 8 hours, starting between 6:00 AM and 9:00 AM.

SHIFT DIFFERENTIALS:

- When a 2 shift schedule (including a day shift) is established, the day shift, shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular wage rate plus 15%.

- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular wage rate, the second shift shall receive the regular wage rate plus 15% and the third shift shall receive the regular wage rate plus 20%.

- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular wage rate plus 15% and the third shift shall receive the regular wage rate plus 20%.

OVERTIME:

- Hours in excess of 8 per day or 40 per week, or before or after the regular workday, Monday through Friday, shall be paid at time and one-half the wage rate. Saturday may be used as a make-up day, at straight time, up to 8 hours, for hours lost to reasons beyond the control of the employer, up to a total of 40 hours per week; hours in excess of 8 on Saturday shall then be paid at time and one-half the wage rate. If Saturday is not a make-up day, all hours on Saturday shall be paid at time and one-half the wage rate. All hours on Sundays and holidays shall be paid at double the wage rate.

- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for hours lost to reasons beyond the control of the employer. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the wage rate.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Cement Mason

PREVAILING WAGE RATE

See "Bricklayer, Stone Mason" Rates

Expiration Date:

Craft: Cement Mason

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									

Ratio of Apprentices to Journeymen - 1:4

Craft: Cement Mason

COMMENTS/NOTES

See "Bricklayer, Stone Mason" Rates

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Diver PREVAILING WAGE RATE

	11/06/15
Diver	W55.34 B43.07 T98.41
Tender	W43.38 B43.07 T86.45

Expiration Date: 04/30/2016

Craft: Diver COMMENTS/NOTES

NOTE: All dive crews must consist of a Tender, a Diver, and a standby Diver (standby Diver is the same rate as a Diver).

DEPTH & PENETRATION RATES: Divers shall be paid the following depth and penetration rates, in addition to the regular hourly rate, when applicable:

AIR DIVES:

- 0-59 feet: No additional wage
- 60-74 feet: + \$0.25 per foot
- 5-125 feet: + \$0.78 per foot
- 126-200 feet: + \$1.60 per foot

MIXED GAS DIVES:

- 0-74 feet: No additional wage
- 75-125 feet: + \$1.00 per foot
- 126-200 feet: + \$2.00 per foot

PENETRATION DIVES:

- 126-200 feet: + \$1.50 per foot
- 201-275 feet: + \$1.75 per foot
- 276-350 feet: + \$2.00 per foot
- 351-425 feet: + \$2.50 per foot

OVERTIME:

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day, Christmas Day. Veterans' Day may be switched with the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Dockbuilder PREVAILING WAGE RATE

	11/06/15
Foreman	W50.14 B43.07 T93.21
Foreman (Concrete Form Work)	W50.14 B35.23 T85.37
Journeyman	W43.60 B43.07 T86.67
Journeyman (Concrete Form Work)	W43.60 B35.23 T78.83

Expiration Date: 04/30/2016

Craft: Dockbuilder APPRENTICE RATE SCHEDULE

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
Yearly	17.44	21.80	28.34	34.88						
Benefit	29.28	for all	intervals		Concrete	Form Work	Only Ben.	= 24.03	for all	intervals

Ratio of Apprentices to Journeymen - *

* When there are 4 or fewer Dockbuilders on a job, no more than 1 may be an apprentice. When there are 5 or more Dockbuilders, there may be 1 apprentice for every 5 Dockbuilders.

Craft: Dockbuilder COMMENTS/NOTES

CREOSOTE HANDLING:

When handling creosote products on land piledriving, floating marine construction, and construction of wharves, the worker shall receive an additional \$0.25 per hour.

HAZARDOUS WASTE WORK:

- Hazardous waste removal work on a state or federally designated hazardous waste site where Level A, B, or C personal protection is required: an additional 20% of the hourly rate, per hour.
- Hazardous waste removal work in Level D, or where personal protection is not required: an additional \$1.00 per hour.

CERTIFIED WELDER: When required on the job by the project owner, a Certified Welder shall receive an additional \$1.00 per hour.

FOREMAN REQUIREMENTS:

The first Dockbuilder on the job shall be designated a Foreman.

OVERTIME:

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day, Christmas Day. Veterans' Day may be switched with the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Drywall Finisher

PREVAILING WAGE RATE

	05/01/16	05/01/17
Foreman	W42.55 B23.10 T65.65	W44.30 B22.60 T66.90
General Foreman	W44.45 B23.10 T67.55	W46.20 B22.60 T68.80
Journeyman	W38.75 B23.10 T61.85	W40.50 B22.60 T63.10

Expiration Date: 04/30/2018

Craft: Drywall Finisher

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	30%	40%	50%	60%	70%	75%	80%	85%	90%	
4 Months										
Benefits	Intervals	1 to 3 =	9.85	Intervals	4 to 6 =	12.28	Intervals	7 to 9 =	14.95	

Ratio of Apprentices to Journeymen - 1:4

Craft: Drywall Finisher

COMMENTS/NOTES

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, and the third shift shall receive 8 hours pay for 7 hours of work.
- Shift work must run for a minimum of 5 consecutive workdays.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Electrician

PREVAILING WAGE RATE

	05/30/16	05/29/17	05/28/18
Cable Splicer	W58.71 B33.74 T92.45	W60.08 B34.53 T94.61	W61.52 B35.35 T96.87
Foreman	W59.77 B34.34 T94.11	W61.17 B35.15 T96.32	W62.64 B35.98 T98.62
Journeyman	W53.37 B30.67 T84.04	W54.62 B31.39 T86.01	W55.93 B32.13 T88.06

Expiration Date: 05/31/2019

Craft: Electrician

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	40%	49%	58%	68%	80%		of Jour	neyman	Wage	Rate
Yearly	40%	49%	58%	68%	80%		of Jour	neyman	Wage	Rate
Benefit	40%	49%	58%	68%	80%		of Jour	neyman	Benefit	Rate

Ratio of Apprentices to Journeymen - 2:3

Craft: Electrician

COMMENTS/NOTES

THESE RATES ALSO APPLY TO THE FOLLOWING:

- All burglar and fire alarm work.
- All fiber optic work.
- Teledata work in new construction.
- Teledata work involving 16 Voice/Data Lines or more.

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

FOREMAN REQUIREMENTS:

- On any job where there are 1 to 10 Journeymen electricians, 1 shall be designated a Foreman.

SHIFT DIFFERENTIALS:

- Shift work must run for a minimum of 5 consecutive workdays.
- 2nd Shift (4:30 PM to 12:30 AM) shall receive 8 hours pay for 7.5 hours work + an additional 10% of the regular rate, per hour, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM) shall receive 8 hours pay for 7 hours work + an additional 15% of the regular rate, per hour, inclusive of benefits.

OVERTIME:

Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, and all hours on Saturdays, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Electrician - Teledata (15 Voice/Data Lines & Less)

PREVAILING WAGE RATE

	11/06/15
Master Technician/General Foreman	W51.01 B29.16 T80.17
Senior Technician/Lead Foreman (21-30 Workers on Job)	W46.70 B26.69 T73.39
Technician A/Foreman (11-20 Workers on Job)	W44.73 B25.57 T70.30
Technician B/Working Foreman (4-10 Workers on Job)	W42.77 B24.45 T67.22
Technician C/Journeyman (1-3 Workers on Job)	W39.24 B22.43 T61.67

Expiration Date: 10/30/2016

Craft: Electrician - Teledata (15 Voice/Data Lines & Less)

APPRENTICE RATE SCHEDULE

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	19.66	20.97	23.15	25.77	28.83	31.45	34.51	37.56		
Benefits	8.15	8.70	9.60	10.69	11.96	13.04	14.31	15.57		

Ratio of Apprentices to Journeymen - 2:3

Craft: Electrician - Teledata (15 Voice/Data Lines & Less)

COMMENTS/NOTES

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 10-31-14:

INTERVAL	PERIOD AND RATES								
6 Months	17.47	18.78	20.97	23.59	26.64	29.27	32.32	35.38	
Benefits	7.25	7.79	8.70	9.78	11.05	12.14	13.40	14.67	

NOTES:

- These rates are for service, maintenance, moves, and/or changes affecting 15 Voice/Data (teledata) lines or less. These rates may NOT be used for any teledata work in new construction (including additions) or any fiber optic work.
- The number of Teledata workers on the jobsite is the determining factor for which Foreman category applies.

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

- Shift work must run for a minimum of 5 consecutive workdays.
- 2nd Shift (4:30 PM to 12:30 AM) shall receive 8 hours pay for 7.5 hours work + an additional 10% of the regular rate, per hour, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM) shall receive 8 hours pay for 7 hours work + an additional 15% of the regular rate, per hour, inclusive of benefits.

OVERTIME:

Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, and all hours on Saturdays, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Electrician - Teledata (16 Instruments & More)

PREVAILING WAGE RATE

See "Electrician" Rates

Expiration Date:

Craft: Electrician - Teledata (16 Instruments & More)

COMMENTS/NOTES

See ELECTRICIAN Rates

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Electrician- Outside Commercial

PREVAILING WAGE RATE

	05/30/16	05/29/17	05/28/18
Cable Splicer	W58.99 B33.46 T92.45	W60.37 B34.24 T94.61	W61.82 B35.06 T96.88
Certified Welder	W56.31 B31.94 T88.25	W57.62 B32.68 T90.30	W59.01 B33.47 T92.48
Equipment Operator	W53.63 B30.42 T84.05	W54.88 B31.13 T86.01	W56.20 B31.88 T88.08
Foreman (1-10 Journeyman workers on job)	W60.07 B34.07 T94.14	W61.47 B34.86 T96.33	W62.94 B35.70 T98.64
Foreman (11-20 Journeyman workers on job)	W61.67 B34.98 T96.65	W63.11 B35.79 T98.90	W64.63 B36.66 T101.29
General Foreman (21-30 Journeyman workers on job)	W63.28 B35.89 T99.17	W64.76 B36.73 T101.49	W66.32 B37.61 T103.93
General Foreman (31-60 Journeyman workers on job)	W68.65 B38.94 T107.59	W70.25 B39.84 T110.09	W71.94 B40.80 T112.74
General Foreman (61+ Journeyman workers on job)	W69.72 B39.54 T109.26	W71.34 B40.46 T111.80	W73.06 B41.44 T114.50
Groundman	W32.18 B18.26 T50.44	W32.93 B18.68 T51.61	W33.72 B19.13 T52.85
Journeyman Lineman/Technician	W53.63 B30.42 T84.05	W54.88 B31.13 T86.01	W56.20 B31.88 T88.08
Sub-Foreman	W60.07 B34.07 T94.14	W61.47 B34.86 T96.33	W62.94 B35.70 T98.64

Expiration Date: 05/31/2019

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Electrician- Outside Commercial

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
1000 Hours	60%	65%	70%	75%	80%	85%	90%			
Benefits	56.4% of	Journey	man	wage	+.01					

Craft: Electrician- Outside Commercial

COMMENTS/NOTES

EFFECTIVE 5-30-16- The apprentice benefit rate shall be 56.7% + \$.01.
 EFFECTIVE 5-29-17- The apprentice benefit rate shall be 56.7% + \$.01.
 EFFECTIVE 5-28-18- The apprentice benefit rate shall be 56.7% + \$.01.

* FOR UTILITY WORK PLEASE SEE STATEWIDE RATES

The regular worday shall be 8 hours, between 8:00 AM and 4:30 PM.

FOREMAN REQUIREMENTS:

On jobs where there are 2 Journeymen, one shall be a Foreman. The following number of Foreman, General Foreman, Assistant General Foreman and Sub-Foreman shall be required with respect to number of Journeymen on site:

- 2-10 Journeymen (1 Foreman)
- 11-20 Journeymen (1 Foreman and 1 Sub-Foreman)
- 21-30 Journeymen (1 Foreman and 2 Sub-Foremen)

SHIFT DIFFERENTIALS:

- Shift work must run for a minimum of 5 consecutive workdays.
- 2nd Shift (4:30 PM to 12:30 AM): 8 hrs. pay for 7.5 hrs. work + an additional 10% of the regular rate, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM): 8 hrs. pay for 7 hrs. work + an additional 15% of the regular rate per hour, inclusive benefits.

OVERTIME:

Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, and all hours on Saturdays, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS:

New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day and Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Electrician-Utility Work (North)

PREVAILING WAGE RATE

Rates are located in the "Statewide" rate package

Expiration Date:

Craft: Electrician-Utility Work (North)

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
6 Months	60%	65%	70%	75%	80%	85%	90%			
Benefits	62.5% of	Appren	tice	Wage	Rate	for all	intervals			

Craft: Electrician-Utility Work (North)

COMMENTS/NOTES

Electrician-Utility Work (North) rates are located in the "Statewide" rate package.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Electrician-Utility Work (South)

PREVAILING WAGE RATE

Rates are located in the "Statewide" rate package

Expiration Date:

Craft: Electrician-Utility Work (South)

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
6 Months	26.72	28.95	31.18	33.41	35.63	37.86	40.09			
Benefits	23.08	24.40	25.72	27.02	28.33	29.64	30.94			

Craft: Electrician-Utility Work (South)

COMMENTS/NOTES

Electrician-Utility Work (South) rates are located in the "Statewide" rate package.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Elevator Constructor PREVAILING WAGE RATE

	03/17/16	03/17/17	03/17/18
Journeyman	W60.96 B39.77 T100.73	W62.64 B41.56 T104.20	W64.48 B43.36 T107.84

Expiration Date: 03/16/2019

Craft: Elevator Constructor APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	Yearly	27.22	33.53	39.62	45.72					
Benefits	31.75	32.88	34.41	35.93						

Ratio of Apprentices to Journeymen - 1:1

Craft: Elevator Constructor COMMENTS/NOTES

The regular workday shall consist of either 7 or 8 hours to be established at the beginning of the project, between 7:00 AM and 4:30 PM.

OVERTIME:

For all hours worked before or after the regular workday, Monday through Friday, and all hours on Saturday and Sunday, shall be paid at double the hourly rate. Holiday pay is one days wages (8 hours) plus double the hourly rate for all hours worked.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays shall be observed on the previous Friday and Sunday holidays shall be observed on the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Elevator Modernization & Service

PREVAILING WAGE RATE

	03/17/16	03/17/17	03/17/18
Journeyman	W47.91 B38.17 T86.08	W49.14 B39.91 T89.05	W50.49 B41.66 T92.15

Expiration Date: 03/16/2019

Craft: Elevator Modernization & Service

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	Yearly	27.22	26.35	31.14	35.93					
Benefits	31.68	31.99	33.37	34.74						

Ratio of Apprentices to Journeymen - 1:1

Craft: Elevator Modernization & Service

COMMENTS/NOTES

MODERNIZATION (addition, replacement, refurbishing, relocation, or changes in design or appearance, of elevator equipment in existing buildings):

- The regular workday consists of 8 hours, between 7:00 AM and 4:30 PM.

- Overtime:

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturday and Sunday shall be paid at time and one-half the hourly rate. Holiday pay is one days wages (8 hours) plus time and one-half the hourly rate for all hours worked.

SERVICE (repair or replacement of parts for the purpose of maintaining elevator equipment in good operating condition):

- The regular workday consists of 8 hours, between 6:00 AM and 6:00 PM.

- Overtime:

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS (Modernization and Service): New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays shall be observed on the previous Friday and Sunday holidays shall be observed on the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Glazier PREVAILING WAGE RATE

	06/20/16
Foreman	W47.39 B23.26 T70.65
General Foreman	W49.39 B23.50 T72.89
Journeyman	W43.39 B22.78 T66.17

Expiration Date: 04/30/2017

Craft: Glazier APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	30%	40%	50%	60%	70%	75%	80%	85%	90%	
4 Months										
Benefits	Intervals	1 to 3 =	6.51	Intervals	4 to 6 =	9.33	Intervals	7 to 9 =	11.67	

Ratio of Apprentices to Journeymen - 1:4

Craft: Glazier COMMENTS/NOTES

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AS OF 5-1-14:

INTERVAL	PERIOD AND RATES							
6 Months	50%	55%	60%	65%	70%	75%	80%	90%
Benefits	8.10	8.10	10.34	10.34	11.51	11.51	14.62	14.62

Hazard/Height Pay: +\$1.00 per hour

FOREMAN REQUIREMENTS:

- When there are 4 or more Glaziers on a job, 1 must be designated a Foreman.
- When there are 15 or more Glaziers on a job, 1 must be designated a General Foreman.

The regular workday shall consist of 8 hours, between 7:00 AM and 5:30 PM, Monday to Friday.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, and the third shift shall receive 8 hours pay for 7 hours of work.

OVERTIME:

Hours in excess of 8 per day, or before or after the regular workday Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Heat & Frost Insulator

PREVAILING WAGE RATE

	10/13/15
Foreman	W51.77 B29.42 T81.19
General Foreman	W54.32 B30.53 T84.85
Journeyman	W50.49 B28.86 T79.35

Expiration Date: 09/18/2016

Craft: Heat & Frost Insulator

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	23.39	27.74	33.52	39.36						
Benefits	17.46	20.63	22.69	24.56						

Ratio of Apprentices to Journeymen - 1:3

Craft: Heat & Frost Insulator

COMMENTS/NOTES

NOTE: These rates apply to the installing of insulation on hot and cold mechanical systems.

The regular workday shall be 8 hours between 8:00 AM and 4:30 PM.

SHIFT DIFFERENTIAL:

- Shift work must run for a minimum of 5 consecutive workdays.
- Second Shift shall work 7.5 hours and receive 8 hours pay, at the regular rate, plus 25% per hour.
- Third Shift shall work 7 hours and receive 8 hours pay, at the regular rate, plus 30% per hour.

OVERTIME:

The first 2 hours in excess of 8 per day, hours outside of the regular workday Monday through Friday that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours in excess of 10 per day, and all hours on Sunday and holidays (except Labor Day) shall be paid at double the regular rate, inclusive of benefits. All hours on Labor Day shall be paid at triple the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day and Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Heat & Frost Insulator - Asbestos Worker

PREVAILING WAGE RATE

	10/13/15
Asbestos Helper Abatement	W33.52 B22.69 T56.21
Firestop/Hazmat	W26.93 B9.25 T36.18
Foreman	W51.77 B29.42 T81.19

Expiration Date: 09/18/2016

Craft: Heat & Frost Insulator - Asbestos Worker

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	SEE	HEAT &	FROST	INSULAT OR						

Ratio of Apprentices to Journeymen - 1:3

Craft: Heat & Frost Insulator - Asbestos Worker

COMMENTS/NOTES

NOTE: These rates apply only to the removal of insulation materials/asbestos from mechanical systems, including containment erection and demolition, and placing material in appropriate containers.

The regular workday shall be 8 hours between 8:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must run for a minimum of 5 consecutive workdays.
- The second shift shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 25% per hour.
- The third shift shall work 7 hours and receive 8 hours pay at the regular rate, plus 30% per hour.

OVERTIME: The first 2 hours in excess of 8 per day, hours outside of the regular workday Monday through Friday that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours in excess of 10 per day, and all hours on Sunday and holidays (except Labor Day) shall be paid at double the regular rate, inclusive of benefits. All hours on Labor Day shall be paid at triple the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day and Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Ironworker PREVAILING WAGE RATE

	07/01/16	07/01/17
Rod /Fence Foreman	W0.00 B0.00 T86.51	W0.00 B0.00 T88.51
Rod/Fence Journeyman	W0.00 B0.00 T83.51	W0.00 B0.00 T85.51
Structural Foreman	W0.00 B0.00 T88.81	W0.00 B0.00 T90.56
Structural Journeyman	W0.00 B0.00 T85.81	W0.00 B0.00 T87.56

Expiration Date: 06/30/2018

Craft: Ironworker APPRENTICE RATE SCHEDULE

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	50%	60%		Yearly	70%	80%	90%			

Ratio of Apprentices to Journeymen - 1:4

Craft: Ironworker COMMENTS/NOTES

HAZARDOUS WASTE WORK: On hazardous waste removal work on a state or federally designated hazardous waste site where the Ironworker is required to wear Level A,B, or C personal protection: + \$3.00 per hour

The regular workday consists of 8 hours between 6:00 AM and 4:30 PM.

FOREMAN REQUIREMENTS:

When there are 2 or more Ironworkers on a job, 1 shall be designated a Foreman.

SHIFT DIFFERENTIALS:

- When a 2 shift schedule is established, the first, or day shift , shall be established on an 8 hour basis .The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15%, and the third shift shall receive the regular rate plus 20%.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis.
- When an irregular shift is established for the Ironworker (Structural) classification, the rate shall be paid at time and one-half the regular rate, inclusive of benefits. When an irregular shift is established for the Rod/Fence classification, the shift shall be established on an 8 hour basis and receive the regular rate, plus 20%.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

OVERTIME:

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the hourly rate, inclusive of benefits. Saturday may be used as a make-up day for a day lost to inclement weather. If Saturday is not a make-up day, all hours on Saturday shall be paid at time and one-half the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Laborer - Asbestos & Hazardous Waste Removal

PREVAILING WAGE RATE

	04/07/16
Journeyman (Handler)	W29.87 B22.92 T52.79

Expiration Date: 11/30/2016

Craft: Laborer - Asbestos & Hazardous Waste Removal

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	17.92	20.91	23.90	26.88						
Benefits	21.27	for	all	intervals						

Ratio of Apprentices to Journeymen - *

* Ratio of apprentices to journeymen shall not be more than one apprentice for the first journeyman and no more than (1) apprentice for each additional three (3) journeymen.

Craft: Laborer - Asbestos & Hazardous Waste Removal

COMMENTS/NOTES

NOTE: These rates apply to work in connection with Asbestos, Radiation, Hazardous Waste, Lead, Chemical, Biological, Mold Remediation and Abatement.

The regular workday shall be 8 hours between 6:00 AM and 6:00 PM.

OVERTIME:

- Hours in excess of 8 per day, Monday through Saturday, and all hours on Sunday and holidays shall be paid at time and one-half the regular rate.
- When the owner (Public Body) mandates that work is to be performed on Sunday, those hours may be worked at straight time, up to 8 hours per day, up to 40 hours per week.
- Benefits on ALL overtime hours shall be paid at straight time.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Good Friday, Easter, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Laborer - Building

PREVAILING WAGE RATE

	05/04/16
Class A Journeyman	W31.30 B26.57 T57.87
Class B Journeyman	W30.80 B26.57 T57.37
Class C Journeyman	W26.18 B26.57 T52.75
Foreman	W35.21 B26.57 T61.78
General Foreman	W39.13 B26.57 T65.70

Expiration Date: 10/31/2016

Craft: Laborer - Building

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	60%	70%	80%	90%						
6 Months										
Benefit	23.32	23.32	23.32	23.32						

Ratio of Apprentices to Journeymen - *

* Ratio of apprentices to journeymen shall not be more than one apprentice for the first journeyman and no more than (1) apprentice for each additional three (3) journeymen.

Craft: Laborer - Building

COMMENTS/NOTES

CLASS A: Specialist laborer including mason tender or concrete pour crew; scaffold builder (scaffolds up to 14 feet in height); operator of forklifts, Bobcats (or equivalent machinery), jack hammers, tampers, motorized tampers and compactors, vibrators, street cleaning machines, hydro demolition equipment, riding motor buggies, conveyors, burners; and nozzlemen on gunite work.

CLASS B: Basic laborer - includes all laborer work not listed in Class A or Class C.

CLASS C: Janitorial-type light clean-up work associated with the TURNOVER of a project, or part of a project, to the owner. All other clean-up work is Class B.

The regular workday shall be 8 hours between 6:00 AM and 6:00 PM.

SHIFT DIFFERENTIALS:

- Shift work must run for a minimum of 5 consecutive workdays.

- When a 2-shift schedule is worked, including a day shift, both shifts shall be established on the basis of 8 hours pay for 8 hours worked. The second shift shall receive the regular rate plus an additional 10%.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

- When a 3-shift schedule is worked, the day shift shall be established on the basis of 8 hours pay for 8 hours worked, the second shift shall be established on the basis of 8 hours pay for 7.5 hours worked, and the third shift shall be established on the basis of 8 hours pay for 7 hours worked. The day shift shall receive the regular rate, the second shift shall receive the regular rate plus an additional 10%, and the third shift shall receive the regular rate plus an additional 15%.
- When a second or third shift is worked with no day shift, the second or third shift shall be established on the basis of 8 hours pay for 8 hours worked. The second shift shall receive the regular rate plus an additional 10%, and the third shift shall receive the regular rate plus an additional 15%.

OVERTIME:

- Hours in excess of 8 per day, or outside the regular workday that are not shift work, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. Saturday may be used as a make-up day (paid at straight time) for a day lost to inclement weather, or for a holiday that is observed during the work week, Monday through Friday. All hours on Sundays and holidays shall be paid at double the regular rate.
- Four 10-hour days may be worked Monday to Thursday, at straight time, with Friday used a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the regular rate.
- Benefits on ALL overtime hours shall be paid at time and one-half.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Laborer - Heavy & General

PREVAILING WAGE RATE

Rates are located in the
"Statewide" rate package

Expiration Date:

Craft: Laborer - Heavy & General

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
1000 Hours	60%	70%	80%	90%						
Benefit	18.78	for	all	intervals						

Ratio of Apprentices to Journeymen - *

* No more than 1 apprentice for the first journeyman and no more than 1 apprentice for each additional 3 journeymen.

Craft: Laborer - Heavy & General

COMMENTS/NOTES

Heavy & General Laborer rates are located in the "Statewide" rate package.

With respect to the APPRENTICE RATE SCHEDULE, the following shall apply:

On 9-1-16- benefits shall be \$18.78.

On 3-1-17- benefits shall be \$19.53.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Millwright

PREVAILING WAGE RATE

	05/01/16
Foreman	W52.96 B31.31 T84.27
Journeyman	W46.05 B27.30 T73.35

Expiration Date: 10/31/2016

Craft: Millwright

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	40%	45%	50%	55%	60%	65%	70%	75%	85%	95%
6 Months										
Benefits	58% of	Appren	tice	Wage	Rate	for all	intervals	+.60		

Ratio of Apprentices to Journeymen - 1:4

Craft: Millwright

COMMENTS/NOTES

FOREMAN REQUIREMENTS:

- When there are 2 or more Millwrights on a job, 1 shall be designated as a Foreman.
- When there are 21 or more Millwrights on a job, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours, starting between 7:00 AM and 9:00 AM.

SHIFT DIFFERENTIALS:

- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.

OVERTIME:

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Operating Engineer

PREVAILING WAGE RATE

Rates are located in the
"Statewide" rate package

Expiration Date:

Craft: Operating Engineer

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	60%	70%	80%	90%						

Ratio of Apprentices to Journeymen - *

* 1 apprentice for each piece of heavy equipment. At least 10 pieces of heavy equipment or a minimum of 5 Operating Engineers must be on site.

Craft: Operating Engineer

COMMENTS/NOTES

Operating Engineer rates are located in the "Statewide" rate package.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Operating Engineer - Field Engineer

PREVAILING WAGE RATE

Rates are located in the
"Statewide" rate package

Expiration Date:

Craft: Operating Engineer - Field Engineer

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	70%	75%	of Rod/	Chainman	Wage					
Yearly			80%	90%	Transit/	Instrument	man	Wage		

Ratio of Apprentices to Journeymen - *

* No more than 1 Field Engineer Apprentice per Survey Crew.

Craft: Operating Engineer - Field Engineer

COMMENTS/NOTES

Operating Engineer - Field Engineer rates are located in the "Statewide" rate package.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Painter - Bridges

PREVAILING WAGE RATE

	05/01/16	05/01/17
Foreman	W57.38 B26.92 T84.30	W61.13 B25.67 T86.80
General Foreman	W59.38 B26.92 T86.30	W63.13 B25.67 T88.80
Journeyman	W52.38 B26.92 T79.30	W56.13 B25.67 T81.80

Expiration Date: 01/31/2019

Craft: Painter - Bridges

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	40%	50%			60%	70%		80%	90%	
6 Months										
Benefits	Intervals	1 to 2 =	8.88	Intervals	3 to 4 =	10.81	Intervals	5 to 6 =	13.48	

Ratio of Apprentices to Journeymen - 1:4

Craft: Painter - Bridges

COMMENTS/NOTES

These rates apply to: All bridges that span waterways, roadways, railways and canyons. All tunnels, overpasses, viaducts and all appurtenances.

FOREMEN REQUIREMENTS:

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Painter - Line Striping

PREVAILING WAGE RATE

	12/01/15	12/01/16	12/01/17
Foreman (Charge Person)	W35.80 B16.10 T51.90	W36.80 B16.90 T53.70	W38.05 B17.74 T55.79
Helper (1st Year)	W28.05 B16.10 T44.15	W29.05 B16.90 T45.95	W30.30 B17.74 T48.04
Helper (2nd Year)	W29.38 B16.10 T45.48	W30.38 B16.90 T47.28	W31.63 B17.74 T49.37
Helper (3rd Year)	W31.53 B16.10 T47.63	W32.53 B16.90 T49.43	W33.78 B17.74 T51.52
Journeyman	W35.30 B16.10 T51.40	W36.30 B16.90 T53.20	W37.55 B17.74 T55.29

Expiration Date: 11/30/2018

Craft: Painter - Line Striping

COMMENTS/NOTES

OVERTIME:

Hours in excess of 8 per day, Monday through Saturday, and all hours on Sundays and holidays shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day and Christmas Day. Veterans Day may be substituted for the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Painter - New Construction

PREVAILING WAGE RATE

	05/01/16	05/01/17
Foreman	W42.26 B22.94 T65.20	W44.39 B22.35 T66.74
General Foreman	W46.10 B23.40 T69.50	W48.43 B22.81 T71.24
Journeyman	W38.42 B22.49 T60.91	W40.36 B21.90 T62.26

Expiration Date: 04/30/2018

Craft: Painter - New Construction

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
4 Months	30%	40%	50%	60%	70%	75%	80%	85%	90%	
Benefits	Intervals	1 to 3 =	8.00	Intervals	4 to 6 =	10.00	Intervals	7 to 9 =	11.00	

Ratio of Apprentices to Journeymen - 1:4

Craft: Painter - New Construction

COMMENTS/NOTES

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM ON 5-1-14:

INTERVAL	PERIOD AND RATES							
6 Months	40%	45%	55%	65%	70%	75%	80%	90%
Benefits	8.00	8.00	10.00	10.00	11.00	11.00	14.00	14.00

Spraying, sandblasting, lead abatement, work on tanks or stacks, work performed above 3 stories or 30 feet in height, or using swing scaffolds requires an additional 10% of the wage rate.

FOREMEN REQUIREMENTS:

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:

- Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

rate.

- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Painter - Repainting

PREVAILING WAGE RATE

	05/01/16	05/01/17
Foreman	W31.59 B18.45 T50.04	W34.17 B18.45 T52.62
General Foreman	W34.45 B18.87 T53.32	W37.39 B18.45 T55.84
Journeyman	W28.74 B18.87 T47.61	W31.16 B18.45 T49.61

Expiration Date: 04/30/2018

Craft: Painter - Repainting

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES										
	SEE	Painter	NEW	CONSTR	UC	TION					

Ratio of Apprentices to Journeymen - 1:4

Craft: Painter - Repainting

COMMENTS/NOTES

NOTE: These rates may only be used on jobs where no major alterations occur, and where not more than 3 other trades are present on the job, but may NOT, under any circumstances, be used for work on bridges, stacks, elevated tank, or generating stations.

Spraying, sandblasting, lead abatement, work on tanks or stacks, work performed above 3 stories or 30 feet in height, or using swing scaffolds requires an additional 10% of the wage rate.

FOREMEN REQUIREMENTS:

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

OVERTIME:

- Hours in excess of 8 per day and 40 per week shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.
- Four 10-hour days may be worked, at straight time, Monday through Sunday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Painter- Containment

PREVAILING WAGE RATE

	05/01/16	05/01/17
Journeyman	W33.43 B23.92 T57.35	W37.68 B22.92 T60.60

Expiration Date: 01/31/2019

Craft: Painter- Containment

COMMENTS/NOTES

NOTE: These rates shall require no painting, but used in a supporting capacity only, such as wrapping, boxing, fencing, etc. on tanks.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate..

RECOGNIZED HOLIDAYS: New Year's Day President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Painter-Elevated Water Tanks

PREVAILING WAGE RATE

	05/01/16	05/01/17
Foreman	W47.17 B24.17 T71.34	W50.92 B22.92 T73.84
General Foreman	W49.17 B24.17 T73.34	W52.92 B22.92 T75.84
Journeyman	W42.17 B24.17 T66.34	W45.92 B22.92 T68.84

Expiration Date: 01/31/2019

Craft: Painter-Elevated Water Tanks

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	SEE	PAINTER	BRIDGES							

Craft: Painter-Elevated Water Tanks

COMMENTS/NOTES

These rates apply to: All new and repaint elevated water tanks (interior and exterior).

FOREMEN REQUIREMENTS:

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Painter-Structural Steel

PREVAILING WAGE RATE

	05/01/16	05/01/17
Foreman	W46.12	W49.87
	B24.51	B23.26
	T70.63	T73.13
General Foreman	W48.12	W51.87
	B24.51	B23.26
	T72.63	T75.13
Journeyman	W41.12	W44.87
	B24.51	B23.26
	T65.63	T68.13

Expiration Date: 01/31/2019

Craft: Painter-Structural Steel

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	SEE	PAINTER	BRIDGES							

Craft: Painter-Structural Steel

COMMENTS/NOTES

These rates apply to: All work in power plants (any aspect). On steeples, on dams, on hangers, transformers, substations, etc. and on open steel, whether new or repaint. All new work (excluding traditional commercial painting work) in refineries, tank farms, water/sewerage treatment facilities and on pipelines.

FOREMEN REQUIREMENTS:

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Paperhanger - New Construction

PREVAILING WAGE RATE

	05/01/16	05/01/17
Foreman	W43.25	W45.32
	B22.59	B21.44
	T65.84	T66.76
Journeyman	W39.32	W41.20
	B22.59	B22.01
	T61.91	T63.21

Expiration Date: 04/30/2018

Craft: Paperhanger - New Construction

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	30%	40%	50%	60%	70%	75%	80%	85%	90%	
4 Months										
Benefits	Intervals	1 to 3 =	8.00	Intervals	4 to 6 =	10.00	Intervals	7 to 9 =	11.00	

Ratio of Apprentices to Journeymen - 1:4

Craft: Paperhanger - New Construction

COMMENTS/NOTES

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM ON 5-1-14:

INTERVAL	PERIOD AND RATES							
6 Months	40%	45%	55%	65%	70%	75%	80%	90%
Benefits	8.00	8.00	10.00	10.00	11.00	11.00	14.00	14.00

FOREMEN REQUIREMENTS:

- When there are 4 or more Paperhangers on a job, 1 shall be designated a Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.

- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.

- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Paperhanger - Renovation

PREVAILING WAGE RATE

	05/01/16	05/01/17
Foreman	W32.39 B18.96 T51.35	W35.06 B18.53 T53.59
Journeyman	W29.45 B18.96 T48.41	W31.88 B18.53 T50.41

Expiration Date: 04/30/2018

Craft: Paperhanger - Renovation

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	SEE	PAPER-	HANGER	NEW	CONSTR	TION				
					UC					

Ratio of Apprentices to Journeymen - 1:4

Craft: Paperhanger - Renovation

COMMENTS/NOTES

NOTE: These rates may only be used on jobs where no major alterations occur, and where not more than 3 other trades are present on the job, but may NOT, under any circumstances, be used for work on bridges, stacks, elevated tanks, or generating stations.

FOREMEN REQUIREMENTS:

- When there are 4 or more Paperhangers on a job, 1 shall be designated a Foreman.

OVERTIME:

- Hours in excess of 8 per day and 40 per week shall be paid at time and one-half the regular rate.

- Four 10-hour days may be worked, at straight time, Monday through Sunday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Pipefitter

PREVAILING WAGE RATE

	05/04/16	05/01/17	05/01/18	05/01/19
Foreman	W51.07	W0.00	W0.00	W0.00
	B40.18	B0.00	B0.00	B0.00
	T91.25	T93.35	T95.57	T97.79
Journeyman	W47.32	W0.00	W0.00	W0.00
	B37.25	B0.00	B0.00	B0.00
	T84.57	T86.67	T88.89	T91.11

Expiration Date: 04/30/2020

Craft: Pipefitter

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	35%	45%	55%	65%	75%					
Yearly										
Benefit	14.46	18.16	21.89	25.48	27.82					

Ratio of Apprentices to Journeymen - 1:5

Craft: Pipefitter

COMMENTS/NOTES

FOREMAN REQUIREMENTS:

- When there are 2 or more Journeyman Pipefitters on a job, 1 shall be designated a Foreman.
- There shall be a Foreman for every 8 Journeyman Pipefitters on a job.

The regular workday shall be 8 hours between 7:00 AM and 3:30 PM.

SHIFT DIFFERENTIAL:

- 2nd Shift (3:30 PM-11:30 PM) shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 25% per hour.
- 3rd Shift (11:30 PM-7:00 AM) shall work 7 hours and receive 8 hours pay at the regular rate, plus 30% per hour.

OVERTIME:

- All hours worked in excess of 8 per day, Monday through Friday, and all hours worked on Saturday, shall be paid at time and one-half, inclusive of benefits. All hours on Sunday and holidays shall be paid at double time, inclusive of benefits.
- By mutual agreement, employees may work four 10-hour days, Monday to Thursday, at straight time rate. Friday may be used as a make-up day for a day lost to inclement weather, and may be paid at straight time. If Friday is not a make-up day, the first 8 hours shall be paid at time and one-half, inclusive of benefits; hours in excess of 8 shall be paid at double time, inclusive of benefits.

SHIFT DIFFERENTIAL (Maintenance Work Only):

- 2nd Shift (3:30 PM-11:30 PM) shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 10% per hour.
- 3rd Shift (11:30 PM-7:00 AM) shall work 7 hours and receive 8 hours pay at the regular rate, plus 15% per hour.

OVERTIME (Maintenance Work Only):

- All hours in excess of 8 per day, Monday through Saturday, shall be paid at time and one-half, inclusive of benefits. All hours on Sundays and holidays shall be paid at double time, inclusive of benefits.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

NOTE: Maintenance work is work to repair, restore, or improve the efficiency of existing facilities. This does NOT apply to ANY new construction.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays are observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Plasterer

PREVAILING WAGE RATE

See Bricklayer, Stone Mason Rates

Expiration Date:

Craft: Plasterer

COMMENTS/NOTES

See BRICKLAYER, STONE MASON Rates

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Plumber PREVAILING WAGE RATE

	05/04/16
Foreman	W55.52 B32.99 T88.51
General Foreman	W59.12 B32.99 T92.11
Journeyman	W51.41 B32.99 T84.40

Expiration Date: 04/30/2017

Craft: Plumber APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	30%	45%	55%	65%	75%					
Benefits	12.77	18.77	20.44	22.13	23.80					

Ratio of Apprentices to Journeymen - *

* Employers may employ 1 apprentice on any job where 1 or 2 journeymen are employed. Thereafter, 1 apprentice may be employed for every 4 journeymen.

Craft: Plumber COMMENTS/NOTES

FOREMAN REQUIREMENTS:

- On any job having 2 or more Plumbers, 1 must be designated a Foreman.
- On any job having 9 or more Plumbers, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours between 7:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must continue for a minimum of 5 consecutive workdays.
- When two shifts are worked, the second shift shall work 7.5 hours and receive 8 hours pay, at a rate equal to the hourly rate plus 10%, inclusive of benefits.
- When a third shift is worked, the third shift shall work 7 hours and receive 8 hours pay, at a rate equal to the hourly rate plus 15%, inclusive of benefits.

OVERTIME:

- All hours in excess of 8 per day, or before of after the regular workday that are not shift work, Monday through Friday, and all hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays, shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Roofer PREVAILING WAGE RATE

	06/06/16
Foreman	W36.52 B25.03 T61.55
Journeyman	W35.52 B25.03 T60.55

Expiration Date: 05/31/2017

Craft: Roofer APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	6 Months	14.21	17.76	21.31	24.86	28.42	31.97			
Benefits	2.10	2.10	22.28	22.28	22.28	22.28				

Ratio of Apprentices to Journeymen - *

- * A) For roofing jobs that are of the 1 or single ply nature: 1:2 or fraction thereof
- B) For roofing jobs on new built up roofs: 1:3 or fraction thereof
- C) For roofing jobs that are of a tear-off nature: 1:2 or fraction thereof
- D) For roofing jobs {not requiring complete removal of existing systems, installation done over existing roof}: 1:3 or fraction thereof

Craft: Roofer COMMENTS/NOTES

Pitch: +.50 per hour

Mop Man: +.30 per hour

The regular workday consists of 8 hours between 8:00 AM and 4:30 PM.

OVERTIME:

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays, Sundays, and holidays shall be paid at time and one-half the regular rate.

RECOGNIZED HOLIDAYS: New Year's Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Sheet Metal Sign Installation

PREVAILING WAGE RATE

	04/01/16	10/31/16
Foreman	W33.79 B30.60 T64.39	W33.79 B31.82 T65.61
Journeyman	W32.54 B30.60 T63.14	W32.54 B31.82 T64.36

Expiration Date: 03/31/2017

Craft: Sheet Metal Sign Installation

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%
1000 hours										
Benefits	9.86	11.25	12.64	14.04	15.80	17.22	18.65	20.08	21.49	22.91

Ratio of Apprentices to Journeymen - 1:3

Craft: Sheet Metal Sign Installation

COMMENTS/NOTES

FOREMAN REQUIREMENT:

When there are 6 or more Sheet Metal Sign Installers on a job, 1 shall be designated a Foreman.

The regular workday consists of 8 hours, between 7:00 AM and 3:30 PM.

OVERTIME:

Hours before or after the regular workday, Monday through Friday, and all hours worked on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

Four(4) 10 hour days may be worked, Monday through Friday, at straight time, for projects lasting at least one week in duration. The fifth day may be used as a make-up day at straight time for a day lost due to inclement weather. However, if the fifth day is not a make-up day, all hours worked will be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays observed the preceding Friday, Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Sheet Metal Worker

PREVAILING WAGE RATE

	07/23/15
Foreman	W49.22 B37.00 T86.22
General Foreman	W50.22 B37.00 T87.22
Journeyman	W45.72 B37.00 T82.72

Expiration Date: 05/31/2016

Craft: Sheet Metal Worker

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	35%	45%	55%	65%	of	Journey	man	Wage	Rate	
Benefit	35%	45%	55%	65%	of	Journey	man	Benefit	Rate	

Ratio of Apprentices to Journeymen - 1:4

Craft: Sheet Metal Worker

COMMENTS/NOTES

FOREMAN REQUIREMENTS:

- When there are 2 or more Sheet Metal Workers on a project, 1 must be designated a Foreman.
- When there are 17 or more Sheet Metal Workers on a project, 1 must be designated a General Foreman.
- When there is only 1 Sheet Metal Worker (1 Journeyman) on a project, he/she shall receive \$1.00 more than the regular Journeyman's rate.

The regular workday is 8 hours between 7:00 AM and 4:30 PM.

SHIFT DIFFERENTIAL:

- 2nd Shift (3:30 PM - 12:00 AM) : +17% of regular hourly rate
- Shift work must run for a minimum of 5 consecutive workdays.

OVERTIME:

- Hours in excess of 8 per day, or before or after the regular workday, that are not shift work, and the first 10 hours on Saturdays shall be paid at time and one-half of the regular rate, inclusive of benefits. Hours in excess of 10 per day on Saturday, and all hours on Sundays and holidays shall be at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Friday, at straight time, with hours in excess of 10 per day, and hours in excess of 40 per week paid at the overtime rates listed above.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Sprinkler Fitter

PREVAILING WAGE RATE

	07/01/16
Foreman	W63.33 B25.72 T89.05
General Foreman	W66.33 B25.72 T92.05
Journeyman	W59.23 B25.72 T84.95

Expiration Date: 12/31/2016

Craft: Sprinkler Fitter

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
1000 Hours	9.50	11.25	50%	55%	60%	65%	70%	75%	80%	85%
Benefits	10.67	10.67	21.22	21.22	21.22	21.22	Intervals	7 to 10	Jourymn	Ben.

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES REGISTERED AS OF 7-1-13:

INTERVAL	PERIOD AND RATES									
1000 hours	25%	30%	40%	45%	55%	60%	70%	75%	85%	90%
Benefits	10.67	10.67	21.22	21.22	21.22	21.22	Intervals	7 to 10	receive	Journeyman Ben.

Craft: Sprinkler Fitter

COMMENTS/NOTES

The regular workday consists of 8 consecutive hours between 6:00 AM and 4:30 PM.

FOREMAN REQUIREMENTS:

- The first Sprinkler Fitter on the job must be designated a Foreman.
- On any job having 12 or more Sprinkler Fitters, one must be designated a General Foreman.

SHIFT DIFFERENTIALS:

- Shift work must run for a minimum of 2 consecutive workdays.
- 2nd and 3rd shift shall receive an additional 15% of the regular rate, per hour.
- Any "off hours" shift starting at 8:00 PM or later shall receive an additional 25% of the regular rate, per hour.

OVERTIME:

The first 2 hours in excess of 8 per day, after the regular workday that are not shift work, Monday through Friday, shall be paid at time and one-half the regular rate. Hours worked in excess of 10 per day, Monday through Friday, and all hours on Saturday, Sunday and holidays, shall be paid double the regular rate.

Four 10 hour days may be worked, Monday through Thursday, at straight-time.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Tile Finisher-Marble PREVAILING WAGE RATE

	07/01/16	01/01/17	07/01/17	01/01/18
Finisher	W45.66	W46.01	W46.32	W46.66
	B31.95	B32.68	B33.44	B34.18
	T77.61	T78.69	T79.76	T80.84

Expiration Date: 06/30/2018

Craft: Tile Finisher-Marble APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
750 Hours	50%	55%	65%	70%	75%	85%	90%	95%		

Ratio of Apprentices to Journeymen - 1:4

Craft: Tile Finisher-Marble COMMENTS/NOTES

OVERTIME:

Hours in excess of 7 per day, Monday through Friday, and the first 7 hours on Saturdays shall be paid at time and one half the regular rate, inclusive of benefits. Hours in excess of 7 on Saturdays and all hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Tile Setter - Ceramic

PREVAILING WAGE RATE

	06/30/16	12/05/16
Finisher	W42.89	W0.00
	B28.74	B0.00
	T71.63	T72.45
Setter	W55.38	W0.00
	B32.01	B0.00
	T87.39	T88.52

Expiration Date: 06/01/2017

Craft: Tile Setter - Ceramic

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	50%	55%	60%	65%	70%	75%	85%	95%	100%	
750 Hours										

Ratio of Apprentices to Journeymen - 1:4

Craft: Tile Setter - Ceramic

COMMENTS/NOTES

OVERTIME:

Hours in excess of 7 per day, and the first 10 hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Saturdays after 10 hours shall be paid double the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Tile Setter - Marble

PREVAILING WAGE RATE

	07/01/16	01/01/17	07/01/17	01/01/18
Tile Setter	W57.32	W57.74	W58.18	W58.53
	B33.23	B34.26	B35.27	B36.37
	T90.55	T92.00	T93.45	T94.90

Expiration Date: 06/30/2018

Craft: Tile Setter - Marble

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	50%	55%	65%	70%	75%	85%	90%	95%		
750 Hours										

Ratio of Apprentices to Journeymen - 1:4

Craft: Tile Setter - Marble

COMMENTS/NOTES

OVERTIME:

Hours in excess of 7 per day, Monday through Friday, and the first 7 hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. Hours in excess of 7 on Saturdays, and all hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Tile Setter - Mosaic & Terrazzo

PREVAILING WAGE RATE

	07/01/16	01/01/17
Grinder or Assistant	W50.21	W0.00
	B33.64	B0.00
	T83.85	T85.00
Mechanic	W51.82	W0.00
	B33.65	B0.00
	T85.47	T86.62

Expiration Date: 06/30/2017

Craft: Tile Setter - Mosaic & Terrazzo

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	50%	55%	65%	70%	75%	85%	90%	95%		
750 Hours										

Ratio of Apprentices to Journeymen - 1:5

Craft: Tile Setter - Mosaic & Terrazzo

COMMENTS/NOTES

The regular workday consists of 7 hours, between 8:00 AM and 3:30 PM.

OVERTIME:

- Hours in excess of 7 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Monday after Easter, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Truck Driver

PREVAILING WAGE RATE

	06/20/16	11/01/16	05/01/17	11/01/17	05/01/18	11/01/18
Bucket, Utility, Pick-up, Fuel Delivery trucks	W35.65 B33.01 T68.66	W36.45 B33.01 T69.46	W36.88 B33.78 T70.66	W36.88 B34.58 T71.46	W37.31 B35.40 T72.71	W37.71 B35.80 T73.51
Dump truck, Asphalt Distributor, Tack Spreader	W35.65 B33.01 T68.66	W36.45 B33.01 T69.46	W36.88 B33.78 T70.66	W36.88 B34.58 T71.46	W37.31 B35.40 T72.71	W37.71 B35.80 T73.51
Euclid-type vehicles (large, off-road equipment)	W35.75 B33.01 T68.76	W36.55 B33.01 T69.56	W36.98 B33.78 T70.76	W36.98 B34.58 T71.56	W37.41 B35.40 T72.81	W37.81 B35.80 T73.61
Helper on Asphalt Distributor truck	W35.65 B33.01 T68.66	W36.45 B33.01 T69.46	W36.88 B33.78 T70.66	W36.88 B34.58 T71.46	W37.31 B35.40 T72.71	W37.71 B35.80 T73.51
Slurry Seal, Seeding/Fertilizing/ Mulching truck	W35.65 B33.01 T68.66	W36.45 B33.01 T69.46	W36.88 B33.78 T70.66	W36.88 B34.58 T71.46	W37.31 B35.40 T72.71	W37.71 B35.80 T73.51
Straight 3-axle truck	W35.65 B33.01 T68.66	W36.45 B33.01 T69.46	W36.88 B33.78 T70.66	W36.88 B34.58 T71.46	W37.31 B35.40 T72.71	W37.71 B35.80 T73.51
Tractor Trailer (all types)	W35.75 B33.01 T68.76	W36.55 B33.01 T69.56	W36.98 B33.78 T70.76	W36.98 B34.58 T71.56	W37.41 B35.40 T72.81	W37.81 B35.80 T73.61
Vacuum or Vac-All truck (entire unit)	W35.65 B33.01 T68.66	W36.45 B33.01 T69.46	W36.88 B33.78 T70.66	W36.88 B34.58 T71.46	W37.31 B35.40 T72.71	W37.71 B35.80 T73.51
Winch Trailer	W35.85 B33.01 T68.86	W36.65 B33.01 T69.66	W37.08 B33.78 T70.86	W37.08 B34.58 T71.66	W37.51 B35.40 T72.91	W37.91 B35.80 T73.71

Expiration Date: 04/30/2019

Craft: Truck Driver

COMMENTS/NOTES

BLENDED RATE:

When a truck driver is performing work on the site and also serving as a material delivery driver, the driver shall be paid a "blended rate" which shall be 80% of the above-listed wage rates, plus the full benefit rate. This rate shall be used when the driver "round robins" for a minimum of 6 hours during the work day.

HAZARDOUS WASTE REMOVAL:

- On hazardous waste removal work on a State designated hazardous waste site where the driver is in direct contact with hazardous materials and when personal protective equipment is required for respiratory, skin, and eye protection, the driver shall receive an additional \$3.00 per hour (with or without protective gear).
- A hazardous waste related certified worker at a designated hazardous waste site who is not working in a zone requiring level A, B or C personal protection shall receive an additional \$1.00 per hour.

TRUCK FOREMAN: \$.75 cents per hour above regular rate. Overtime shall be increased accordingly.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

The regular workday shall be 8 hours, starting between 6:00 AM and 8:00 AM.

SHIFT DIFFERENTIAL:

- Shifts starting at 4:00 PM (2nd Shift): + \$2.50 per hour.
- Shifts starting at 12:00 AM (midnight/3rd Shift): time and one-half the hourly rate.
- Shifts starting at a time other than from 6:00 AM to 8:00 AM, when such hours are mandated by the project owner: + \$2.50 per hour.

OVERTIME:

- Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Employees may work four 10-hour days at straight time, Monday through Thursday, with Friday used as a make-up day for a lost day. If Friday is not a make-up day, then all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day (Decoration Day), July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. The day after Thanksgiving may be substituted for Veterans' Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Truck Driver-Material Delivery Driver

PREVAILING WAGE RATE

	05/01/12
Driver	W22.90 B10.17 T33.07

Expiration Date: 05/30/2016

Craft: Truck Driver-Material Delivery Driver

COMMENTS/NOTES

BLENDED RATE:

When a truck driver is performing work on the site and also serving as a material delivery driver, the driver shall be paid a "blended rate". See the "Truck Driver" craft for the blended rates.

Truck Foreman/Shop Steward: +\$0.25 per hour

SHIFT DIFFERENTIALS:

- 2nd Shift shall receive an additional \$0.50 per hour
- 3rd Shift shall receive time and one-half the hourly rate.

OVERTIME:

- Hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day (Decoration Day), July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. The day after Thanksgiving may be substituted for Veterans' Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Welder

PREVAILING WAGE RATE

Welder

Expiration Date:

Craft: Welder

COMMENTS/NOTES

Welders rate is the same as the craft to which the welding is incidental .

STATEWIDE RATES

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

{For apprentice rates refer to "Operating Engineers" apprentice rates in any county rate package}

On all machines, including pile drivers with booms of 100 feet and over (including jib) the Operating Engineer shall receive the regular hourly rate plus: \$1.00 per hour on rigs with 100 foot Boom (including jib) up to 139 feet, and \$2.00 per hour on rigs with 140 foot Boom (including jib) and over. On all hoists where "Cat Head" or "Sheave Point" is 100 feet or more above ground level, the same differential pay shall apply as applicable to booms 100 feet and over.

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must run for 5 consecutive workdays.
- When 2 shifts are worked, the second shift shall receive an additional 10% of the regular rate inclusive of benefits, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the regular rate inclusive of benefits, per hour. The third shift shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the regular rate inclusive of benefits, per hour.
- When such hours are mandated by the project owner, a shift that starts between 8:00 PM and midnight and ends by 6:00 AM Saturday, or that starts after 8:00 PM on Sunday, provided there are consecutive hours of work within the shift, shall receive an additional 15% of the regular rate, inclusive of benefits.
- On Highway, Road, Street, and Sewer projects irregular shifts starting between 5:00 PM and 12:00 AM may be worked Monday through Friday, and shall receive an additional 15% of the regular rate, inclusive of benefits. When working with other trades that receive a higher irregular shift rate, the Operating Engineer shall also receive the higher irregular shift rate.

OVERTIME:

- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

On hazardous waste removal work or asbestos removal work, on a state or federally designated hazardous waste site, where the operating engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin, and eye protection, the operating engineer shall receive an additional 20% of the hourly wage, per hour.

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
46.48	30.63	77.11	78.26

CLASSIFICATIONS:

- A-Frame
- Backhoe (combination)
- Boom Attachment on loaders (Except pipehook)
- Boring & Drilling Machine
- Brush Chopper, Brush Shredder, Tree Shredder
- Bulldozer, finish grade
- Cableway
- Carryall
- Concrete Pump
- Concrete Pumping System (Pumpcrete & similar types)
- Conveyor, 125 feet or longer
- Drill Doctor (Duties include dust collector and maintenance)
- Front End Loader (2 cu. yds. but less than 5 cu. yds.)
- Grader, finish
- Groove Cutting Machine (ride-on type)
- Heater Planer
- Hoist (all types including steam, gas, diesel, electric, air hydraulic, single and double drum, concrete, brick shaft caisson, snorkle roof, and other similar types, Except Chicago-boom type)
- Hydraulic Crane (10 tons & under)
- Hydro-Axe
- Hydro-Blaster
- Jack (screw, air hydraulic, power-operated unit, or console type, Except hand jack or pile load test type)
- Log Skidder

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
46.48	30.63	77.11	78.26

CLASSIFICATIONS:

- Pan
- Paver, concrete
- Plate & Frame Filter Press
- Pumpcrete (unit type)
- Pumpcrete, Squeezecrete, or Concrete Pumping machine (regardless of size)
- Scraper
- Side Boom
- Straddle Carrier (Ross and similar types)
- Vacuum Truck
- Whiphammer
- Winch Truck (hoisting)

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
44.57	30.63	75.20	76.35

CLASSIFICATIONS:

- Asphalt Curbing Machine
- Asphalt Plant Engineer
- Asphalt Spreader
- Autograde Curb Trimmer & Sidewalk Shoulder Slipform (CMI & similar types)
- Autograde Curecrete Machine (CMI & similar types)
- Autograde Tube Finisher & Texturing Machine (CMI & similar types)
- Bar Bending Machines (Power)
- Batcher, Batching Plant, & Crusher [On Site]
- Belt Conveyor System
- Boom-Type Skimmer Machine
- Bridge Deck Finisher
- Bulldozer (all sizes)
- Captain (Power Boats)
- Car Dumper (railroad)
- Compressor & Blower unit for loading/unloading of concrete, cement, fly ash, or similar type materials (used independently or truck-mounted)
- Compressor (2 or 3 battery)
- Concrete Breaking Machine
- Concrete Cleaning/Decontamination Machine
- Concrete Finishing Machine
- Concrete Saw or Cutter (ride-on type)
- Concrete Spreader (Hetzl, Rexomatic & similar types)
- Concrete Vibrator

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
44.57	30.63	75.20	76.35

CLASSIFICATIONS:

- Conveyors - under 125 feet
- Crane Signalman
- Crushing Machine
- Directional Boring Machine
- Ditching Machine - Small (Ditchwitch, Vermeer or similar types)
- Dope Pot - Mechanical (with or without pump)
- Dumpster
- Elevator
- Fireman
- Fork Lift (Economobile, Lull & similar types)
- Front End Loader (1 cu. yd. and over but less than 2 cu. yds.)
- Generator (2 or 3 battery)
- Giraffe Grinder
- Grader & Motor Patrols
- Grout Pump
- Gunnite Machine (Excluding nozzle)
- Hammer - Vibratory (in conjunction with generator)
- Heavy Equipment Robotics - Operator/Technician
- Hoist (roof, tugger, aerial platform hoist, house car)
- Hopper
- Hopper Doors (power operated)
- Ladder (motorized)
- Laddervator

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
44.57	30.63	75.20	76.35

CLASSIFICATIONS:

Locomotive (Dinky-type)

Maintenance Utility Man

Master Environmental Maintenance Technician

Mechanic

Mixer (Except paving mixers)

Pavement Breaker (truck-mounted or small self-propelled
ride-on type)

Pavement Breaker - maintenance of compressor or hydraulic unit

Pipe Bending Machine (power)

Pitch Pump

Plaster Pump (regardless of size)

Post Hole Digger (post pounder, auger)

Roller (black top)

Scale (power)

Seamen Pulverizing Mixer

Shoulder Widener

Silo

Skimmer Machine (boom type)

Steel Cutting Machine (service & maintenance)

Tamrock Drill

Tractor

Transfer Machines

Tug Captains

Tug Master (Power Boats)

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
44.57	30.63	75.20	76.35

CLASSIFICATIONS:

Ultra High Pressure Waterjet Cutting Tool System -
Operator/Maintenance Technician

Vacuum Blasting Machine - Operator/Maintenance Technician

Vibrating Plant (used with unloading)

Welder & Repair Mechanic

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
41.23	30.63	71.86	73.01

CLASSIFICATIONS:

Assistant Engineer/Oiler

Driller's Helper

Field Engineer - Transit man or Instrument man

Maintenance Apprentice (Deckhand)

Maintenance Apprentice (Oiler)

Mechanic's Helper

Off Road Back Dump

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
38.65	30.63	69.28	70.43

CLASSIFICATIONS:

Field Engineer - Rodman or Chainman

TERRITORY
ENTIRE STATE

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OPERATING ENGINEERS Rates Expiration Date : 06/30/2017

Effective Dates:

	07/01/2016		01/01/2017
Rate	Fringe	Total	Total
48.81	30.63	79.44	80.59

CLASSIFICATIONS:

Lead Engineer, Foreman Engineer, Safety Engineer (minimum)

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

07/01/2016		01/01/2017	
Rate	Fringe	Total	Total
48.07	30.63	78.70	79.85

CLASSIFICATIONS:

- Autograde Pavement Profiler (CMI & similar types)
- Autograde Pavement Profiler - Recycle Type (CMI & similar types)
- Autograde Placer/Trimmer/Spreader Combination (CMI & similar types)
- Autograde Slipform Paver (CMI & similar types)
- Backhoe (Excavator)
- Central Power Plant
- Concrete Paving Machine
- Draglines
- Drill, Bauer, AMI and similar types
- Drillmaster, Quarrymaster
- Drillmaster/Quarrymaster (down-the-hole drill), rotary drill, self-propelled hydraulic drill, self-powered drill
- Elevator Grader
- Field Engineer-Chief of Party
- Front End Loader (5 cu. yards or larger)
- Gradall
- Grader, Rago
- Helicopter Co-Pilot
- Helicopter Communications Engineer
- Juntann Pile Driver
- Locomotive (large)
- Mucking Machine
- Pavement & Concrete Breaker (Superhammer & Hoe Ram)

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
48.07	30.63	78.70	79.85

CLASSIFICATIONS:

Pile Driver

Prentice Truck

Roadway Surface Grinder

Scooper (loader & shovel)

Shovel (Excavator)

Trackhoe (Excavator)

Tree Chopper with boom

Trenching Machine (cable plow)

Tunnel Boring Machine

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
42.94	30.63	73.57	74.72

CLASSIFICATIONS:

- Chipper
- Compressor (single)
- Concrete Spreader (small type)
- Conveyor Loader (Except elevator graders)
- Engines, Large Diesel (1620 HP) & Staging Pump
- Farm Tractor
- Fertilizing Equipment (operation & maintenance)
- Fine Grade Machine (small type)
- Form Line Grader (small type)
- Front End Loader (under 1 cubic yard)
- Generator (single)
- Grease, Gas, Fuel, & Oil Supply Trucks
- Heaters (Nelson or other type)
- Lights - portable generating light plant
- Mixer, Concrete (small)
- Mulching Equipment (operation & maintenance)
- Power Broom or Sweeper
- Pump (diesel engine & hydraulic - regardless of power)
- Pump (larger than 2 inch suction, including submersible pumps)
- Road Finishing Machine (small type)
- Roller - grade, fill, or stone base
- Seeding Equipment (operation & maintenance)
- Sprinkler & Water Pump Trucks

OPERATING ENGINEERS Rates Expiration Date : 06/30/2017

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
42.94	30.63	73.57	74.72

CLASSIFICATIONS:

Steam Generator or Boiler

Stone Spreader

Tamping Machine (vibrating ride-on type)

Temporary Heating Plant (Nelson or other type, including propane, natural gas, and flow-type units)

Water or Sprinkler Truck

Welding Machine (gas, diesel, or electric convertor, of any type)

Welding System - Multiple (rectifier transformer type)

Wellpoint Systems (including installation by bull gang and maintenance)

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
49.89	30.63	80.52	81.67

CLASSIFICATIONS:

Helicopter Pilot/Engineer

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
53.82	30.63	84.45	86.35

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), over 100 tons and TOWER CRANE with boom (including jib and/or leads) 140 ft. and over

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
52.82	30.63	83.45	85.35

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), over 100 tons and TOWER CRANE with boom (including jib and/or leads) from 100 ft. to 139 ft.

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
50.07	30.63	80.70	81.85

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types) , under 100 tons with a boom (including jib and/or leads) 140 ft. and over

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
51.82	30.63	82.45	84.35

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), over 100 tons and TOWER CRANE with a boom (including jib and/or leads) under 100 ft.

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
49.07	30.63	79.70	80.85

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), under 100 tons with a boom (including jib and/or leads) from 100 ft. to 139 ft.

STRUCTURAL STEEL ERECTION Rates Expiration Date : 06/30/2017

{For apprentice rates refer to "Operating Engineers" apprentice rates in any county rate package}

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must run for 5 consecutive workdays.
- When 2 shifts are worked, the second shift shall receive an additional 10% of the regular rate inclusive of benefits, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the regular rate inclusive of benefits, per hour. The third shift shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the regular rate inclusive of benefits, per hour.
- When such hours are mandated by the project owner, a shift that starts between 8:00 PM and midnight and ends by 6:00 AM Saturday, or that starts after 8:00 PM on Sunday, provided there are consecutive hours of work within the shift, shall receive an additional 15% of the regular rate, inclusive of benefits.
- On Highway, Road, Street, and Sewer projects irregular shifts starting between 5:00 PM and 12:00 AM may be worked Monday through Friday, and shall receive an additional 15% of the regular rate, inclusive of benefits. When working with other trades that receive a higher irregular shift rate, the Operating Engineer shall also receive the higher irregular shift rate.

OVERTIME:

- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

On hazardous waste removal work or asbestos removal work, on a state or federally designated hazardous waste site, where the operating engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin, and eye protection, the operating engineer shall receive an additional 20% of the hourly wage, per hour.

Effective Dates:

	07/01/2016		01/01/2017
Rate	Fringe	Total	Total
51.70	30.63	82.33	83.48

CLASSIFICATIONS:

Helicopter Pilot or Engineer

STRUCTURAL STEEL ERECTION **Rates Expiration Date : 06/30/2017**

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
47.64	30.63	78.27	79.42

CLASSIFICATIONS:

A-Frame

Cherry Picker -10 tons or less (Over 10 tons use crane rate)

Hoist (all types Except Chicago-boom)

Jack (screw, air hydraulic, power-operated unit or console type, Except hand jack or pile load test type)

Side Boom

Straddle Carrier

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
44.98	30.63	75.61	76.76

CLASSIFICATIONS:

Aerial Platform Used On Hoists

Apprentice Engineer/Oiler with Compressor or Welding Machine

Captain (Power Boats)

Compressor (2 or 3 in battery)

Conveyor or Tugger Hoist

Elevator or House Car

Fireman

Forklift

Generator (2 or 3)

Maintenance Utility Man

Tug Master (Power Boats)

Welding Machines, Gas or Electric Converters on any type-2 or 3 in battery including diesels

STRUCTURAL STEEL ERECTION **Rates Expiration Date : 06/30/2017**

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
43.45	30.63	74.08	75.23

CLASSIFICATIONS:

Compressor (Single)

Generators

Welding Machines, Gas, Diesel, Or Electric Converters of any type-single

Welding System, Multiple (Rectifier Transformer Type)

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
41.69	30.63	72.32	73.47

CLASSIFICATIONS:

Assistant Engineer/Oiler

Drillers Helper

Field Engineer - Transit/Instrument Man

Maintenance Apprentice (Deckhand)

Maintenance Apprentice (Oiler)

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
49.26	30.63	79.89	81.04

CLASSIFICATIONS:

Lead Engineer, Foreman Engineer, Safety Engineer (Minimum)

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
38.65	30.63	69.28	70.43

CLASSIFICATIONS:

Field Engineer - Rodman or Chainman

STRUCTURAL STEEL ERECTION **Rates Expiration Date : 06/30/2017**

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
48.40	30.63	79.03	80.18

CLASSIFICATIONS:

Field Engineer-Chief of Party

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
55.84	30.63	86.47	88.37

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms, including jib, 140 ft. and over, above ground). Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, 140 ft. and over, above ground), and Pile Drivers (all types) over 100 tons and Tower Cranes.

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
54.18	30.63	84.81	86.71

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, less than 140 ft. above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, less than 140 ft. above ground), Pile Drivers (all types), over 100 tons and Tower Crane.

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
52.09	30.63	82.72	83.87

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, 140 ft. and over, above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, 140 ft. and over, above ground), Pile Drivers (all types), under 100 tons.

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
50.43	30.63	81.06	82.21

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, less than 140 ft. above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, less than 140 ft. above ground), Pile Drivers (all types), under 100 tons.

TERRITORY
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STRUCTURAL STEEL ERECTION Rates Expiration Date : 06/30/2017

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
52.09	30.63	82.72	83.87

CLASSIFICATIONS:

Helicopter Co-Pilot

Helicopter Communications Engineer

TEST BORING PRELIMINARY TO CONSTRUCTION-SOUTH/WEST **Rates Expiration Date : 06/30/2017**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Hunterdon, Mercer, Monmouth, Ocean, Salem, Sussex, Warren

On all machines, including pile drivers with booms of 100 feet and over (including jib) the Operating Engineer shall receive the regular hourly rate plus: \$1.00 per hour on rigs with 100 foot Boom (including jib) up to 139 feet, and \$2.00 per hour on rigs with 140 foot Boom (including jib) and over. On all hoists where "Cat Head" or "Sheave Point" is 100 feet or more above ground level, the same differential pay shall apply as applicable to booms 100 feet and over.

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must run for 5 consecutive workdays.
- When 2 shifts are worked, the second shift shall receive an additional 10% of the regular rate inclusive of benefits, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the regular rate inclusive of benefits, per hour. The third shift shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the regular rate inclusive of benefits, per hour.
- When such hours are mandated by the project owner, a shift that starts between 8:00 PM and midnight and ends by 6:00 AM Saturday, or that starts after 8:00 PM on Sunday, provided there are consecutive hours of work within the shift, shall receive an additional 15% of the regular rate, inclusive of benefits.
- On Highway, Road, Street, and Sewer projects irregular shifts starting between 5:00 PM and 12:00 AM may be worked Monday through Friday, and shall receive an additional 15% of the regular rate, inclusive of benefits. When working with other trades that receive a higher irregular shift rate, the Operating Engineer shall also receive the higher irregular shift rate.

OVERTIME:

- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

On hazardous waste removal work or asbestos removal work, on a state or federally designated hazardous waste site, where the operating engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin, and eye protection, the operating engineer shall receive an additional 20% of the hourly wage, per hour.

Effective Dates:

	07/01/2016		01/01/2017
Rate	Fringe	Total	Total
48.07	30.63	78.70	79.85

CLASSIFICATIONS:

Driller

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
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TEST BORING PRELIMINARY TO CONSTRUCTION-SOUTH/WEST Rates Expiration Date : 06/30/2017

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
41.23	30.63	71.86	73.01

CLASSIFICATIONS:

Driller's Helper

FREE AIR TUNNEL JOBS Rates Expiration Date : 08/31/2017

{For apprentice rates refer to "Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$2.50 per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$3.00/hr
- other Hazardous Waste site: + \$1.00/hr

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
39.50	27.53	67.03	68.13	70.53

CLASSIFICATIONS:

Walking Boss & Superintendent

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
39.20	27.53	66.73	67.83	70.23

CLASSIFICATIONS:

Heading Foreman, Shaft Foreman, Rod Foreman, Electrician Foreman, Rigging Foreman

FREE AIR TUNNEL JOBS **Rates Expiration Date : 08/31/2017**

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
38.70	27.53	66.23	67.33	69.73

CLASSIFICATIONS:

Iron Foreman, Caulking Foreman, Form Foreman, Cement Finishing Foreman, Concrete Foreman, Track Foreman, Cleanup Foreman, Grout Foreman

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
41.20	27.53	68.73	69.83	72.23

CLASSIFICATIONS:

Blaster

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
38.15	27.53	65.68	66.78	69.18

CLASSIFICATIONS:

Top Labor Foreman

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.80	27.53	65.33	66.43	68.83

CLASSIFICATIONS:

Skilled Men (including Caulker, Powder Carrier, all other skilled men)

Skilled Men (including Miner, Drill Runner, Iron Man, Conveyor Man, Manintenance Man, Safety Miner, Rigger, Block Layer, Cement Finisher, Tod Man)

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.65	27.53	65.18	66.28	68.68

CLASSIFICATIONS:

Semi-Skilled Men (including Bell or Signal Man Top or Bottom, Form Worker & Mover, Concrete Worker, Shaft Man, Tunnel Laborer, Caulker's Helper, all other semi-skilled)

Semi-Skilled Men (including Miner's Helper, Chuck Tender, Track Man, Nipper, Brake Man, Derail Man, Cable Man, Hose Man, Gravel Man, Form Man)

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FREE AIR TUNNEL JOBS Rates Expiration Date : 08/31/2017

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.15	27.53	64.68	65.78	68.18

CLASSIFICATIONS:

All Others (including Powder Watchman, Change House Attendant, Top Laborer)

DRILL FOR GROUND WATER SUPPLY **Rates Expiration Date : 06/30/2017**

The well driller and/or helper may perform all work relative to the construction, finishing, and servicing of wells, pumps and borings for ground water supply. The present methods of well drilling entailing as they do, many diverse job operations calling for drilling, pump discharge, piping, and the operation of various types of related power equipment, shall all be within the job duties and functions of the well driller and/or helper. In the event that an extension of work should occur beyond water well drilling functions, into the field of general construction work, such extension of work would come under the appropriate rates listed elsewhere in this wage determination.

- For Work Hours, Shift Differentials, Overtime Rates, and Recognized Holidays see the "Operating Engineers" section of this wage determination.

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
46.82	30.63	77.45	78.60

CLASSIFICATIONS:

Driller

Effective Dates:

07/01/2016			01/01/2017
Rate	Fringe	Total	Total
39.98	30.63	70.61	71.76

CLASSIFICATIONS:

Driller's Helper

OPERATING ENGINEERS MARINE-DREDGING **Rates Expiration Date : 09/30/2018**

NOTE: Boat crews carrying explosive material (dynamite, pourfex, and other similar materials) shall be paid at 120% of the hourly wage rate for hours engaged in handling of said materials. Employees required to possess a Hazardous Material Certification as a condition of employment shall be compensated at 120% of the hourly wage rate.

OVERTIME:

Hours in excess of 40 per week, and all hours on Saturdays and Sundays, shall be paid at time and one-half the hourly rate. All hours on holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Martin Luther King Day, Good Friday, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

Effective Dates:

02/16/2016			10/01/2016	10/01/2017
Rate	Fringe	Total	Total	Total
36.34	13.33	49.67	51.03	52.51

CLASSIFICATIONS:

Lead Dredgerman, Operator, Leverman

Licensed Tug Operator (over 1000 HP)

Effective Dates:

02/16/2016			10/01/2016	10/01/2017
Rate	Fringe	Total	Total	Total
31.43	12.93	44.36	45.60	46.95

CLASSIFICATIONS:

Derrick Operator, Spider/Spill Barge Operator

Engineer, Electrician, Chief Welder, Chief Mate

Fill Placer, Operator II

Licensed Boat Operator

Maintenance Engineer

Effective Dates:

02/16/2016			10/01/2016	10/01/2017
Rate	Fringe	Total	Total	Total
29.59	12.79	42.38	43.56	44.86

CLASSIFICATIONS:

Certified Welder

OPERATING ENGINEERS MARINE-DREDGING **Rates Expiration Date : 09/30/2018**

Effective Dates:

02/16/2016			10/01/2016	10/01/2017
Rate	Fringe	Total	Total	Total
28.78	12.42	41.20	42.36	43.64

CLASSIFICATIONS:

Mate, Drag Barge Operator, Steward, Assistant Fill Placer

Welder

Effective Dates:

02/16/2016			10/01/2016	10/01/2017
Rate	Fringe	Total	Total	Total
27.85	12.35	40.20	41.32	42.58

CLASSIFICATIONS:

Boat Operator

Effective Dates:

02/16/2016			10/01/2016	10/01/2017
Rate	Fringe	Total	Total	Total
23.13	11.67	34.80	35.81	36.92

CLASSIFICATIONS:

Shoreman, Deckhand, Rodman, Scowman

MICROSURFACING/SLURRY SEAL Rates Expiration Date : 02/28/2018

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

IN ALL OTHER COUNTIES use the Heavy and General Laborers - North "Slurry Seal Laborer" rates.

SHIFT DIFFERENTIALS:

Any shift starting at 3:30 PM or later shall receive an additional \$0.35/hr

OVERTIME:

Hours in excess of 8 per day or 40 per week shall be paid at time and one-half the hourly rate. All hours on holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

Effective Dates:

03/01/2016			03/01/2017
Rate	Fringe	Total	Total
35.75	20.35	56.10	57.77

CLASSIFICATIONS:

Foreman

Effective Dates:

03/01/2016			03/01/2017
Rate	Fringe	Total	Total
33.10	20.35	53.45	55.07

CLASSIFICATIONS:

Box man

Effective Dates:

03/01/2016			03/01/2017
Rate	Fringe	Total	Total
31.10	20.35	51.45	53.02

CLASSIFICATIONS:

Microsurface/Slurry Preparation

Effective Dates:

03/01/2016			03/01/2017
Rate	Fringe	Total	Total
31.10	20.35	51.45	53.02

CLASSIFICATIONS:

Squeegee man

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

MICROSURFACING/SLURRY SEAL Rates Expiration Date : 02/28/2018

Effective Dates:

03/01/2016			03/01/2017
Rate	Fringe	Total	Total
29.60	20.35	49.95	51.57

CLASSIFICATIONS:

Cleaner, Taper

ASPHALT LABORERS - SOUTH **Rates Expiration Date : 08/31/2017**

"THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$2.50 per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$3.00/hr
- other Hazardous Waste site: + \$1.00/hr

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
39.00	27.53	66.53	67.63	70.03

CLASSIFICATIONS:

Paving Foreman

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.55	27.53	65.08	66.18	68.58

CLASSIFICATIONS:

Head Raker

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.40	27.53	64.93	66.03	68.43

CLASSIFICATIONS:

Raker, Screedman, Luteman

ASPHALT LABORERS - SOUTH **Rates Expiration Date : 08/31/2017**

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.15	27.53	64.68	65.78	68.18

CLASSIFICATIONS:

Tampers, Smoothers, Kettlemen,
Painters, Shovelers, Roller Boys

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.25	27.53	64.78	65.88	68.28

CLASSIFICATIONS:

Milling Controller

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.45	27.53	64.98	66.08	68.48

CLASSIFICATIONS:

Traffic Control Coordinator

TEST BORING PRELIMINARY TO CONSTRUCTION-NORTH **Rates Expiration Date : 10/16/2018**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, Union

SHIFT DIFFERENTIAL:

Employees on a shift other than between the hours of 8:00 AM and 5:00 PM shall receive an additional \$1.00 per hour.

OVERTIME:

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Hazardous Waste Pay (for Levels A, B, and C): an additional 10% of the hourly rate, per hour.

A newly hired Helper with no experience in the industry shall be paid as follows:

- 1st year on the job - 70% of Helper wage rate
- 2nd year on the job - 80% of Helper wage rate
- 3rd year on the job - 90% of Helper wage rate
- All helpers receive full fringe benefit rate.

Effective Dates:

11/13/2015			10/17/2016	10/17/2017
Rate	Fringe	Total	Total	Total
30.17	24.10	54.27	56.21	58.15

CLASSIFICATIONS:

Helper (4th year helper)

Effective Dates:

11/13/2015			10/17/2016	10/17/2017
Rate	Fringe	Total	Total	Total
37.82	24.10	61.92	64.13	66.34

CLASSIFICATIONS:

Driller

Effective Dates:

11/13/2015			10/17/2016	10/17/2017
Rate	Fringe	Total	Total	Total
43.42	24.10	67.52	69.93	72.34

CLASSIFICATIONS:

Foreman

HEAVY & GENERAL LABORERS - NORTH Rates Expiration Date : 08/31/2017

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, Warren

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$2.50 per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$3.00/hr
- other Hazardous Waste site: + \$1.00/hr

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
36.75	27.53	64.28	65.38	67.78

CLASSIFICATIONS:

"D" Rate:

basic, landscape, asphalt, slurry seal, or railroad track laborer; utility meter installer; traffic director/flagman; salamander tender; pitman; dumpman; rakers or tampers on cold patch work; wrappers or coaters of pipe; waterproofer; timberman; wagon drill or drill master helper; powder carrier; magazine tender; signal man; power buggy operator; tree cutter; operator of basic power tools

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.45	27.53	64.98	66.08	68.48

CLASSIFICATIONS:

"C" Rate:

pipe layer; laser man; conduit or duct line layer; operator of jack hammer, chipping hammer, pavement breaker, concrete cutter, asphalt cutter, sheet hammer, or walk-behind saw cutter; sandblaster; acetylene cutting or burning; wagon drill, directional drill, or hydraulic drill operator; drill master; core driller; traffic control coordinator; asphalt raker or lute man

HEAVY & GENERAL LABORERS - NORTH **Rates Expiration Date : 08/31/2017**

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.70	27.53	65.23	66.33	68.73

CLASSIFICATIONS:

"B" Rate:

concrete finisher; setter of brick or stone pavers; stone cutter; form setter; manhole, catch basin, or inlet builder; asphalt screedman; rammer; hardscaping; gunite nozzle man

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
41.25	27.53	68.78	69.88	72.28

CLASSIFICATIONS:

"A" Rate:

blaster

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
39.00	27.53	66.53	67.63	70.03

CLASSIFICATIONS:

"FOREMAN" Rate:

labor foreman, asphalt foreman, drill foreman, pipe foreman, grade foreman, finisher foreman, concrete foreman

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
40.00	27.53	67.53	68.63	71.03

CLASSIFICATIONS:

"GENERAL FOREMAN" Rate

HEAVY & GENERAL LABORERS - SOUTH **Rates Expiration Date : 08/31/2017**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$2.50 per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$3.00/hr
- other Hazardous Waste site: + \$1.00/hr

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
36.75	27.53	64.28	65.38	67.78

CLASSIFICATIONS:

basic, landscape, or railroad track laborer; utility meter installer; traffic director/flagman; salamander tender; pitman; dumpman; rakers or tampers on cold patch work; wrappers or coaters of pipe; waterproofers

tree cutter, timberman

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.45	27.53	64.98	66.08	68.48

CLASSIFICATIONS:

wagon drill or drill master helper; powder carrier; magazine tender; signal man

HEAVY & GENERAL LABORERS - SOUTH **Rates Expiration Date : 08/31/2017**

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.45	27.53	64.98	66.08	68.48

CLASSIFICATIONS:

pipe layer; laser man; conduit or duct line layer; operator of jack hammer, chipping hammer, pavement breaker, concrete cutter, asphalt cutter, sheet hammer, or walk-behind saw cutter; sandblaster; acetylene cutting or burning

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.45	27.53	64.98	66.08	68.48

CLASSIFICATIONS:

wagon or directional drill operator; drill master

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
41.25	27.53	68.78	69.88	72.28

CLASSIFICATIONS:

blaster

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
39.00	27.53	66.53	67.63	70.03

CLASSIFICATIONS:

labor foreman, drill foreman, pipe foreman, grade foreman, finisher foreman, concrete foreman

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
40.00	27.53	67.53	68.63	71.03

CLASSIFICATIONS:

general foreman

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

HEAVY & GENERAL LABORERS - SOUTH **Rates Expiration Date : 08/31/2017**

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.70	27.53	65.23	66.33	68.73

CLASSIFICATIONS:

concrete finisher; setter of brick or stone pavers; stone cutter; form setter; manhole, catch basin, or inlet builder; rammer; gunite nozzle man

PIPELINE - MAINLINE TRANSMISSION Rates Expiration Date : 06/04/2017

These rates apply to the following: welding on Transportation Mainline pipe lines (cross-country pipe lines, or any segments thereof, transporting coal, gas, oil, water or other transportable materials, vapors or liquids, including portions of such pipe lines within private property boundaries up to the final metering station or connection - the point where a valve, consumer connection, or town border station divides mainline transmission lines or higher pressure lateral and branch lines from lower pressure distribution systems).

PER DIEM PAYMENT:

In addition to the total wage rate paid for each craft, the following per diem (per day) amounts must also be paid - Pipeline Journeyman: \$42.50; Pipeline Journeyman Welder: \$102.50; and Pipeline Helper: \$42.50. Note: in order to receive the per diem payment an employee must work a minimum of 8 hours in a 24 hour period.

NOTES:

- Journeymen employed as "stringer bead" welders and journeymen who are regularly employed as "hot-pass" welders shall receive \$1.00 per hour more than other journeymen.
- Welders running "stringer bead" or "hot-pass" on "cutouts" or "tie-ins" on a production basis shall be paid \$1.00 per hour above the journeymen rate.
- Whenever a welder helper is employed using a power buffer or power grinder immediately behind the stringer bead and/or hot-pass welders, and the pipe gang is set on a production basis, the helper shall be paid \$2.00 per hour above the helper rate.
- If back welding is performed inside a pipe under either or both of the following conditions, the welder engaged in the welding will receive \$3.00 per hour above the regular rate for the job only for the days on which such back welding is performed:
 - The employer elects, as a regular procedure, to back weld each line-up. This condition is not intended to apply to occasional back welding performed by the pipe gang to repair a bead, to rectify a "high-lo" condition or wall thickness, etc.
 - A welder is required to back weld a completed weld behind the firing line.
- If the welder helper is required to go inside the pipe for the purpose of brushing, buffing and grinding the weld, they shall receive a wage rate \$1.00 per hour above the regular helper rate for the days involved.
- Welders working on "hot work" shall be paid \$2.00 per hour above the regular rate for each day engaged in such work. "Hot work" is defined as work on lines in service where there is the danger of fire or explosion.

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

OVERTIME:

Hours in excess of 8 per day, and all hours on Sundays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Effective Dates:

06/01/2016

Rate	Fringe	Total
54.56	26.59	81.15

CLASSIFICATIONS:

Pipeline Journeyman Welder

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

PIPELINE - MAINLINE TRANSMISSION Rates Expiration Date : 06/04/2017

Effective Dates:

06/01/2016

Rate	Fringe	Total
54.56	26.59	81.15

CLASSIFICATIONS:

Pipeline Journeyman

Effective Dates:

06/01/2016

Rate	Fringe	Total
32.99	18.73	51.72

CLASSIFICATIONS:

Pipeline Helper

PIPELINE - GAS DISTRIBUTION **Rates Expiration Date : 10/31/2017**

These rates apply to the following: welding on gas line distribution systems (that portion of the gas distribution system placed in streets, roads, subways, tunnels, viaducts, highways and easements which serves the users of gas).

SHIFT DIFFERENTIALS:

An "irregular" shift may start any time from 5:00 PM to 12:00 AM, Monday through Friday, and shall receive an additional 15% of the regular rate per hour, inclusive of benefits.

OVERTIME:

Hours in excess of forty per week, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Effective Dates:

11/01/2015			11/01/2016
Rate	Fringe	Total	Total
55.95	21.10	77.05	79.13

CLASSIFICATIONS:

Pipeline Journeyman Welder

Effective Dates:

11/01/2015			11/01/2016
Rate	Fringe	Total	Total
55.95	21.10	77.05	79.13

CLASSIFICATIONS:

Pipeline Journeyman

Effective Dates:

11/01/2015			11/01/2016
Rate	Fringe	Total	Total
36.22	15.29	51.51	52.90

CLASSIFICATIONS:

Pipeline Helper

ASPHALT LABORERS- NORTH **Rates Expiration Date : 08/31/2017**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, Warren

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$2.50 per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$3.00/hr
- other Hazardous Waste site: + \$1.00/hr

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
39.00	27.53	66.53	67.63	70.03

CLASSIFICATIONS:

Asphalt Foreman

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.70	27.53	65.23	66.33	68.73

CLASSIFICATIONS:

Asphalt Screedman

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
37.45	27.53	64.98	66.08	68.48

CLASSIFICATIONS:

Asphalt Raker or Lute Man

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

ASPHALT LABORERS- NORTH Rates Expiration Date : 08/31/2017

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
36.75	27.53	64.28	65.38	67.78

CLASSIFICATIONS:

Asphalt Laborer

ELECTRICIAN- UTILITY WORK (NORTH) **Rates Expiration Date : 12/03/2017**

Electrician-Utility Work (North)

(For apprentice rates refer to Electrician-Utility Work (North) in any county rate package).

These rates apply to work contracted for by the following utility companies:

Public Service Electric & Gas Co. of NJ, GPU Energy, Borough of Madison Electric Department, Sussex Rural Electric Cooperative, Rockland Utilities, and Butler Municipal Electric Co.

These rates do not apply to work on substations or switching stations.

For Utility work contracted for by a utility company other than those listed above or those listed under "Electrician-Utility Work (South), see the "Outside Commercial Rates" for the county in which the jobsite is located.

* FOR OUTSIDE COMMERCIAL RATES PLEASE SEE COUNTY RATES

The regular workday is 8 hours, between 6:00 AM and 6:00 PM.

FOR EMERGENCY WORK ONLY: (emergency work is defined as work caused by storm, catastrophe, act of god, and circumstances beyond the control of the employer)-all hours of work shall be paid at double the hourly rate.

SHIFT DIFFERENTIALS:

Shift work must run for a minimum of 5 consecutive workdays.

2nd shift (between the hours of 4:30 PM and 1:00 AM): 8 hours of work + 17.3% of the regular rate, inclusive of benefits.

3rd shift (between the hours of 12:30 AM and 9:00 AM): 8 hours of work + 31.4% of the regular rate per hour, inclusive of benefits.

OVERTIME:

Hours in excess of 8 per day, or before or after the regular workday Monday through Friday, that is not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.

Four 10-hour days may worked, at straight time, between 7:00 AM and 6:30 PM, Monday through Thursday.

RECOGNIZED HOLIDAYS:

New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day and Christmas Day, or day on which they are legally observed.

Effective Dates:

	11/29/2015		12/04/2016
Rate	Fringe	Total	Total
50.52	33.84	84.36	87.27

CLASSIFICATIONS:

Chief Lineman

Effective Dates:

	11/29/2015		12/04/2016
Rate	Fringe	Total	Total
47.66	31.93	79.59	82.34

CLASSIFICATIONS:

Journeyman Lineman

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

ELECTRICIAN- UTILITY WORK (NORTH) Rates Expiration Date : 12/03/2017

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
47.66	31.93	79.59	82.34

CLASSIFICATIONS:

Special License Operator

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
47.18	31.61	78.79	81.51

CLASSIFICATIONS:

Transit Man

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
45.75	30.65	76.40	79.04

CLASSIFICATIONS:

Line Equipment Operator

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
40.03	26.82	66.85	69.17

CLASSIFICATIONS:

Dynamite Man

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
56.24	37.68	93.92	97.16

CLASSIFICATIONS:

General Foreman

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
54.81	36.72	91.53	94.68

CLASSIFICATIONS:

Assistant General Foreman

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

ELECTRICIAN- UTILITY WORK (NORTH) Rates Expiration Date : 12/03/2017

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
53.38	35.76	89.14	92.21

CLASSIFICATIONS:

Line Foreman

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
38.60	25.86	64.46	66.69

CLASSIFICATIONS:

Straight Light Mechanical Leader

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
36.70	24.58	61.28	63.40

CLASSIFICATIONS:

Groundman Winch Operator

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
36.70	24.58	61.28	63.40

CLASSIFICATIONS:

Groundman Truck Operator

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
36.22	24.26	60.48	62.57

CLASSIFICATIONS:

Straight Light Mechanic

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
36.22	24.26	60.48	62.57

CLASSIFICATIONS:

Line Equipment Mechanic

ELECTRICIAN- UTILITY WORK (NORTH) Rates Expiration Date : 12/03/2017

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
30.98	20.75	51.73	53.52

CLASSIFICATIONS:

Groundman 2nd Year

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
28.60	19.16	47.76	49.39

CLASSIFICATIONS:

Groundman 1st Year

Effective Dates:

11/29/2015			12/04/2016
Rate	Fringe	Total	Total
47.18	31.61	78.79	81.51

CLASSIFICATIONS:

Line Equipment Foreman

ELECTRICIAN- UTILITY WORK (SOUTH) **Rates Expiration Date : 11/30/2017**

Electrician-Utility Work (South)

(For apprentice rates refer to Electrician-Utility Work (South) in any county rate package).

These rates apply to work contracted for by the following utility company:

Atlantic City Electric.

These rates do not apply to work on substations or switching stations.

For utility work contracted for by a utility company other than the one listed above or those listed under "Electrician-Utility Work (North), see the "Outside Commercial Rates" for the county in which the jobsite is located.

* FOR OUTSIDE COMMERCIAL RATES PLEASE SEE COUNTY RATES

The regular workday is 8 hours, between 7:00 AM and 4:30 PM.

FOR EMERGENCY WORK ONLY: (emergency work is defined as work caused by storm, catastrophe, act of god, and circumstances beyond the control of the employer)- all hours of work shall be paid at double the hourly rate.

SHIFT DIFFERENTIALS:

Shift work must run for a minimum of 5 consecutive workdays.

When two (2) or three (3) shifts are worked the following shall apply:

1st shift (between the hours of 8:00 AM and 4:30 PM)

2nd shift (between the hours of 4:30 PM and 12:30 AM): 8 hours of work + 10% of the regular rate of pay for 7.5 hours worked.

3rd shift (between the hours of 12:30 AM and 8:00 AM): 8 hours of work + 15% of the regular rate of pay for 7 hours worked.

OVERTIME:

Hours in excess of 8 per day, or before or after the regular workday Monday through Friday, that is not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate. All hours on Sundays and Holidays shall be paid double the hourly rate.

Four 10-hour days may be worked, at straight time, between 6:00 AM and 6:00 PM, Monday through Thursday with Friday used as a make-up day.

RECOGNIZED HOLIDAYS:

New Year's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day and Christmas Day or on days celebrated.

WORKING RULES:

There shall be a Foreman in charge of each work crew. No crews are to exceed twelve (12) men, including Foremen.

There shall be a General Foreman designated for transmission work when three (3) or more crews are on the same job and for distribution work where there are more than twenty (20) employees on site.

A small job crew shall consist of five (5) or less employees, one (1) of the Journeyman Linemen in the crew shall be designated as a Small Job Foreman.

Work performed from ladders and/or mechanical lift equipment shall be the work of Linemen and/or Apprentices.

On new construction, fitting and framing poles, towers or structures may be done by Journeymen and/or Apprentices. Groundmen may assist, but may not perform any work which would be performed by Linemen if assembled in the air.

There shall be a Journeyman Lineman in each pole setting, erection, grounding, wire and cable-pulling crew of more than three (3) men.

Effective Dates:

	12/01/2015		11/29/2016
Rate	Fringe	Total	Total
57.01	43.16	100.17	102.92

CLASSIFICATIONS:

General Foreman

ELECTRICIAN- UTILITY WORK (SOUTH) **Rates Expiration Date : 11/30/2017**

Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
50.78	39.48	90.26	93.01

CLASSIFICATIONS:

Foreman

Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
48.10	37.90	86.00	88.75

CLASSIFICATIONS:

Small Job Foreman

Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
44.54	35.82	80.36	83.11

CLASSIFICATIONS:

Heavy Equipment Operator

Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
44.54	35.82	80.36	83.11

CLASSIFICATIONS:

Cable Splicer

Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
44.54	35.82	80.36	83.11

CLASSIFICATIONS:

Journeyman Lineman

Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
44.54	35.82	80.36	83.11

CLASSIFICATIONS:

Journeyman Welder

ELECTRICIAN- UTILITY WORK (SOUTH) Rates Expiration Date : 11/30/2017

Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
44.54	35.82	80.36	83.11

CLASSIFICATIONS:

Journeyman Painter

Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
35.63	30.58	66.21	68.96

CLASSIFICATIONS:

Light Equipment Operator

Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
31.18	27.97	59.15	61.90

CLASSIFICATIONS:

Groundman Truck Driver

Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
28.95	26.65	55.60	58.35

CLASSIFICATIONS:

Groundman 3rd Year

Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
26.72	25.33	52.05	54.80

CLASSIFICATIONS:

Groundman 2nd Year

Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
24.50	24.04	48.54	51.29

CLASSIFICATIONS:

Groundman 1st Year

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

ELECTRICIAN- UTILITY WORK (SOUTH) Rates Expiration Date : 11/30/2017

Effective Dates:

12/01/2015			11/29/2016
Rate	Fringe	Total	Total
19.60	21.16	40.76	43.51

CLASSIFICATIONS:

Flagman

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS Rates Expiration Date : 08/31/2017

THESE RATES APPLY TO CONSTRUCTION ON NEW TRANS HUDSON TUNNELS ONLY

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$2.50 per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$3.00/hr
- other Hazardous Waste site: + \$1.00/hr

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
59.25	27.53	86.78	88.31	91.28

CLASSIFICATIONS:

Walking Boss & Superintendent

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
58.50	27.53	86.03	87.86	90.83

CLASSIFICATIONS:

Heading Foreman, Shaft Foreman, Rod Foreman, Electrical Foreman, Rigging Foreman

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS **Rates Expiration Date : 08/31/2017**

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
58.05	27.53	85.58	87.11	90.08

CLASSIFICATIONS:

Iron Foreman, Caulking Foreman, Form Foreman, Cement Finishing Foreman, Concrete Foreman, Track Foreman, Clean-up Foreman, Grout Foreman

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
61.80	27.53	89.33	90.86	93.83

CLASSIFICATIONS:

Blaster

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
57.23	27.53	84.76	86.28	89.26

CLASSIFICATIONS:

Top Labor Foreman

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
56.70	27.53	84.23	85.76	88.73

CLASSIFICATIONS:

Skilled Men (including Caulker, Powder Carrier, all other skilled men)

Skilled Men (including Miner, Drill Runner, Iron Man, Conveyor Man, Maintenance Man, Safety Miner, Rigger, Block Layer, Cement Finisher, Rod Man)

Effective Dates:

	03/01/2016		09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
56.48	27.53	84.01	85.53	88.51

CLASSIFICATIONS:

Semi-Skilled Men (including Bell or Signal Man top or bottom, Form Worker & Mover, Concrete Worker, Shaft Man, Tunnel Laborer, Caulker's Helper, all other semi-skilled)

Semi-Skilled Men (including Miner's Helper, Chuck Tender, Track Man, Nipper, Brake Man, Derail Man, Cable Man, Hose Man, Gravel Man, Form Man)

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NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS Rates Expiration Date : 08/31/2017

Effective Dates:

03/01/2016			09/01/2016	03/01/2017
Rate	Fringe	Total	Total	Total
55.73	27.53	83.26	84.78	87.76

CLASSIFICATIONS:

All others (including Powder Watchman, Change House Attendant, Top Laborer, Job Steward)

DRAFT AIA Document A101™ - 2007

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

The County Engineer or his designee:
(Name, legal status, address and other information)

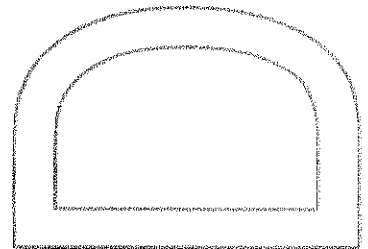
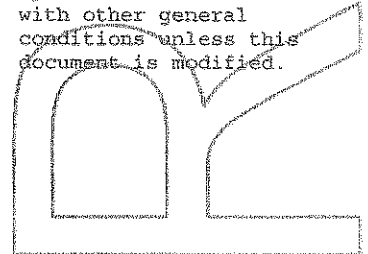
The Owner and Contractor agree as follows.



ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

AIA Document A201™-2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.



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TABLE OF ARTICLES

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- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
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ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others. The Contractor will not be compensated for labor or materials outside the scope of work that is not properly authorized.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a Notice to proceed issued by the Owner, which is anticipated to be on or about

☐

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows: Not applicable.

☐

§ 3.2 The Contract Time shall be measured from the date of commencement.

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than ☐ (☐) days from the date of commencement, or as follows:

(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

Portion of Work

Substantial Completion Date

Entire Work

TBD

, subject to adjustments of this Contract Time as provided in the Contract Documents.
(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

« » Should the Contractor fail to complete fully, and in conformity with all provisions of the Contract within the Contract Time, the Contractor shall, and hereby agrees to pay the Owner One Thousand Dollars (\$1,000.00) per day for as liquidated damages, for each consecutive calendar day beyond the number of days allowed by the Contract, which sum is agreed upon as reasonable and proper measure of damages that the Owner will sustain per diem by failure of Contractor to complete Work within time as stipulated; it is being recognized by Owner and Contractor that the injury to Owner that could result from a failure of the Contractor to complete on schedule, is uncertain and cannot be computed exactly. In no way shall costs of Liquidated Damages to be construed as a penalty to the Contractor. (See Bid Documents)

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be « » (\$ « »), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

« »
§ 4.3 Unit prices, if any:
(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price Per Unit (\$0.00)
« »	« »	« »

§ 4.4 Allowances included in the Contract Sum, if any:
(Identify allowance and state exclusions, if any, from the allowance price.)

Item	Price
« »	« »

ARTICLE 5 PAYMENTS

§ 5.1 PROGRESS PAYMENTS

§ 5.1.1 Based upon Applications for Payment submitted to the County Engineer or his designee by the Contractor and Certificates for Payment issued by the County Engineer or his designee, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

« »
§ 5.1.3 The Contractor shall submit a Preliminary Payment Request (Pencil Requisition) to the County Engineer or his designee on the twenty-fifth (25th) day of any given calendar month for Work performed during that month,

Upon receipt of the Pencil Requisition from the Contractor, the County Engineer or his designee shall review the Pencil Requisition and approve or disapprove of it in whole or in part as set forth hereafter. Within (4) calendar days of receipt of the Pencil Requisition from the Contractor, the County Engineer or his designee shall return the Pencil Requisition to the Contractor, with those charges that are approved or disapproved, if any, by the County Engineer or his designee, for the Contractor's incorporation into an Application for Payment. Within two (2) calendar days of return of the Pencil Requisition from the County Engineer or his designee, the Contractor shall submit a formal application for Payment to the County Engineer or his designee for review and approval by the County Engineer or his designee incorporating any revisions made by the County Engineer or his designee in the Pencil Requisition submission. Within five (5) calendar days of receipt of Contractor's Application for Payment, the County Engineer or his designee shall take any one of the following actions:

- 1) Certify the entire Application for Payment;
- 2) Certify partial payment and provide the Contractor with reasons for withholding the remaining portion of the payment; or
- 3) Withhold certification of the entire Application for Payment and provide the Contractor with reasons for withholding the entire payment,

Once the Application for Payment is certified either in whole or in part, the County Engineer or his designee shall transmit the Certified Payment Application within three (3) calendar days to the Owner for its review and payment. The Owner shall make payment to the Contractor for the Certified Payment Amount by no later than the time period set forth in the New Jersey Prompt Payment Act following receipt of the Certificate for Payment from the County Engineer or his designee. The Owner shall not be obligated to pay any Application for Payment until the Application for Payment is certified by the County Engineer or his designee. Approval of any Application for Payment may be withheld should the Contractor fail to submit Manning Reports in a timely manner.

Pursuant to N.J.S.A. 2A:30A-1 et seq. (the "Prompt Payment Act"), a public or governmental entity that requires the entity's governing body to vote on authorizations for each periodic payment, final payment, or retainage monies, such as the Owner, is excepted from the timing requirements of the Act. Accordingly, the Owner shall not approve the Contractor's Application for Payment until it is certified by the County Engineer or his designee in accordance herewith and shall not approve the Contractor's Certified Payment Application until the next scheduled public meeting of the Owner following the Owner's receipt of the Certified Payment Application from the County Engineer or his designee. The Owner shall not make payment to the Contractor for the Certified Payment Amount until the Owner's subsequent payment cycle following its approval of the Payment Application.

Pursuant to this same Act, if a payment due pursuant to the provisions herein is not made in a timely manner, the Owner shall be liable for the amount of money owed under the contract, plus interest at a rate equal to the prime rate plus one percent (1%), notwithstanding anything to the contrary in the Contract Documents. Interest on amounts due pursuant to the Act shall be paid to the prime contractor for the period beginning on the day after the required payment date and ending on the day on which the check for payment is received by the Contractor.

Pursuant to this same Act, disputes regarding whether a party has failed to make payments required by the Act may be submitted to a process of alternative dispute resolution, notwithstanding anything to the contrary in the contract documents, where the parties agree to same. Alternative dispute resolution permitted by the Act shall not apply to disputes concerning any other matters that may arise under or from this Contract. Any civil action brought to collect payments shall be conducted in Union County, State of New Jersey, and the prevailing party shall be awarded reasonable costs and attorneys' fees.

§5.1.4 The County Engineer or his designee may decide not to certify payment and may withhold a Certificate for Payment, in whole or in part, to the extent reasonably necessary to protect the Owner if, in the County Engineer or his designee's opinion, the representations as described in Section 5.1.5 below cannot be made to the Owner. If the County Engineer or his designee withholds a Certificate for Payment, the County Engineer or his designee will notify the Contractor and Owner as provided in Section 5.1.3 above. If the Contractor and County Engineer or his designee cannot agree on a revised amount, the County Engineer or his designee will issue a Certificate for Payment for the amount for which the County Engineer or his designee is able to make such representations to the Owner as set forth in Section 5.1.3 above. The County Engineer or his designee may also decide to withhold certifying

payment in whole or in part, or, because of subsequently discovered evidence or subsequent observations, to such extent as may be necessary in the County Engineer or his designee's opinion to protect the Owner from loss because of:

- .1 Defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials, or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or another contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or Liquidated Damages for the anticipated delay;
- .7 failure to carry out the Work in accordance with the Contract Documents;
- .8 avoidable delay in the progress of the Work;
- .9 deliberate delay in the submission for approval of names of Subcontractors, materialmen, sources of supply, shop drawings, and samples;
- .10 failure to maintain the Project Site in a safe and satisfactory condition in accordance with good construction practices as determined by the County Engineer or his designee; or
- .11 failure to submit updates as required by the General Conditions.

When the foregoing reasons for withholding certification are resolved, certification will be made for amounts previously withheld in the manner set forth in Section 5.1.3 above.

§5.1.5 The issuance of a separate Certificate for Payment will constitute representations made separately by the County Engineer or his designee to the Owner, based on its individual observations at the site and the data comprising the Application for Payment submitted by the Contractor, that the Work has progressed to the point indicated and that, to the best of the County Engineer or his designee's knowledge, information and belief, quality of the Work is in accordance with the Contract Documents.

The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to minor deviations from the Contract Documents correctable prior to completion and to specific qualifications expressed by the County Engineer or his designee. The

issuance of a separate Certificate of Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a separate Certificate for Payment will not be a representation that the County Engineer or his designees has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed the Contractor's construction means, methods, techniques, sequences or procedures; (3) reviewed copies of requisitions received from Subcontractor's and materials suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§5.1.6 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the County Engineer or his designee may require. This schedule, unless objected to by the County Engineer or his designee, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§5.1.7 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.8 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of ~~5~~ percent (~~5~~ %). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™-2007, General Conditions of the Contract for Construction;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of ~~5~~ percent (~~5~~ %);
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the County Engineer or his designee has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201-2007.

§5.1.9 The progress payment amount determined in accordance with Section 5.1.8 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the County Engineer or his designee shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201-2007.

§5.1.10 Retainage shall be determined as follows: Pursuant to N.J.S.A. 40A:11-6.1, the Owner will withhold two percent (2%) of the amount due on each partial payment when the outstanding balance of the Contract exceeds One Hundred Thousand Dollars (\$100,000.00).

§5.1.11 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 FINAL PAYMENT

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201-2007, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the County Engineer or his designee.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the County Engineer or his designee's final Certificate for Payment, or as follows:

« »

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 INITIAL DECISION MAKER

The County Engineer or his designee will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201-2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the County Engineer or his designee.)

« »
« »
« »
« »

§ 6.2 BINDING DISPUTE RESOLUTION

Except as provided in Section 5.1.3 of the Standard Form of Agreement between the Owner and Contractor, all claims, disputes or other matters in question between the parties to this Contract, arising out of or relating to the Project or to the Contract, or the alleged breach hereof, shall be subject one to mediation, and if not resolved, then same shall be decided in a Court of competent jurisdiction venued in Union County, New Jersey. No party may be compelled to submit any dispute concerning the Project to arbitration. In the event any claim arising from the Project is beyond the jurisdiction of the court, the Contract consents to joinder as a party to such action or alternative dispute proceeding.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201-2007.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201-2007.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201-2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall in no instance bear interest, except as required by law in accordance with Section 5.1.3 hereof.

§ 8.3 The Contractor shall ensure that the Project Site is maintained in a clean and safe condition at all times, based upon Owner's sole discretion. If the Contractor fails to keep the Project Site in a clean and safe condition, said failure shall result in the following:

- .1 all claims resulting from the Contractor's failure shall be the Contractor's responsibility;
- .2 said failure shall constitute an act of default and a substantial breach of the Contract giving the Owner remedies under the contract Documents; and
- .3 the Owner shall have the right to withhold any payments until the Contractor cures its failure.

Failure to do so shall authorize the Owner to withhold any Applications for payment until such time as the Contractor has rectified same. Further, if the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

§ 8.4 Indemnification – See Indemnification Requirements in Bid Documents.

§ 8.5 The within contract shall be governed by and interpreted pursuant to the law of the State of New Jersey.

§ 8.6 The Contractor shall comply with the anti-discrimination provisions of N.J.S.A. 10:2-1 et seq., the New Jersey Law Against Discrimination, N.J.S.A. 10:5-1 et seq., N.J.A.C. 17:27-1.1 et seq. and shall guarantee to afford equal opportunity in performance of the Work in accordance with an affirmative action program approved by the State Treasurer. (See Page G-21).

§ 8.7 The Contractor shall submit proof of Business Registration for itself and its subcontractors to the Owner and shall provide written notice to its subcontractors and suppliers of the responsibility to submit proof of business registration to the contractor. The requirement of proof of Business Registration extends down through all levels (tiers) of the Project.

The Contractor agrees to comply with the rules and regulations promulgated pursuant to the Contractor Use Tax Collection Legislation.

For the term of the contract, the Contractor, any subcontractor, and each of their affiliates [N.J.S.A. 52:32-44(g)93], shall collect and remit to the New Jersey Director of the Division of Taxation in the Department of Treasury, the use tax due pursuant to the "Sales and Use Tax Act," P.L. 1966, c. 30 (C.54:32B-1 et seq.) on all of their sales of tangible personal property delivered into the State of New Jersey, regardless of whether the tangible personal property is intended for a contract with a contracting agency. For purposes herein, "affiliate" shall mean any entity that: (a)

directly, indirectly or constructively controls another entity; (b) is directly, indirectly, or constructively controlled by another entity; or (c) is subject to the control of a common entity. For purposes of the immediately preceding sentence, an entity controls another entity if it owns, directly or indirectly, more than fifty percent (50%) of the Ownership interest in that entity.

§8.8 This Standard Form of Agreement and the General Conditions set forth in the Bid Documents shall control in the case of conflict between these documents and the Project Specifications, the Project Manual, and any other exhibits incorporated by reference in this Contract.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below, and incorporated herein as if set forth in their entirety.

§ 9.1.1 The Agreement is this executed AIA Document A101-2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201-2007, General Conditions of the Contract for Construction.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

§ 9.1.4 The Specifications:

(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

« See Specifications as referenced by Exhibit B.

Section	Title	Date	Pages

§ 9.1.5 The Drawings:

(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

« See List of Drawings, annexed hereto as Exhibit C.

Number	Title	Date

§ 9.1.6 The Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

- 1 AIA Document E201™-2007, Digital Data Protocol Exhibit, if completed by the parties, or the following:

■

- 2 Other documents, if any, listed below:

■

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201-2007.

(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A201-2007.)

Type of insurance or bond

Limit of liability or bond amount (\$0.00)

This Agreement entered into as of the day and year first written above.

OWNER (Signature)

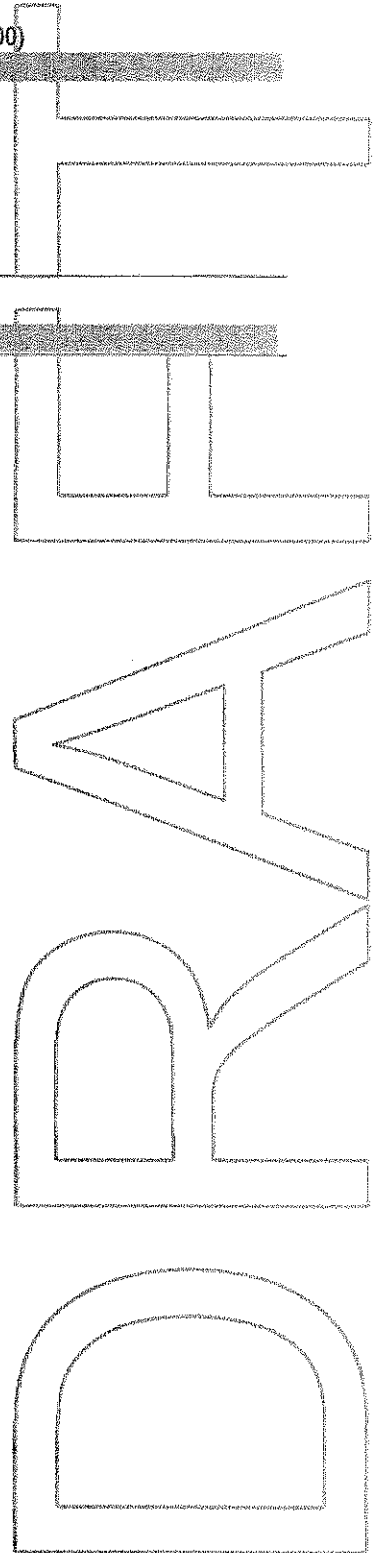
<><><>

(Printed name and title)

CONTRACTOR (Signature)

<><><>

(Printed name and title)



DRAFT AIA Document A201™ - 2007

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

«County of Union»

« »

THE OWNER:

(Name, legal status and address)

« »

« »

THE ENGINEER, OR HIS DESIGNEE :

(Name, legal status and address)

« »

« »

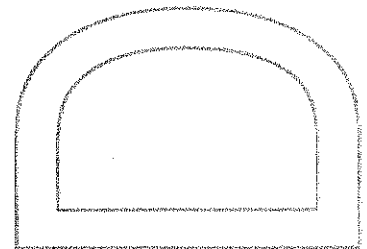
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- 14 TERMINATION OR SUSPENSION OF THE CONTRACT
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ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.



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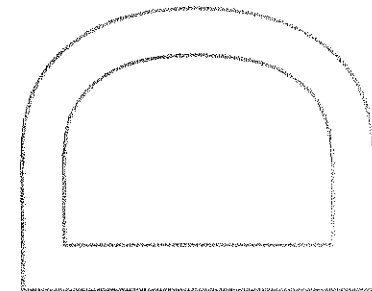
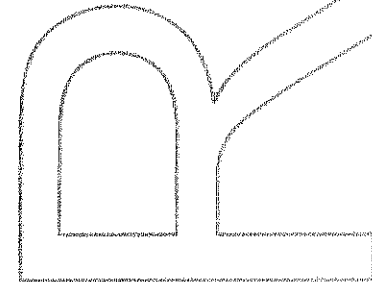
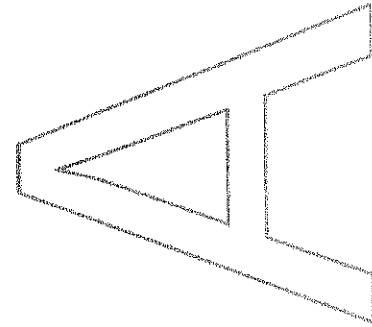
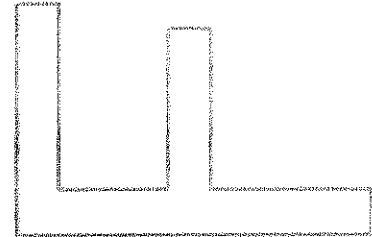
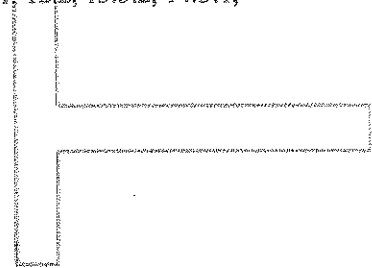
4.2.11, 4.2.12

Written Notice

2.3, 2.4, 3.3.1, 3.9, 3.12.9, 3.12.10, 5.2.1, 8.2.2, 9.7, 9.10, 10.2.2, 10.3, 11.1.3, 12.2.2, 12.2.4, 13.3, 14, 15.4.1

Written Orders

1.1.1, 2.3, 3.9, 7, 8.2.2, 12.1, 12.2, 13.5.2, 14.3.1, 15.1.2



ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect or Engineer. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Engineer, or his designee or the Engineer, or his designee's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Engineer, or his designee or the Engineer, or his designee's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Engineer, or his designee's shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Engineer, or his designee's duties.

§ 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Engineer, or his designee and the Engineer, or his designee's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent

consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Engineer, or his designee s.

§ 1.4 INTERPRETATION

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 The Engineer, or his designee and the Engineer, or his designee 's consultants shall be deemed the authors and Owners of their respective Instruments of Service, including the Drawings and Specifications. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Engineer, or his designee or Engineer, or his designee 's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Engineer, or his designee and the Engineer, or his designee 's consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided elsewhere in the Contract Documents, the Engineer, or his designee does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 The Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only in the event that: (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 If readily available, the Owner shall furnish surveys describing physical characteristics and legal limitations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work. The Contractor shall be responsible for requesting and obtaining a utility mark-out.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Article 12 or fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6. Owner shall in no way be responsible for any delays or claims arising from delays for enforcement of this Section.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Engineer, or his designee's additional services made necessary by such default, neglect or failure. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located and shall maintain as current any approvals or certifications that may be required to perform the Work. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Engineer, or his designee in the Engineer, or his designee's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Engineer, or his designee any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Engineer, or his designee may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a Contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Engineer, or his designee any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Engineer, or his designee may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Engineer, or his designee issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Engineer, or his designee for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Engineer, or his designee and shall not proceed with that portion of the Work without further written instructions from the Engineer, or his designee. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Engineer, or his designee in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after

evaluation by the Engineer, or his designee and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 WARRANTY

The Contractor warrants to the Owner and Engineer, or his designee that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Engineer, or his designee, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. Such warranty shall continue for a period of one (1) year from the date of Substantial Completion of the Work. Under this warranty, the Contractor shall remedy at his expense any such failure for the Work to be conforming to the requirement of the Contract, or any other defect appearing in the Work. In addition, the Contractor shall remedy at his own expense, any damage to Owner's owned, controlled, real or personal property, when that damage is the result of the Contractor's failure to provide conforming Work as it relates to the Contract Documents or any other defect of equipment, material, workmanship or design. The Contractor shall also restore any Work damaged in fulfilling its obligations under the terms of this provision. The Contractor's warranty with respect to the Work repaired or replaced hereunder will run for a period of one (1) year from the date of repair or replacement.

§ 3.6 TAXES

The Contractor shall pay use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 **Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Engineer, or his designee before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Engineer, or his designee will promptly investigate such conditions and, if the Engineer, or his designee determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Engineer, or his designee determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Engineer, or his designee shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Engineer, or his designee's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Engineer, or his designee. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2. The unused balance of any allowance shall be deducted from the Contract Sum upon completion and acceptance of the Work by Change Order.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Engineer, or his designee the name and qualifications of a proposed superintendent. The Engineer, or his designee may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Engineer, or his designee has reasonable objection to the proposed superintendent or (2) that the Engineer, or his designee requires additional time to review. Failure of the Engineer, or his designee to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Engineer, or his designee has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Engineer, or his designee's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Engineer, or his designee's approval. The Engineer, or his designee's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Engineer, or his designee reasonable time to review submittals. If the Contractor fails to submit a submittal

schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Engineer, or his designee .

§3.10.4 Should the Contractor responsible for the scheduling requirements of Article 3 herein fail to comply with said scheduling requirements, said failure shall result in the following:

- 1 all claims resulting from the Contractor's failure to prepare or submit a schedule shall be the Contractor's responsibility;
- 2 shall constitute an act of default and a substantial breach of the Contract giving the Owner remedies under the Contract Documents; and
- 3 the Owner shall have the right to withhold any payments until the Contractor complies with the scheduling requirements of Article 3 herein.

§3.10.5 In the event of a Five Prime Contract, the General Contractor shall be responsible for the preparation and submittal of the schedule.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Engineer, or his designee and shall be delivered to the Engineer, or his designee for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Engineer, or his designee is subject to the limitations of Section 4.2.7. Informational submittals upon which the Engineer, or his designee is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Engineer, or his designee without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Engineer, or his designee Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Engineer, or his designee or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Engineer, or his designee that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Engineer, or his designee .

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Engineer or his designee 's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Engineer, or his designee in writing of such deviation at the time of submittal and (1) the Engineer, or his designee has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Engineer, or his designee 's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Engineer, or his designee on previous submittals. In the absence of such written notice, the Engineer, or his designee 's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of Engineer, or his designee ure or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Engineer, or his designee will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Engineer or his designee . The Owner and the Engineer, or his designee shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Engineer, or his designee have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Engineer, or his designee will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.13.2 The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Owner before using any portion of the Site.

§ 3.13.3 The Contractor shall store its apparatuses, materials, supplies, and equipment in such orderly fashion at the Site of the Work, if permitted, as will not unduly interfere with the progress of the Work or ongoing operations. The Contractor shall provide protective fencing around the designated storage areas.

§ 3.13.4 The Contractor shall see that stockpiles of materials and storage of equipment are kept to a minimum and neatly stored where directed by the Owner and the Engineer, or his designee .

§ 3.13.5 If the Work is to be executed in areas occupied by the Owner, the Contractor shall inform the Owner in advance of the areas scheduled to be worked on, so that the Owner's personnel may make proper preparations to protect equipment and records.

§3.13.6 The Contractor understands that some or all the Work of the Contract may be performed while the facilities are occupied by personnel, and accordingly shall make all reasonable and necessary provisions to ensure that the contract Work will be of minimal disruption to the environment.

§3.13.7 Materials and equipment that are to be used only directly in the Work, shall be brought to and stored on the Project site by the Contractor. After equipment is no longer required for the Work, it shall be promptly removed from the Project Site. Protection of construction materials and equipment stored at the Project Site from weather, theft, damage and all other adversity is solely the Contractor's responsibility. The Contractor shall bear the responsibility to replace all such materials that may be lost, damaged, or stolen at its expense, whether such materials or equipment have been entirely or partially paid for by the Owner.

§3.13.8 The Contractor and any entity for whom the Contractor is responsibility, shall not erect any sign on the Project Site without the prior written consent of the Owner, which may be withheld in the sole discretion of the Owner.

§3.13.9 Contractor shall ensure that the Work is performed at all times in a manner that affords reasonable access, both vehicular and pedestrian, to the Site of the Work and all adjacent areas. The Work shall be performed, to the fullest extent reasonably possible, in such a manner that public areas adjacent to the Site of the Work shall be free from all debris, building materials, and equipment likely to cause hazardous conditions.

§3.13.10 Without prior approval of the Owner, the Contractor shall not permit any workers to use any existing facilities at the Project Site, including, without limitation, the lavatories, toilets, entrances, and parking areas, other than those designated by the Owner. Without limitation of any other provision of the Contract Documents, the Contractor shall use its best efforts to comply with all rules and regulations promulgated by the Owner in connection with the use and occupancy of the Project Site and the Building, as amended from time to time. The Contractor shall immediately notify the Owner in writing, if during the performance of the Work, the Contractor finds compliance with any portion of such rules and regulations to be impracticable. This notification shall set forth the problems of such compliance and shall suggest alternatives through which the same results intended by such portions of the rules and regulations can be achieved. The Owner may, in the Owner's sole discretion, adopt such suggestions, develop new alternatives or require compliance with the existing requirements of the rules and regulations. The Contractor shall also comply with all insurance requirements and collective bargaining agreements applicable to use and occupancy of the Project Site and the Building.

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents. Any costs incurred by the Onwer for defective cutting or patching shall be borne by the Contractor responsible therefore.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate Contractor except with written consent of the Owner and of such separate Contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate Contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor, or shall be entitled to reduce the Contract Amount in an amount equal to the Owner's cost to clean up.

§3.15.3 The Contractor shall, on a daily basis, clean debris resulting from its Work, and protect construction in progress and maintain adjoining materials in place during handling and installation, and provide protective covering where required to assure protection from damage or deterioration until Substantial Completion.

§3.15.4 The Contractor shall clean and provide maintenance on completed construction, after installation, as frequently as necessary through the remainder of the construction period.

§3.15.5 The Contractor shall supervise its construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. The term "clean" shall include the removal of debris from the work area to dumpsters furnished by the Prime General Work Contractor or the Contractor for Single Overall Contract Work, whichever contracting method shall apply.

§ 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Engineer, or his designee access to the Work in preparation and progress wherever located.

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Engineer, or his designee harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Engineer, or his designee. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Engineer, or his designee.

§ 3.18 INDEMNIFICATION

§ 3.18.1 The County of Union requires all bidders to accept the following indemnification requirements in the event the County accepts their bid. The Contract awarded by the County to the successful bidder will contain the following provision:

"To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner and Owner's consultants, agents, representatives, and employees from and against any and all claims, damages, losses, costs, and expenses, including, but not limited to attorney's fees, legal costs and legal expenses arising out of or resulting from the performance of the Contractor's work under this contract, provided that such claim, damage, loss, cost or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than work itself) caused or alleged to be caused by the negligent acts, negligent omissions, and/or fault of the Contractor, anyone directly or indirectly employed or retained by the Contractor, or anyone for whose acts the Contractor may be liable regardless of whether caused in part by the negligent act or omission of a party indemnified hereunder provided it is not caused by the sole negligence of a party indemnified hereunder. Contractor shall further indemnify and hold harmless the Owner and the Owner's consultants, agents, representative, and employees from and against any and all claims, damages, losses, costs, and expenses, including, but not limited to attorneys' fees, legal costs and legal expenses, arising out of or resulting from performance of the work, provided that such claims, damage, loss, cost, or expense is attributable to bodily injury, sickness, disease or death, or to injury to destruction of tangible property (other than work itself) caused or alleged to be caused by the negligent acts, negligent omissions, and/or fault of the Owner or the Owner's consultants, agents, representatives, or employees and arises out of this project and provided such claim, damage, loss, cost, or expense is not caused by the sole negligence of a party indemnified hereunder."

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ENGINEER, OR HIS DESIGNEE OR ENGINEER

§ 4.1 GENERAL

§ 4.1.1 The Owner shall retain an Engineer, or his designee lawfully licensed to practice Engineer, or his designee in the jurisdiction where the Project is located. That person or entity is identified as the Engineer, or his designee in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Engineer, or his designee as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Engineer, or his designee. Consent shall not be unreasonably withheld.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Engineer, or his designee will provide administration of the Contract as set forth in its respective Agreements with the Owner and as described in the Contract Documents.

§ 4.2.2 The Engineer, or his designee will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Engineer, or his designee will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work.

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Engineer, or his designee about matters arising out of or relating to the Contract. Communications by and with the Engineer, or his designee's consultants shall be through the Engineer, or his designee. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Engineer, or his designee's evaluations of the Contractor's Applications for Payment, the Engineer, or his designee will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Engineer, or his designee has authority to reject Work that does not conform to the Contract Documents. Whenever the Engineer, or his designee considers it necessary or advisable, the Engineer, or his designee will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Engineer, or his designee nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Engineer, or his designee to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Engineer, or his designee will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Engineer, or his designee's action will be taken in accordance with the submittal schedule approved by the Engineer, or his designee or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Engineer, or his designee's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Engineer, or his designee's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Engineer, or his designee's review shall not constitute

approval of safety precautions or, unless otherwise specifically stated by the Engineer, or his designee, of any construction means, methods, techniques, sequences or procedures. The Engineer, or his designee's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Engineer, or his designee will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7. The Engineer, or his designee will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Engineer, or his designee will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Engineer, or his designee agree, the Engineer, or his designee will provide one or more project representatives to assist in carrying out the Engineer, or his designee's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in the Owner's Agreement with the Engineer, or his designee.

§ 4.2.11 The Engineer, or his designee will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Engineer, or his designee's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Engineer, or his designee will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Engineer, or his designee will endeavor to secure faithful performance by both Owner and Contractor and will not show partiality.

§ 4.2.13 The Engineer, or his designee will review and respond to requests for information about the Contract Documents. The Engineer, or his designee's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Engineer, or his designee will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate Contractor or subcontractors of a separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 Identification of Subcontractors required by N.J.S.A. 40A:11-16 shall be provided with the bid submission in accordance with the requirements of that statute. Names of persons or entities for any Subcontractor not covered by N.J.S.A. 18A-18 shall be furnished within thirty (30) thirty days of notification of Award of Contract. The Engineer, or his designee will notify the Contractor in writing if the Owner or Engineer, or his designee, after due investigation, has reasonable objection to any such proposed person or entity. The list of proposed Subcontractors shall include a description of the materials and equipment each proposes to furnish and install in the Work. The description shall be insufficient detail to allow the Engineer, or his designee to determine general conformance to Contract requirements. Approval of the submittals as required under this Article shall not relieve the Contractor from conformance to Contract requirements.

§5.2.2 Subcontractors shall comply with the statutory requirements of N.J.S.A. 34:11-56.25 and N.J.S.A. 34:11-56.48. Any subcontractors who fail to comply with those statutory provisions shall be rejected.

§5.2.3 Written confirmation of award of each major subcontract shall be submitted to the Owner by the Contractor, in form subject to his approval, within seven (7) days after receipt of Owner's approval of proposed Subcontractor list as provided under this Article. Every subcontract shall be in writing, shall be submitted to Owner for review and approval prior to execution, and shall specifically provide that the Owner is an intended third (3rd) party beneficiary of such subcontract.

§ 5.2.4 The Contractor shall not contract with a proposed person or entity to whom the Owner or Engineer, or his designee has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.5 If the Owner or Engineer, or his designee has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Engineer, or his designee has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.6 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Engineer, or his designee makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

§5.3.1 By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Engineer, or his designee. Each subcontract agreement shall preserve and protect the rights of the Owner and Engineer, or his designee under the Contract Documents and at law. No Subcontract shall diminish in any way any rights or benefits conferred upon the Owner by these Contract Documents. The Contractor shall make all Contract Documents available to the Subcontractors.

§5.3.2 Where the Contractor sublets portions of the Work, the entire responsibility for the subdividing of Work rests with the Contractor. The Owner and the Engineer, or his designee are not responsible for the manner of the subdivision of the Work, nor will they enter into or settle disagreements or disputes between Contractor and Subcontractors. The Contractor is, and will be held, responsible for the proper execution of the Work of all Subcontractors.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- 1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing.

§ 5.4.2 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site.

§ 6.1.2 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

§ 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Engineer, or his designee apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

§ 6.2.4.1 Should the Contractor cause damage to the Work or property of any separate Contractor on the Project, the Contractor shall promptly settle with such other Contractor by agreement, or otherwise resolve the dispute. If such separate Contractor institutes any legal proceeding against the Owner on account of any damage alleged to have been so sustained, the Contractor shall, indemnify, defend, or bear the cost of defense as the Owner shall in its own discretion determine, and hold the Owner's harmless. Said Indemnification shall be governed by Section 13, Page G7 of the Instructions to Bidders.

§ 6.2.5 The Owner and each separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Engineer, or his designee will allocate the cost among those responsible, which amounts the Owner shall be entitled to reduce the Contract Amounts of the various contracts of those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents. Change Orders and Construction Change Directives shall be subject to and processed in accordance with N.J.A.C. 6A:23-7 and N.J.A.C. 6A:26-4.9, where applicable.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Engineer, or his designee; a Construction Change Directive requires a written agreement by the Owner and Engineer, or his designee and may or may not be agreed to by the Contractor; an order for a minor change in the Work which does not extend the Contract Time, increase the Contract Sum or change the Project Scope may be issued by the Engineer, or his designee alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.1.4 In order to facilitate checking of quotations for extras or credits, all proposals shall be accompanied by a complete itemization of costs including labor, materials and subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are subcontracts, they shall be itemized also. In no case will a change be approved without such itemization.

§ 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Engineer, or his designee and signed by the Owner, Contractor and Engineer, or his designee stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

A Change Order shall not require consent of the Owner if the Owner has provided an allowance for such a change.

§ 7.2.2 Methods used in determining adjustments to the Contract Sum shall be those listed in Section 7.3.3.

§ 7.2.3 Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work that is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change, and any and all adjustments to the Contract Sum and the construction schedule. In the event a Change Order increases the Contract Sum, Contractor shall include the Work covered by such Change Orders in Applications for Payment as if such Work were originally part of the Contract Documents.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Engineer, or his designee and signed by the Owner and Engineer, or his designee, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. A Construction Change Directive shall not require the Agreement of the Engineer, or his designee if the Owner specifically waives their consent in writing. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.6.

§ 7.3.4 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Engineer, or his designee of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time. The Contractor's failure to comply with a Construction Change Directive shall constitute an incident of default and cause for termination by the Owner.

§ 7.3.5 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.6 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Engineer, or his designee shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Engineer, or his designee may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.6 shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others; and
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work.

§ 7.3.7 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Engineer, or his designee. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.8 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Engineer, or his designee will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Engineer, or his designee determines, in the Engineer, or his designee's professional judgment, to be reasonably justified. The Engineer, or his designee's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.9 When the Owner and Contractor agree with a determination made by the Engineer, or his designee concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Engineer, or his designee will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.3.10 In subparagraphs 7.3.3 and 7.3.6, the allowance for overhead and profit combined shall be based upon the following schedule:

- .1 For the Contractor, for work performed by his own forces, 10% of cost.
- .2 For each Subcontractor, for the work performed by his own forces, 10% of cost.
- .3 For the Contractor, for work performed by a subcontractor, 5% of cost.

§ 7.3.11 Lump sum quotations for changes in the Work will not be accepted. Proposals shall be completely itemized and broken down. They shall be accompanied by such supporting data as the Engineer, or his designee may require, such as copies of subcontractor's or vendor's quotations, quantity take-off sheets, or other similar information.

§ 7.4 MINOR CHANGES IN THE WORK

The Engineer, or his designee has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Engineer, or his designee and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work and services as required by the Contract

Documents, Substantial Completion of the Work shall be accomplished within the period of consecutive calendar days (or by the date), as stated in the Agreement, plus any authorized extension(s) of time as approved by written agreement. Final Completion of the Work shall be no later than thirty (30) consecutive calendar days from the date of Substantial Completion of the Work, unless otherwise set forth in Article 3.2 of the Owner/Contractor Agreement.

§ 8.1.2 Intentionally omitted

§ 8.1.3 Intentionally omitted.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work. There will be no bonus or incentives paid, should the Work, or any portion thereof, be completed in advance of the specified activity milestone dates.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 Intentionally omitted

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 Intentionally omitted

§ 8.3.4 No payment, compensation, or adjustment of any kind shall be made to the Contractor by the Owner for damages resulting from hindrances or delays caused by the delays of other contractors, or from foreseeable circumstances not attributable to the Owner's conduct. The Contractor agrees that it will make no claim against the Owner for payment, compensation, damages, mitigation of Liquidated Damages, or adjustment of any kind for such hindrances or delays, and will accept such extensions of time as may be granted by the Owner in the Owner's sole discretion in full satisfaction for any and all alleged claims against the Owner for any and all such hindrances or delays. For purposes of this Agreement, disputes arising between contractors before or during construction, adverse weather conditions, and delays on the part of local authorities issuing permits shall be considered foreseeable circumstances. Notwithstanding the foregoing, nothing herein shall limit the Contractor's remedies for Owner's negligence, bad faith, active interference, tortious conduct, or other reasons unanticipated by the parties that delay expenditures paid by the Owner to the Engineer, or his designee, other individual or entity, or to any inspector or inspectors necessarily employed by it on the Work, for any number of days in excess of the Contract Time, shall be deducted for the Contract Sum.

§ 8.3.5 The provisions of this Article shall not be so interpreted or construed as to preclude or prevent the Contractor from making and prosecuting any claim against any separate Contractor engaged or employed by the Owner for damages alleged to have been caused or occasioned by any such separate Contractor.

§ 8.3.6 To the extent permitted by law, the Owner may suspend the whole or any part of the Work, if it shall deem it for the best interest of the Owner to do so, without compensation to the Contractor for such suspension, other than extending the time for completion of the Work as much as it may have been delayed by such suspension. During such suspension, all materials delivered upon, but not placed in the Work shall be neatly piled by the Contractor so as not to obstruct public travel, or shall be removed from the line of Work at the direction of the Owner and, unless the

materials be moved by the Contractor upon such direction, the materials shall be removed by the Owner and expense thereof will be charged to the Contractor.

§8.4.1 Should the Contractor fail to complete fully, and in conformity with all provisions of the Contract within the Contract Time, the Contractor shall, and hereby agrees to, pay the Owner one thousand dollars (\$1,000.00) per day, for each consecutive calendar day beyond the number of days allowed by the Contract, which sum is agreed upon as reasonable and proper measure of damages that the Owner will sustain per diem by failure of Contractor to complete Work within time as stipulated; it being recognized by Owner and Contractor that the injury to Owner that could result from a failure of the Contractor to complete on schedule, is uncertain and cannot be computed exactly. In no way shall costs of Liquidated Damages be construed as a penalty to the Contractor.

§8.4.2 It is expressly understood and agreed by and between the Contractor and Owner that the Contract Time prescribed herein is a reasonable time for the completion of the Work.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Engineer, or his designee, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Engineer, or his designee may require. This schedule, unless objected to by the Engineer, or his designee, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 See Article 5 of Standard Form of Agreement between Owner/Contractor.

§ 9.3.1.1 Applications for Payment may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives but not yet included in Change Orders.

§ 9.3.1.2 Such applications may not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.

§ 9.3.1.3 All applications for payment shall be accompanied by the Application and Certificate of Payment, AIA Document G702, and the Continuation Sheet, AIA Document G703, fully completed as required or such other application for Payment as the Owner's representative shall use.

§9.3.1.4 In cases where the work is awarded on a Single Overall Contract basis, payments shall be made in accordance with applicable State of New Jersey statutes.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§9.3.3.1 All municipal mechanic's liens filed by a lien claimant shall be governed by N.J.S.A. 2A:44-125 et seq. In the event a municipal mechanic's lien is filed, the Owner reserves the right to withhold the full amount of the lien. The Owner may release the funds to the party against whose account the lien is claimed, only after that party files with the Owner's financial officer, a bond in an amount double of all sums claimed ("Double Bond") under the lien, and such bond's form has been approved by the Owner's chief law officer and financial officer, per N.J.S.A. 2A:44-130 or if an acceptable release of liens is filed by the lien claimant.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 See Article 5 of Standard Form of Agreement between Owner and Contractor.

§ 9.4.2 See Article 5 of Standard Form of Agreement between Owner and Contractor

§9.4.3 See Article 5 of Standard Form of Agreement between Owner and Contractor.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 See Article 5 of Standard Form of Agreement between Owner and Contractor

§ 9.5.2 See Article 5 if Standard Form of Agreement between Owner and Contractor.

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Engineer, or his designee has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Engineer, or his designee .

§ 9.6.2 The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work and shall certify same to Owner. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Engineer, or his designee will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner and Engineer, or his designee on account of portions of the Work done by such Subcontractor.

§ 9.6.4 Neither the Owner nor Engineer, or his designee shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.

§ 9.6.5 Payment to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.7 FAILURE OF PAYMENT

If the Engineer, or his designee does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Engineer, or his designee or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Engineer, or his designee , stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§9.7 REIMBURSEMENT TO OWNER

§9.7.1 If the Owner is entitled to any reimbursement or payment from the Contractor under, or pursuant to, the Contract Documents, such payment shall be made promptly upon demand by the Owner. Notwithstanding anything contained in the Contract Documents to the contrary, if the Contractor fails to promptly make any payment due the Owner, or the Owner incurs any costs and expenses to cure any default of the Contractor or to correct defective Work, the Owner shall have an absolute right to offset such amount against the Contract Sum and may, in the Owner's sole discretion, elect either to: (1) deduct an amount equal to that which the Owner is entitled from any

payment then, or thereafter, due the Contractor from the Owner; or (2) issue a written notice to the Contractor reducing the Contract Sum by an amount equal to that which the Owner is entitled.

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use; provided, however, that a condition precedent to Substantial Completion shall be the Owner's receipt of all certificates of occupancy (permanent or temporary) and any other permits, approvals, licenses, and other documents from any governmental authority having jurisdiction thereof necessary for the occupancy of the Project. The Owner may withhold a certification of Substantial Completion if temporary installations or temporary construction exists in areas requesting certification, or if certificates of occupancy are temporary or conditional.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Engineer, or his designee shall prepare a comprehensive list of items to be completed or corrected ("Punch List"). The Contractor shall proceed immediately and correct items on the list. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Upon receipt of the list, the Engineer, or his designee, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Engineer, or his designee's inspection discloses any item, whether or not included on the list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Engineer, or his designee. The Contractor shall then submit a request for another inspection by the Engineer, or his designee to determine Substantial Completion. When the Work or designated portion thereof is substantially complete, the Engineer, or his designee will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish responsibilities of the Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the List accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Contractor for its written acceptance and to the Owner for its approval and acceptance as required by Section 9.8.1. No Certificate of Substantial Completion shall be deemed effective unless executed by both Owner and Contractor.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, who shall obtain all necessary modifications to its insurance coverage to permit such occupancy or use. In addition, Contractor shall obtain consent of those public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete pursuant to the terms of that Agreement. When the Contractor considers a portion substantially complete, the Engineer, or his designee shall prepare a Punch List as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Engineer, or his designee shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.9.4 The occupancy of any portion of the Work shall not constitute acceptance of any Work, except as hereinafter stated, nor does it waive the Owner's right to Liquidated Damages. Final Acceptance of the Work shall be for the whole Work only and not part.

§ 9.9.5 Occupancy by the Owner shall not be deemed to constitute a waiver of existing claims on behalf of the Owner or Contractor against each other.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon completion of the Work, the Contractor shall forward to the Engineer, or his designee a written notice that the Work is ready for final inspection and acceptance and shall also forward to the Engineer, or his designee a final Contractor's Application for Payment. The Engineer, or his designee will promptly make such inspection. When the Engineer, or his designee finds the Work acceptable under the Contract Documents and the Contract fully performed, the Engineer, or his designee will promptly issue a final Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Engineer, or his designee's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor complies with all requirements set forth in Section 6 of the Standard Form of Agreement between Owner and Contractor and the Contractor submits to the Engineer, or his designee (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 Intentionally omitted

§ 9.10.4 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor's safety program to the Engineer, or his designee for review and coordination with the safety programs of other Contractors.

§ 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
- .4 Construction or operations by the Owner or other Contractors.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying Owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4, except damage or loss attributable to acts or omissions of the Owner or Engineer, or his designee or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Engineer, or his designee.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 HAZARDOUS MATERIALS

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Engineer, or his designee in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Engineer, or his designee the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance.

§ 10.3.3 Intentionally omitted

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 Intentionally omitted

§ 10.4 EMERGENCIES

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The County of Union requires all bidders to be able to comply with the following insurance requirements. In the event a bid is accepted by the County, the bidder must accept the applicable insurance requirements, as set forth below, as part of any contract, awarded to it by the County.

1. Automobile Liability Insurance in any amount of not less than \$1,000,000.00 combined single limits for Bodily Injury and Property Damage Liability. A certificate of such current insurance will be provided to the County and will reflect the provision of at least thirty (30) days notice to the County before any major cancellation or major change may be made the policy.

2. Workers Compensation Insurance insuring the obligations of the Contractor and all Subcontractors under the New Jersey Workers Compensation and Occupational Disability Laws as respects to Work performed under the Contract. Insurance will be extended to include any obligations under the United States Longshoremen's and Harbor Workers Act or any maritime act, when applicable.

3. General Liability Insurance will be provided on a Comprehensive General Liability form with a combined single limit of \$3,000,000.00 per occurrence for Bodily Injury Liability and Property Damage Liability and will include the interest of the County with respect to Work emanating from the Contract with the County. The insurance will include the following:

- a) Personal Injury Liability
- b) Blanket Contractual Liability applies to assumption of liability under any written Contract
- c) Coverage for A, X, C, U exposures, relating to excavation, blasting underground damage
- d) Broad Form Property Damage Liability
- e) Products and/or Completed Operations Liability

A Certificate of Insurance will be filed with the County prior to commencement of any Work. This certificate will contain a provision that insurance afforded under the policies will not be canceled without at least (30) days prior written notice being given to the County.

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§ 11.1.2 The insurance required by Section 11.1.1 shall remain in effect for the duration of the project, i.e., from beginning of construction until final payment and closeout.

§ 11.1.3 All insurance required by Section 11.1.1 shall be issued by insurance companies authorized to do business in the State of New Jersey and rated as "A" or better as determined by A.M. Best Company.

§ 11.1.4 The Contractor waives all rights against the Owner for damages caused by fire or other perils to the extent covered by insurance provided under this Article. Any deductibles, co-insurance, or contribution to the loss will be borne solely by the Contractor.

§ 11.1.5 A certificate of insurance evidencing the coverages required by Section 11.1.1 shall be submitted to the Owner's attorney for approval and transmittal to the Owner and Engineer, or his designee prior to the commencement of the Work. The certificate must be submitted on the ACORD form Certificate of Insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least thirty (30) days written notice has been given to the Owner. If requested by the Owner, the Contractor shall provide complete copies of any policies of insurance required by this Contract to be obtained by the Contractor and Subcontractor(s). Information concerning any reduction of coverage shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

§ 11.2 PROPERTY INSURANCE

§ 11.2.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance in the amount of the initial Contract Sum as well as subsequent modifications thereto for the entire Work at the site on a replacement cost

basis without voluntary deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurance interest in the property required by this Section 11.2 to be covered, whichever is earlier. This insurance shall include the interest of the Owner, Contractor, Subcontractor(s), and Sub-Contractor(s) in the Work.

§ 11.2.1.1 Property insurance shall be on an "all-risk" policy form and shall be against the perils of fire and extended coverage and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, falsework, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Engineer, or his designee's services and expenses required as a result of such insured loss. Coverage for all other perils shall not be required unless otherwise provided in the Contract Documents.

§ 11.2.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance which will protect the interests of the Contractor, Subcontractor(s) and Sub-subcontractor(s) in the Work. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.2.1.3 If the property insurance requires minimum deductibles, and such deductibles are identified in the Contract Documents, the Contractor shall pay costs not covered because of such deductibles. If the Owner or insurer increases the required minimum deductibles over the amounts so identified or if the Owner elects to purchase this insurance with voluntary deductible amounts, the Owner shall be responsible for payment of the additional costs not covered because of such increased or voluntary deductibles.

§ 11.2.1.4 Unless otherwise provided in the Contract documents, this property insurance shall cover portions of the Work stored off the site after written approval of the Owner at the value established in the approval, and also portions of the Work in transit.

§ 11.2.1.5 A loss insured under Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgage clause and of Section 11.3.10. The Contractor shall pay Subcontractor(s) their just shares of insurance proceeds received the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractor(s) to make payments to their Sub-Contractor(s) in a similar manner.

§ 11.2.2 BOILER AND MACHINERY INSURANCE

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds. The Owner as fiduciary shall have the power to adjust and settle a loss with insurers.

§ 11.2.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused.

§ 11.2.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3 PERFORMANCE BOND, PAYMENT BOND AND MAINTENANCE BOND

§ 11.3.1 Contractor, at its sole expense, shall furnish bonds covering faithful performance of the contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract, including material and labor..

§ 11.3.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be made

§ 11.3.3 The Contractor shall file with the Owner, as a condition of final acceptance, a statement from the Surety of its Performance Bond and Payment Bond, that the Surety is satisfied that all claims for labor and material supplied under its contract have been satisfactorily settled.

§ 11.3.4 As a condition of Substantial Completion of the Work, the Contractor shall provide an acceptable Maintenance Bond in accordance with section 16, page G-9 of the Instructions to Bidders.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work uncovered is contrary to the Engineer, or his designee's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Engineer, or his designee, be uncovered for the Engineer, or his designee's examination and be replaced at the Contractor's expense without change in the Contract Time or Contract Sum.

§ 12.1.2 If a portion of the Work has been covered that the Engineer, or his designee has not specifically requested to examine prior to its being covered, the Engineer, or his designee may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate Contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

The Contractor shall promptly correct Work rejected by the Engineer, or his designee or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Engineer, or his designee's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. The Contractor shall give such notice promptly after discovery of the non-conforming work. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after the receipt of notice from the Owner or Engineer, or his designee, the Owner may correct it in accordance with Section 2.4. This obligation under Section 12.2.2 shall survive acceptance of the Work under the Contract and termination of the Contract.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 Intentionally omitted.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged work, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work, nor to any deficient Work discovered after the one-year period that could not have readily been discovered.

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work, that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made. However, there shall be no implied or expressed acceptance of Work not in compliance with applicable law. The amount of said reduction will be within the exclusive determination of the Owner as its representative.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

§ 13.1.1 The Contract shall be governed by the laws of the State of New Jersey.

§ 13.1.2 Nothing in the Contract Documents shall be construed to permit deviation from the governing law.

§ 13.1.3 In accordance with N.J.S.A. 40A:11-18, American manufactured products or materials shall be used in the Work, wherever possible.

13.1.4 RATE OF WAGES

Where the Project is not subject to a Project Labor Agreement, wage notes shall be paid pursuant to the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 et seq, the Contractor and Subcontractor are required to do the following:

§ 13.1.4.1 Pay to all workmen engaged in the performance of services, directly upon a public work, the prevailing rate of wages, which shall be those in effect for the Project site(s) on the Contract Date and such rates shall remain in effect for (2) years, unless superseded by a subsequent determination.

§ 13.1.4.2 Before final payment, furnish Owner with an affidavit stating that all workmen have been paid the prevailing rate of wages specified in the contract.

§ 13.1.4.3 Keep an accurate record showing the name, craft, or trade and actual hourly rate of wages paid to each workman employed by it in connection with any public work. Records shall be preserved for two (2) years from date of payment.

§ 13.1.4.4 Post the prevailing wage rated for each craft and classification involved as determined by the Commissioner of Labor and Industry, including the effective date of any changes thereof in prominent and easily accessible places at the site of the Work, and at such place or places as are used by them to pay workmen their wages.

§ 13.1.4.5 Submit the Owner, certified payroll records for each payroll period within ten (10) days of the payment of wages. A certified payroll record is defined as "a payroll record that is attested by the employer or the Owner of the company doing business as the employer, or a corporate officer of such company, or an authorized agent of the employer". A copy of the certified payroll form for submission of the payroll records may be obtained by contacting the Department of Labor, Division of Workplace Standards at 609.292.2259.

§ 13.1.4.6 In the event the Owner finds that any workers employed by the Contractor or Subcontractor, covered by the said contract, have been paid a rate of wages less than the prevailing wage required to be paid by such contract, the Owner may terminate the Contractor's or Subcontractor's right to proceed with the Work, or such part of the

Work as to where there has been a failure to pay required wages, and to prosecute the Work to completion or otherwise, the Contractor and its sureties shall be liable to the Owner for any excess costs occasioned thereby,

§ 13.1.4.7 a current wage rate determination is on file at the offices of the Owner for inspection and Contractor's use.

§ 13.1.5 SAFETY AND HEALTH REGULATIONS (OSHA)

§ 13.1.5.1 The Contractor shall comply with the laws, rules, regulations and codes dealing with occupational safety and health, including, but not limited to, the latest amendments of the following:

§ 13.1.5.2 Williams – Steiger Occupational Safety and Health Act of 1970, Public Law 91-595.

§ 13.1.5.3 Part 1910 – Occupational Safety and Health Standards Chapter XVII of Title 29, Code of Federal Regulations.

§ 13.1.5.4 Part 126 – Safety and Health Regulations for Construction, Chapter XVII of Title 29, Code of Federal Regulations.

§ 13.1.5.3 N.J.A.C. 8:59-5.1-5.109 requirements properly label any substances stored in containers) of the Worker and Community Right to Know Act, P.L. 1983, c.315.

§ 13.1.6 ENVIRONMENTAL REGULATIONS

§ 13.1.6.1 The Contractor shall comply with laws, rules, regulations, and codes dealing with the prevention of environmental pollution and the preservation of public natural resources, including but not limited to, the latest amendments of the following:

§ 13.1.6.2 Chapter 251, public Law of 1975 of the State of New Jersey, "soil Erosion and Sediment Control Act."

§ 13.1.7 AFFIRMATION ACTIONE EMPLOYMENT LAW

Contractor agrees to comply with the terms of the Mandatory Equal Employment Opportunity Language, a copy of which is annexed to the Contract Documents as Exhibit F and incorporated as if set forth herein.

§ 13.1.7.1 Contractor shall submit a copy of the Monthly Project Workforce Report, New Jersey Department of Treasury Form AA-202, to the New Jersey Department of Treasury's Division of Public Contracts Equal Employment Opportunity Compliance and to the Owner

§ 13.1.7.2 Contractor shall complete and submit to the Owner an Initial Project Workforce Report, New Jersey Department of Treasury Form AA 201, upon notification of award and no later than the execution of this Agreement. Failure to submit this completed form may result in this Agreement being terminated.

§ 13.2. SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents, neither party to the Contract shall assign the Contract as a whole without written consent of the other, unless as may be provided for elsewhere in the Contract Documents. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Engineer, or his designee or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Engineer, or his designee timely notice of when and where tests and inspections are to be made so that the Engineer, or his designee may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Engineer, or his designee, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Engineer, or his designee will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Engineer, or his designee of when and where tests and inspections are to be made so that the Engineer, or his designee may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Engineer, or his designee's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Engineer, or his designee.

§ 13.5.5 If the Engineer, or his designee is to observe tests, inspections or approvals required by the Contract Documents, the Engineer, or his designee will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 INTEREST

Except as required by Section 5.1.3 of the Owner Contractor Agreement and notwithstanding anything to the contrary contained in the Contract Documents and related documents, the Owner will pay no interest whatsoever for any payments due.

§ 13.7 TIME LIMITS ON CLAIMS

Intentionally deleted.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;

§ 14.1.2 Intentionally deleted

§ 14.1.3 If one of the reasons described in Section 14.1.1 exists, the Contractor may, upon thirty (30) days' written notice to the Owner and Engineer, or his designee, terminate the Contract

§ 14.1.4 Intentionally deleted.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor after Notice and an opportunity to cure.

- .1 refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 disregards laws, ordinances, rules or regulations, or orders of a public authority having jurisdiction;
- .4 fails to furnish the Owner with assurances satisfactory to the Owner, evidencing the Contractor's ability to complete the Work in compliance with all requirements of the Contract Documents;
- .5 fails after commencement of the Work, to proceed continuously with the construction and completion of the Work, for more than three (3) days, except as permitted by the Contract Documents;
- .6 disregards orders of the Owner or Engineer, or his designee;
- .7 fails to maintain the Site in a clean, safe and orderly manner;
- .8 fails to comply with a Construction Change Directive; or
- .9 otherwise is guilty of any breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. And charge the costs incurred against the Contractor's Contract balance

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished. The Engineer, or his designee's certification issued pursuant to Section 14.2.2 shall be given a presumption of correctness.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Engineer, or his designee's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Engineer, or his designee, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 Intentionally deleted.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;

- 2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- 3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking adjustment or interpretation of Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract. Any Contractor Claim seeking the payment of money shall not include consequential damages, which Contractor hereby waives, and shall be calculated in accordance with Section 7.3.6 and Section 7.3.10 hereof.

§ 15.1.2 DECISION OF ENGINEER, OR HIS DESIGNEE

Owner and Contractor agree that the Engineer, or his designee shall be the initial arbiter of all Claims, including those alleging error or omission by the Engineer, or his designee. All claims, shall be referred, initially to the Engineer, or his designee for action as provided in Article 4 and shall be required as a condition precedent to litigation of a Claim between the Contractor and Owner to all such matters arising prior to the date final payment is due, regardless of: (1) whether such matters relate to execution and progress of the Work; or (2) the extent to which the work has been completed. The decision by the Engineer, or his designee in response to a Claim shall not be a condition precedent to litigation in the event: (1) the position of the Engineer, or his designee is vacant; (2) the Engineer, or his designee has not received evidence or has failed to render a decision within agreed time limits; (3) the Engineer, or his designee has failed to take action required under Article 4 within thirty (30) days after the Claim is made; (4) forty-five (45) days have passed after the Claim has been referred to the Engineer, or his designee; or, (5) the claim relates to a mechanic's lien.

§ 15.1.3 TIME LIMITS ON CLAIMS

Claims must be within twenty one (21) calendar days after the occurrence of the event giving rise to the Claim or within twenty-one (21) calendar days after the claimant first becomes aware of the condition giving rise to the Claim, whichever is later. There shall be no time limitation upon any Claims made by the Owner. Claims must be made by written notice to the Engineer, or his designee. An additional Claim made after the initial Claim has been implemented by Change Order will not be considered unless submitted pursuant to the requirements of this Paragraph. Notice shall be deemed effective upon the Engineer, or his designee's receipt of the Notice.

§ 15.1.4 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, unless otherwise agreed in writing, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments to the extent required by the Contract Documents.

§ 15.1.5 CLAIMS FOR CONCEALED OR UNKNOWN CONDITIONS

If conditions are encountered at the Site which are: (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents; or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for the Contract Documents, the Owner and Contractor mutually agree to give written notice to each other; including the Engineer, or his designee and any affected Contractor or subcontractor, upon the observation of the condition within twenty-four (24) hours of first observation of the condition. The Engineer, or his designee will investigate such conditions within seventy-two (72) hours and will diligently process and render a recommendation within twenty-one (21) days unless otherwise agreed in writing. If the Engineer, or his designee determines that the condition at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified the Engineer, or his designee shall so notify the Owner and Contractor in writing, stating the reasons. Claims by either party in

opposition to such determination must be made within seven (7) days after the Engineer, or his designee has given notice of the decision.

§ 15.1.6 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum written notice as provided herein shall be given before proceeding to execute the Work. All documentation in support of the Contractor's request shall, likewise be provided at the time said written request is made. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.3 or elsewhere in the Contract Documents.

§ 15.2 CLAIMS FOR ADDITIONAL TIME

§ 15.2.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work, , all documentation in support of the Contractor's request shall, likewise be provided at the time said written request is made. In the case of a continuing delay, only one Claim is necessary.

§ 15.2.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction. The term "abnormal" as used here shall be construed according to the following formula: average rainfall (or snow, low temperature, etc) for the past five (5) years for the month in question, plus ten percent (10%). Accordingly, weather is not deemed to be abnormal unless it is ten percent (10%) worse than the average for the month over the past five (5) years. Claims relating to weather must be submitted within seven (7) calendar days of the occurrence of any such delays.

§ 15.3 CLAIMS FOR INJURY OR DAMAGE TO PERSON OR PROPERTY. If either Party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of the other party's employees or agents, or of others for whose acts such party is legally liable, written notice of such injury or damage, whether or not insured, shall be given to the other party, including the Engineer, or his designee , within a reasonable time not exceeding twenty-one (21) days after first occurrence, unless another time period is required by law. The notice shall provide sufficient detail to enable the other party to investigate the matter. If a Claim for additional cost or time related to this Claim is to be asserted, it shall be filed as provided for in Article 15.

§ 15.3.2 The Owner is not required to institute a claim under this section in order to terminate this Agreement.

§ 15.4 RESOLUTION OF CLAIMS AND DISPUTES

The Engineer, or his designee will review Claims and take one or more of the following preliminary actions with ten (10) days of receipt of a Claim: (1) request additional supporting data from the claimant; (2) reject the Claim in who or in part, stating reasons for rejection ; (3) recommend approval of the Claim by other party; or (4) suggest a compromise.

§ 15.4.2 If a Claim has been resolved, the Engineer, or his designee will prepare or obtain appropriate documentation in consultation with Owner's counsel as circumstances dictate.

§ 15.4.3 If a Claim has not been resolved after consideration of the foregoing and of further evidence presented by the parties or requested by the Engineer, or his designee , the Engineer, or his designee will notify the parties in writing that the Engineer, or his designee 's decision will be made within seven (7) days, which decision shall be final. Upon expiration of such time period, the Engineer, or his designee will render to the parties the Engineer, or his designee 's written decision relative to the Claim, including any change in the Contract Sum or Contract Time or both.

§ 15.5. CLAIMS FORUM

Unless otherwise required by Section 5.1.3 of the Standard Form of Agreement between the Owner and Contractor, claims, disputes, or other matters in question between the parties to this Contract arising out of or relating to the Project or to this Contract, or the alleges breach thereof, shall be subject in the first instance to mediation and failing that, there in, a Court of competent jurisdiction venued in Union County, New Jersey. The Owner may not be compelled to submit any dispute concerning the Project to arbitration. By accepting award of the Contract and executing the Agreement, the Contractor consents to its joinder as a party in any litigation, mediation, arbitration or any other legal proceeding involving the Project and any references in the Contract documents.

§ 16.1 INTERPRETATIONS IN WRITING

§ 16.1.1 Neither the price bid for the work of any Contract, nor the Contract Sum, shall be based in any manner upon oral opinions, or real or alleged instructions of an oral nature, regardless if whether such opinions or instructions are expressed by the Owner, the Engineer, or his designee or its Consultants, the Contractor, or agents or representative of any of them and no such oral communication shall form the basis of a Claim.

§ 16.1.2 These provisions do not intend to deny, on an oral basis, normal discussion, recommendations, explanations, suggestions, approvals, rejections, and similar activity in pursuit of the work of the Project, such as at job conferences and otherwise at the Site. In such instances, the written minutes, correspondence, shop drawing records, written field orders, and other written data shall govern over personal claims regarding statements made contrary to the written data.

§ 17.1 JOB SITE MEETINGS

§ 17.1.1 Job site meetings, when called by the Engineer, or his designee, shall be held at a location and time convenient to the Owner's representatives, the Engineer, or his designee, and Contractor(s). Each Contractor shall attend such meeting, or be represented by a person in authority who is thoroughly familiar with the Project and who can speak and make decisions for the Contractor. In the instance of a Single Overall Contract, each of the major Subcontractors-Structural Steel, and ornamental iron work, plumbing, gas fitting and all kindered work and steam power plants, steam, and hot water heating and ventilating apparatus and Electrical-shall have a person in authority who is thoroughly familiar with the Project attend the meetings.

§ 18.1 MANDATORY LAW AGAINST DISCRIMINATION LANGUAGE
PROCUREMENT, PROFESSIONAL AND SERVICE CONTRACTS
(N.J.A.C. 13:6-1.3)

§ 18.1.1 The parties of this contract do hereby agree that the provision of N.J.S.A. 10:2-1 through N.J.S.A. 10:2-4 dealing with discrimination in employment on public contracts, and the rules and regulations promulgated pursuant thereto, are hereby made a part of this contract and are binding upon them.

§ 18.1.1 Pursuant to the provision of N.J.S.A. 10:2-1 through N.J.S.A. 10:2-4, during the performance of this contract, the Contractor agrees as follows:

§ 18.2.1.1 In the hiring of persons for the performance of work under this contract or any subcontract hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no Contractor, including without limitation, the Contractor, nor any person acting on behalf of such Contractor or subcontractor, shall by reason of race, creed, color national origin, ancestry, Marital status, gender identity or expression, affectional or sexual orientation, or sex, discriminate against any person who is qualified and available to perform the Work, to which the employment relates;

§ 18.2.1.2 No Contractor, including, without limitation, the Contractor, Subcontractor, nor any person acting on its behalf shall, in any manner, discriminate against or intimidate any employee engaged in the performance of work under this Contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such Contract, on account of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation, or sex;

§ 18.2.1.3 There may be deducted from the amount payable to the Contractor by the Owner, under the Contract, a penalty of \$50.00 (fifty dollars) for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the Contract; and

§ 18.2.1.4 This contract may be canceled or terminated by the Owner, and all the money due or to become due hereunder may be forfeited, for any violation of this section of the Contract occurring after notice to the Contractor from the contracting public agency or any prior violation of this section of the Contract.

§ 19.1 CONTRACTOR AND SUBCONTRACTOR COLLECTION OF USE TAX TO LOCAL GOVERNMENTS

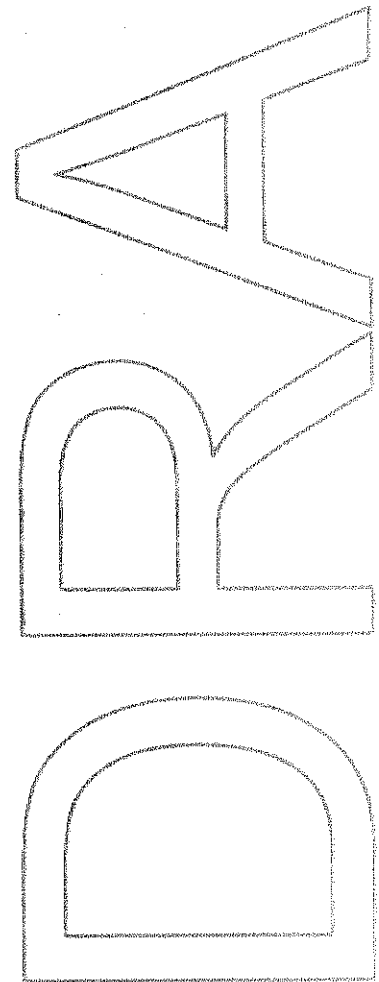
§ 19.1.1 The Contractor acknowledges and agrees that pursuant to P.L. 2004, c. 57, enacted by the State of New Jersey on June 29, 2004, contractors or contractors with subcontractors, or their affiliates, who enter into contracts

with New Jersey local government entities, including without limitation, boards of education, are, effective as of September 1, 2004, required to collect and remit to the New Jersey Director of Taxation in the Department of the Treasury the use tax pursuant to the "sales and Use Tax Act," P.L. 1966, c. 30 (C.54:32B-1 et. seq.) on all their sales of tangible personal property delivered into the State of New Jersey (hereinafter referred to as the "Contractor Use Tax Collection Legislation").

§ 19.2.1 The Contractor hereby covenants and agrees that the Contractor, any subcontractor and each of their affiliates, shall collect and remit to the New Jersey Director of the Division of Taxation in the Department of Treasury, the use tax due pursuant to the "Sales and Use Tax Act," P.L. 1966, c. 30 (C.54:32B-1 et. seq.) on all their sales of tangible personal property delivered into the State of New Jersey. For purposes herein, "affiliate" shall mean any entity that : (a) directly, indirectly or constructively controls another entity; (b) is directly, indirectly, or constructively controlled by another entity; or (c) is subject to the control of a common entity. For purposes of the immediately preceding sentence, an entity controls another entity if it owns, directly or indirectly, more than fifty percent (50%) of the Ownership interest in that entity.

§ 19.3.1 The parties intend that this Article 19 shall comply with the rules and regulations promulgated pursuant to the Contractor Use Tax Collection Legislation and shall be interpreted consistent therewith.

§ 19.4 Notwithstanding anything contained in the Agreement to the contrary, the Contractor hereby agrees to indemnify and hold the Owner harmless from and against any and all fines, taxes, penalties, interest, claims, losses. Costs, expenses, liabilities, or damages arising out of or in connection with the Contractor's failure to comply with the terms and condition of Sections 19.1 and 19.2 to the fullest extent permitted by law and public policy.



STANDARD SPECIFICATIONS

The Standard Specifications for Road and Bridge Construction of New Jersey Department of Transportation, 2007 Edition; is added to and/or amended elsewhere herein by the Notice to Contractors (Advertisement), Proposal, Information for Bidders, General Conditions, Special Provisions, Project Plans, and Supplementary Specifications; shall, insofar as technical requirements are involved, govern in the execution of this project.

Such Standard Specifications are made a part of these Specifications by this reference and will not be repeated herein. It is the responsibility of prospective bidders to familiarize themselves with these Standard Specifications, copies of which may be examined at the office of the Engineer and may be obtained, upon payment of the cost thereof, from:

Department of Transportation
State of New Jersey
1035 Parkway Avenue
Trenton, New Jersey 08625

The Notice to Bidders (Advertisement), Proposal, General Conditions, Instructions to Bidders, Special Provisions, Project Plans and/or Technical Specifications shall govern and prevail in the case of conflict between them and the Standard Specifications.

In these Standard Specifications the words "COMMISSIONER" or "DEPARTMENT" shall refer to and mean the person, persons, body, board or agent legally empowered to enter into contracts and otherwise legally act for the Owner. The words "RESIDENT ENGINEER (RE)", "ENGINEER" or "STATE" shall refer to and mean the professional engineering representative of the Owner as hereinbefore defined and the word "INSPECTOR" shall mean the authorized project representative of the Engineer with the authority as hereinbefore defined. The word "LABORATORY" shall mean and refer to the Engineer who may, at his discretion, and with the consent of the Owner, employ qualified technical personnel or testing laboratories to assist him in fulfilling the duties normally assigned to the "LABORATORY" in these Standard Specifications.

When reference is made herein to the bulletins, standards, specifications, publications or requirements of the Manual on Uniform Traffic Control Devices (MUTCD), Institute of Traffic Engineers (ITE), Federal Highway Administration (FHWA), American Association of State Highway Officials (AASHTO), the American Concrete Institute (ACI), the American Society of Civil Engineers (ASCE) or similar national or regional societies, associations, institutes or organizations; the requirements of the bulletins, specifications, publications or requirements referred to shall be considered a part of these Specifications by such reference and shall not be repeated herein but shall have the same import and be as binding as if herein set forth in full.

SPECIAL PROVISIONS

FOR THE

MEISEL PARK POND IMPROVEMENT PROJECT BA# 37 – 2016; UNION COUNTY ENGINEERING PROJECT # 2011-014B IN THE TOWNSHIP OF SPRINGFIELD

COUNTY OF UNION

AUTHORIZATION OF CONTRACT

The contract for this project is authorized by the provisions of local public contracts law, NJSA 40A: 11-1 et seq.

SPECIFICATIONS TO BE USED

The 2007 Standard Specifications for Road and Bridge Construction, of the New Jersey Department of Transportation and as amended herein, shall govern the construction of this project.

These Special Provisions consist of the following:

1. Pages 1 to 21 for General Provisions, Contract Requirements, Earthwork, Miscellaneous Construction, Electrical and Landscaping.
2. New Jersey Department of Environmental Protection Permit. (attached as Appendix A)
3. Soil Conservation District Permit.

WAGE RATES

The Contractor shall pay the minimum wage rates determined by the New Jersey Department of Labor.

State wage rates may be obtained from the New Jersey Department of Labor (Telephone: 609-292-2259) or by accessing the Department of Labor's web site at http://lwd.dol.state.nj.us/labor/wagehour/wagehour_index.html. The State wage rates in effect at the time of award will be made a part of this Contract, pursuant to Chapter 150, Laws of 1963 (NJSA 34:11-56.25, *et seq.*).

In the event it is found that any employee of the Contractor or any subcontractor covered by the contract, has been paid a rate of wages less than the minimum wage required to be paid by the contract, the contracting agency may terminate the Contractor's or subcontractor's right to proceed with the work, or such part of the work, as to which there has been a failure to pay required wages and to prosecute the work to completion or otherwise. The Contractor and his sureties shall be liable to the contracting agency for any excess costs occasioned thereby.

GENERAL

All awards shall be made subject to the approval of the New Jersey Department of Transportation. No construction shall start before approval of said award by the New Jersey Department of Transportation. Prior to the start of construction the Contractor must submit a Material Questionnaire (SA-11) listing all sources of materials. Any materials used on the project from a non-approved New Jersey Department of Transportation source will be considered non-participating. The Contractor is also notified that the District Office, Division of Local Aid and Economic Development must be notified of the construction commencement date at least three (3) calendar days prior to the start of construction.

Award of contract and subletting will not be permitted to, materials will not be permitted from, and use of equipment will not be permitted that is owned and/or operated by, firms and individuals included in the report of suspensions, debarments and disqualifications of firms and individuals as maintained by the Department of the Treasury, General Services Administration, CN-039, Trenton NJ 08625 (609-292-5400).

Payment for a pay item in the proposal includes all the compensation that will be made for the work of that item as described in the contract documents unless the "measurement and payment" clause provides that certain work essential to that item will be paid for under another pay item.

Whenever any section, subsection, subpart or subheading is amended by such terms as changed to, deleted or added it is construed to mean that it amends that section, subsection, subpart or subheading of the 2007 Standard Specifications unless otherwise noted.

Whenever reference to page number is made, it is construed to refer to the 2007 Standard Specifications unless otherwise noted.

Henceforth in this supplementary specification whenever reference to the State, Department, ME, RE or Inspector is made, it is construed to mean the particular municipality or county executing this contract.

Whenever reference to Title 27 is made, it is construed to mean Title 40.

DIVISION 100 – GENERAL PROVISIONS

Section 104 – Scope of Work

THE ENTIRE SUBSECTION IS CHANGED TO:

104.01 – INTENT

The intent of the Contract is for the Contractor to construct the Work to be functionally complete and aesthetically acceptable. Perform work that may be reasonably inferred from the Contract as being required to produce the intended result under the Items of the Contract. Perform the Work using the best construction practices and provide materials and workmanship of the first quality to meet Contract requirements.

Perform the Work to ensure the least possible obstruction to traffic, pedestrians and access to Meisel Park, while adhering to the highest safety standards, and with the least inconvenience to local residents and the general public. The Park is to remain open to the public during all construction activities for this project. The Contractor shall conduct his activities mindful of the fact that the public has access throughout the Park and that the safety of the public is of utmost importance. The Contractor shall as a priority, protect the public at all times and shall conduct its operations to minimize impacts to the public. The Contractor shall respond immediately to the RE's request to change or to modify any of the Contractor's operations that may affect the public. The contractor may request that certain locations be temporarily restricted from public access, beyond that as shown on the construction drawings. In these cases, the contractor shall notify the RE 10 days prior to the requested public restricted access. Restricted public access may or may not be granted.

The intent and meaning of the Contract Documents require that the Contractor, under the terms of the Contract, take such action as necessary and/or required to provide labor and materials required for the dredging and bank stabilization of Meisel Pond, including disposal of the dredge spoil and all other work as indicated on the contract documents. Meisel Pond is located in Meisel Park, in the Township of Springfield, Union County, New Jersey.

The various items of work include, but are not limited to:

1. Utility check
2. Construction layout
3. Construction working drawings and product data submittals
4. Performing a Survey – Existing Conditions Bathymetric Survey of the lake
5. Obtaining a Water Lowering Permit from NJDEP
6. Coordinating with the RE for the lowering of the lake
7. Site preparation, staging, and protection of existing structures
8. Installing soil erosion and sediment control measures
9. Providing and operating necessary equipment
10. Clearing vegetation
11. Removing sediment material from the lake
12. Performing the necessary grading for Bank Stabilization
13. Installing biologs, plants and amenities
14. Performing an As-Built Survey – Post Construction Bathymetric Survey of the lake
15. Restoration to existing conditions and Final Cleanup

The Contractor shall become familiar with and perform all work in accordance with the requirements and conditions of all permits and/or approvals. If additional permits and/or approvals become necessary to do the work, the Contractor shall be responsible for obtaining all such permits and/or approvals. The following permits and/or approvals have been or are currently being obtained for this project by the County of Union:

1. Flood Hazard Area Individual Permit No. 2017-05-0001.1 FHA 160001 from the New Jersey Department of Environmental Protection (NJDEP) Land Use Regulation Program.
2. Freshwater Wetlands General Permit No. 1 (Permit No. 2017-05-0001.1 FWW 160001) from the New Jersey Department of Environmental Protection (NJDEP) Land Use Regulation Program.
3. Freshwater Wetlands General Permit No. 13 (Permit No. 2017-05-0001.1 FWW 160002) from the New

- Jersey Department of Environmental Protection (NJDEP) Land Use Regulation Program.
4. Freshwater Wetlands General Permit No. 20 (Permit No. 2017-05-0001.1 FWW 160003) from the New Jersey Department of Environmental Protection (NJDEP) Land Use Regulation Program.
 5. Soil Erosion and Sediment Control Plan approval and coverage under the New Jersey General Permit for Stormwater Discharge Associated with Construction Activity (NJPDES General Permit) from the Somerset-Union Soil Conservation District.

Permits and approvals obtained to date are attached.

The construction drawings are dated July 29, 2016 and titled, "Dredging of Meisel Pond" with sheets numbered and titled as follows:

Sheet Number	Description
1	Cover Sheet
2	Existing Conditions
3	Grading, Drainage and Utility Plan
4	Landscape Plan
5	Landscape Details
6	Soil Erosion and Sediment Control Plan
7	Soil Erosion and Sediment Control Details
8	Cross Sections
9	Construction Details

DIVISION 150 – CONTRACT REQUIREMENTS

Section 154 – Mobilization

154.03.01 – Mobilization

THE FOLLOWING PARAGRAPHS ARE ADDED TO THIS SUBSECTION:

The Staging Plan that is part of the construction drawings is for informational purposes only. The Staging Plan included with the construction drawings show recommended areas for staging and access. The Contractor shall prepare a separate Construction Staging Plan and submit it to the RE and Owner for approval. The Construction Staging Plan shall show all locations of access to the site and areas for storage of materials and vehicles.

The Contractor is responsible for securing all equipment and materials. The Contractor may use chain link fence, gates, caution fence, etc., as required for security and staging. Staging and access areas are prohibited in environmentally sensitive areas (wetlands, wetland buffers, riparian zones, etc.) except as shown on the construction drawings.

The Contractor shall be aware and comply with all requirements in the approvals for this project. These approvals include, but are not limited to, NJDEP approval and Somerset – Union Soil Conservation District approval.

The Contractor shall not use the existing parking lot for any staging, storage or parking.

Section 157 – Construction Layouts and Monuments

THE FOLLOWING SUBSECTIONS ARE ADDED TO THIS SECTION:

157.03.04 Survey - Existing Conditions Bathymetric Survey

Before the lake is dredged, the Contractor shall have a pre-dredge survey of the bottom of the lake performed by a New Jersey Licensed Professional Land Surveyor, which will represent the actual pre-dredge condition of the bottom of the lake. The bottom of the lake is construed to mean the top of the material on the bottom of the lake. The survey shall include the area covered by the normal water level of the lake and extend 25 feet beyond the top of bank. Survey points of the top of the lake bottom shall be measured on a grid with a maximum spacing of 50 feet each direction. Measurements shall be expressed as feet above sea level with respect to the benchmark shown on the construction drawings. The Contractor shall use the survey data to provide spot elevations to one-tenth of a foot degree of accuracy and 1 foot contours of the bottom of the lake bed prior to dredging. The Contractor shall provide the RE with six (6) signed and sealed prints and two (2) AutoCad “dwg” electronic files of the survey prior to dredging.

The Contractor shall compare this survey to the contours and grades shown on the construction drawings. The Contractor will then confirm in writing and through calculations, that the elevations and grades shown on the construction drawings can be achieved by the dredging process and subsequent removal of a maximum of 4,700 cy of material. Payment will be made after approval of the submittal by the RE.

157.03.05 As-Built Survey – Post Construction Bathymetric Survey

Within 15 days after the completion of the dredging, the Contractor shall have a post-dredge survey of the bottom of the lake performed, which will represent the actual post-dredge condition of the bottom of the lake. The survey shall include the area covered by the normal water level of the lake and extend 25 feet beyond (landward) the top of bank, and must be performed by a New Jersey Licensed Professional Land Surveyor. Lake bottom elevations shall be measured on the same grid used for the pre-dredge survey. Measurements shall be expressed as feet above sea level with respect to the benchmark shown on the construction drawings, with elevation contours at 1 foot intervals and spot elevations to one-tenth of a foot degree of accuracy in the same grid spacing and locations as the pre-dredge survey. The Contractor shall use the survey data to create a digital representation of the lake bottom surface. The Contractor shall use this digital surface and the pre-dredge survey digital surface to calculate the volume of dredge spoils that were removed from the lake. The Contractor shall provide the RE with a copy of the survey data, digital surfaces and calculations for approval, prior to submission for final payment.

The Contractor shall also have the data obtained in the post-dredge survey incorporated in an "as built" plan showing the final lake bottom, adjacent shoreline, and the areas which were left undisturbed, with elevation contours at 1 foot intervals and spot elevations to one-tenth of a foot degree of accuracy in the same grid spacing and locations as the pre-dredge survey. This "as built" plan shall be prepared and signed by a New Jersey Professional Licensed Surveyor. The preparation of the "as built" plan, six (6) signed and sealed prints and two (2) AutoCad "dwg" electronic files of which shall be turned over to the RE when completed, shall be a prerequisite for acceptance and final payment as specified. Final payment shall not be made to the Contractor until such time as the "as built" plans have been approved by the RE. The Contractor shall update and revise the as-built survey to accurately reflect the work performed under the Item BANK STABILIZATION (CLEARING AND GRADING).

157.04 – MEASUREMENT AND PAYMENT

THE ENTIRE SUBSECTION IS CHANGED TO:

The Owner will measure and make payments for items as follows:

<i>Item</i>	<i>Pay Unit</i>
SURVEY – EXISTING CONDITIONS BATHYMETRIC SURVEY	LUMP SUM
AS-BUILT SURVEY – POST CONSTRUCTION BATHYMETRIC SURVEY	LUMP SUM

**Section 158 – Soil Erosion and Sediment Control And
Water Quality Control**

158.03.01 – Environmental Manager

THE FIRST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

The Contractor shall assign an Environmental Manager, who is a supervisory-level employee at his firm and is experienced in all aspects of soil erosion and sediment control, water quality control, and work site waste control.

THE SECOND SENTENCE OF THE THIRD PARAGRAPH IS CHANGED TO:

The Contractor’s assigned Environmental Manager shall inspect the SESC and site waste control measures at least once weekly.

THE FOLLOWING IS ADDED TO THE END OF THIS SUBSECTION:

The Environmental Manager is also required to coordinate all SESC activities with the Soil Conservation District. The Contractor shall be responsible for complying with all requests and requirements of the Soil Conservation District Inspectors at no additional cost to the Owner. This includes, but is not limited to, adding additional silt fence to areas not shown on the construction drawings, removal and replacement of damaged silt fence, etc.

158.03.02 – SESC Measures

THE FOLLOWING PARAGRAPHS ARE ADDED TO THIS SUBSECTION:

The Contractor shall prepare the area where erosion and sediment control devices are to be installed in accordance with the construction drawings. The Contractor shall install erosion and sediment control devices as specified on the construction drawings. All materials shall be installed in accordance with manufacturer’s recommendations and the Standards for Soil Erosion and Sediment Control in New Jersey. The Contractor shall be responsible for the maintenance of all erosion and sediment control devices as shown on the construction drawings for the duration of the project.

No dredged material shall be deposited, staged or stored in a riparian zone, freshwater wetlands, transition areas, State open waters or other environmentally sensitive areas, other than what is shown on the construction drawings. Temporary storage of sediment to be used in bank stabilization is permitted within the Lake limits. The storing or staging of construction equipment within any stream channel, riparian zone, wetland, transition area, or other environmental sensitive area is strictly prohibited.

The Contractor shall construct Gravel Access Drives and Temporary Staging Areas as indicated on the construction drawings. The Contractor shall obtain approval from the RE for any proposed changes to the size and/or location of Gravel Access Drives and Temporary Staging Areas. The Gravel Access Drive and Temporary Staging Area shall be utilized as the stabilized construction access. The Contractor shall obtain approval from the RE and Soil Conservation District for any revisions to the Gravel Access Drive and Temporary Staging Area (Stabilized Construction Access).

158.04 – MEASUREMENT AND PAYMENT

THE ENTIRE SUBSECTION IS CHANGED TO:

The Owner will measure and make payments for Items as follows:

<i>Item</i>	<i>Pay Unit</i>
SOIL EROSION AND SEDIMENT CONTROL	LUMP SUM
GRAVEL ACCESS DRIVE AND TEMPORARY STAGING AREA	LUMP SUM

Section 161 – Final Cleanup

161.03.01 Final Cleanup

THE FOLLOWING PARAGRAPH IS ADDED TO THIS SUBSECTION:

The Contractor shall restore the site to pre-construction conditions. This includes, but is not limited, to reconstruction of the existing HMA (asphalt) path, pavement, curb, sidewalk, signage, grassed areas, etc. All restoration shall be equivalent in all manners to the existing conditions and shall be performed to the satisfaction of the RE. All gravel access drives shall be removed, and the area top soiled and reseeded. All fencing shall be removed per the direction of the RE.

161.04 – MEASUREMENT AND PAYMENT

THE ENTIRE SUBSECTION IS CHANGED TO:

The Owner will measure and make payments for Items as follows:

<i>Item</i>	<i>Pay Unit</i>
FINAL CLEANUP	LUMP SUM

DIVISION 200 – EARTHWORK

Section 201 – Clearing Site

201.01 - Description

THE FOLLOWING PARAGRAPH IS ADDED TO THIS SUBSECTION:

Clearing Site shall include the removal of any shrubs, or vegetation necessary for bank stabilization, grading, access drives, sediment removal, dredging and construction of the staging area. Submit working drawings for approval identifying all locations of proposed tree removals for trees with a dbh greater than 4”.

201.03.01 – Clearing Site

THE FOLLOWING SUBSECTION IS ADDED TO THIS SECTION:

H. Bank Stabilization. The contractor shall clear vegetation within the Limits of Bank Stabilization. This includes, but is not limited to clearing for grading (excavation and fill), biolog installation, plantings etc. Shrub removal shall be minimized. All shrubs and other vegetation in the area of bank stabilization shall be removed in order to plant in accordance with the construction drawings. The Contractor shall coordinate with the RE on issues relating to the extent of clearing required and the Contractor shall comply with all requirements for clearing as directed by the RE at no additional cost to the Owner.

The Contractor shall remove all shrubs and vegetation as required to complete the Bank Stabilization and grading as shown on the construction drawings. The Contractor shall protect trees to be saved from damage and disturbance. Prior to any clearing or grading, the Contractor shall identify any shrub that is intended for removal. The RE will then determine if in fact the shrub should be removed or protected. The Contractor shall comply with the decision of the RE with regard to vegetation removal and protection. Tree protection shall be installed around all trees in the vicinity of anticipated construction activities and as directed by the RE.

201.03.09 – Disposal of Removed Materials and Debris

THE ENTIRE SUBSECTION HAS BEEN CHANGED TO:

Prior to removing any material from the project site, the Contractor shall provide in writing to the RE the location where the material will be disposed of. Written permission of the Owner shall be obtained by the Contractor and a copy shall be furnished to the RE. Once the material leaves the project limits, the Contractor is the owner of the material, and the Contractor shall be solely responsible for causing the material to be placed in a manner and at a location that is consistent with all Federal, State, County and Local requirements, including any permits that may be necessary or required. The Contractor shall be liable for any violations that occur as a result of the Contractors failure to comply herewith. If the disposal of excess material results in a violation notice from any governmental authority, the Contractor shall immediately pursue corrective action. The Contractor shall hold harmless the Owner for any violations incurred as a result of improper disposal of materials. If the Contractor fails to correct the violation to the satisfaction of the governmental authority which issued the violation notice, the Owner may initiate measures to eliminate the violation and all costs incurred by the Owner will be deducted from any moneys due or that may become due the Contractor.

Section 202 – Excavation

202.01 DESCRIPTION

THE FOLLOWING SENTENCE IS ADDED TO THIS SUBSECTION:

This Section describes the requirement for dredging and for disposal of dredge material.

202.03.07 REUSE OR DISPOSAL OF EXCESS MATERIAL

THE FOLLOWING SENTENCE IS ADDED TO THIS SUBSECTION:

The contractor is advised that the sediment scheduled for dredging is anticipated to contain contaminants that will require special disposal. The contractor shall submit a Health and Safety Plan for approval prior to dredging operations. All dredge spoils shall be disposed in a NJDEP approved facility authorized for the contaminants. See Appendix B for historic testing results.

Dredge material may not be redistributed above the water surface of the lake. All dredge material shall be disposed of in accordance with this Subsection (202.03.07) as indicated. When leaving the site, the dredge material shall be hauled in sealed water tight containers.

202.04 – MEASUREMENT AND PAYMENT

THE ENTIRE SUBSECTION IS CHANGED TO:

The quantity adjustment for increase or decrease for the Item DREDGING is not applicable to this Item and the County will make payment for the quantity of the Item performed at the bid price.

Payment for dredging shall include all work, equipment, labor and materials necessary to dredge and legally dispose of lake sediment. Payment for dredging will be made at the cubic yard volume determined by the difference between pre-dredge and post-dredge surveys.

The Owner will measure and make payments for Items as follows:

<i>Item</i>	<i>Pay Unit</i>
DREDGING	CUBIC YARD

Payment for dredging shall include lake lowering permit; health and safety plan; mechanical dredging of the lake including excavation, dewatering, earthmoving, and loading of watertight trucks; disposal including trucking, tipping fees, and disposal at an approved facility; and all other work and materials necessary to dredge and legally dispose of dredge spoils.

THE FOLLOWING IS TO BE REMOVED FROM THIS SECTION:

<i>Item</i>	<i>Pay Unit</i>
DISPOSAL OF REGULATED MATERIAL	CUBIC YARD
DISPOSAL OF REGULATED MATERIAL, HAZARDOUS	CUBIC YARD

No separate payment shall be made for DISPOSAL OF REGULATED MATERIAL and DISPOSAL OF REGULATED MATERIAL, HAZARDOUS. These items shall be paid under the DREDGING pay item.

THIS NEW SECTION IS CREATED AND IS ADDED TO DIVISION 200:

Section 205 –Bank Stabilization

205.01 DESCRIPTION

This Section describes the requirements for bank stabilization at locations shown on the construction drawings. The work consists of all activities necessary for the clearing, grading and stabilization of the shoreline and for grading adjustments and/or pipe adjustments around the perimeter of the lake. All construction activity must take place within the limits of disturbance indicated on the construction drawings. Bank Stabilization shall be performed while the water level is lowered. The Contractor is responsible for obtaining a Water Lowering Permit from the NJDEP. The Contractor shall be responsible for all costs associated with obtaining the Water Lowering Permit. The Contractor shall coordinate water level lowering with the Owner.

205.02 CONSTRUCTION

The Contractor shall provide all labor, materials and equipment necessary for the grading of the shoreline of the lake as shown on the construction drawings and as specified herein. The Contractor shall provide, install, maintain and remove all required soil erosion and sediment control measures, as shown on the construction drawings and as specified herein.

Construction equipment employed on the work site shall be in satisfactory operating condition and capable of safely and efficiently performing the work as set forth in the specifications and shall be subject to inspection by the RE at all times. It is recommended that low pressure equipment be used to limit disturbance to the Lake and Park. All disturbances shall be restored to pre-construction conditions.

No payment will be made by the Owner for any import or export of soil under this section. The Contractor is responsible for ensuring that all necessary material is available onsite and within the limits of disturbance and the limits of grading shown to grade the shoreline in accordance with the construction drawings. All required materials for bank stabilization shall be acquired from within the lake limits.

The Contractor shall adjust the grades and/or make adjustments to the existing pipes along the shoreline as required to ensure that the existing pipes continue to function as in their pre-construction condition. The Contractor shall revise the grades or adjust the pipes as directed by the RE.

The Contractor shall obtain a Water Lowering Permit from the NJDEP. Contractor shall coordinate with the Owner for the lowering of the lake.

205.02.01 RELATED WORK

1. Site Clearing. Section 201
2. Excavation. Section 202
3. Embankment. Section 203
4. Soil Erosion and Sediment Control. Section 158 and on the Soil Erosion and Sediment Control Plan.

205.03 SUBMITTALS

The Contractor shall submit a copy of the Water Lowering Permit to the Owner and RE. After Bank Stabilization is complete, the Contractor shall submit an updated and revised As-Built Survey in accordance with Section 157.

205.04 CLEARING AND GRADING

The Contractor shall remove all shrubs and vegetation within the limits of Bank Stabilization and grading as shown on the construction drawings. The Contractor shall protect trees to be saved from damage and disturbance. Prior to any clearing or grading, the Contractor shall identify any tree with a DBH of 4” or greater that is intended for removal. The RE will then determine if in fact the tree should be removed or protected. The Contractor shall comply with the decision of the RE with regard to tree removal and protection.

All grading shall be performed in accordance with Sections 201, 202, 203 and 204. Finished grade elevations shall match those on the construction drawings. Verification of the as-built grades shall be through the preparation, by the Contractor, of an as-

built survey in accordance with Section 157.

No separate payment shall be made for clearing, grading, excavation, fill, pipe adjustments, etc. These items shall be paid under the BANK STABILIZATION pay item.

205.05 MEASUREMENT AND PAYMENT

The Owner will measure and make payments for the Items as follows:

<i>Item</i>	<i>Pay Unit</i>
BANK STABILIZATION	SQUARE YARDS

DIVISION 600 – MISCELLANEOUS CONSTRUCTION

Section 602 – Drainage Structures

THE FOLLOWING HAS BEEN ADDED TO THIS SECTION:

602.01- General

Slide and weir gates, including lifts, stems and accessories, shall be of the size and type shown on the manufacturer's drawings and specified herein. Where possible, gates shall be installed so that there is a seating head on the gate. Gate type, lift type, frame type, size, seating head, and bottom-closure type are indicated in the "Gate Schedule." Gate, frame and yoke design shall conform to AWWA C561 as required. Weir gate to be model #HG 561 as manufactured by Hydro Gate.

602.02 – Materials

- A. Frame, Slide and Reinforcing:
Stainless steel, ASTM A276, Type 304 Carbon steel, ASTM A36
- B. Stems:
Stainless steel ASTM A276, Type 304
- C. Fasteners:
Stainless steel, ASTM F593/F594, Alloy Group 1
- D. Anchors:
Stainless steel, ASTM F593/F594, Alloy Group 1
- E. Rubber Seals:
Neoprene, ASTM D2000, Grade 1BE625
- F. Guides:
Ultra High Molecular Weight (UHMW) Polymer, ASTM D4020

602.03 – Construction

Weir Gates

- A. Frame:

Gate frame shall be flat back or channel mount as shown in the "Gate Schedule." Spigot-back frames are not acceptable. The frame shall be an integral unit of structural shapes, rigidly assembled to form the waterway opening. The frame members shall form guides for the slide, and holes shall be provided for mounting on anchor bolts. The head channels are to be sufficiently spaced to allow removal of the gate slide. The primary slot of the frame shall contain polymer guide bars to prevent metal-to-metal contact between slide and frame.

- B. Slide:

Gate slide shall conform to the safety factors stated under "General" but shall, in no case, be less than ¼ in. thickness. Deflection under full head shall be limited to 1/360 of the span. The stem connector clips or stem block pocket shall be welded to the slide.

- C. Flush-Bottom Seals:

Slide gates shall incorporate a flush-bottom seal that is attached to the bottom frame invert member. The seal shall be of the materials shown in "Materials." Seals attached to the slide are not acceptable.

- D. Seals:

J-seals shall be provided as specified in the "Gate Schedule." Seals shall be securely fastened to the frame with formed stainless steel retainers and shall be replaceable and adjustable without removing the gate from the installed position. The corners of the J-seals shall be vulcanized.

E. Manual Lifts:

Gate lifts shall be handwheel or geared crank type as shown in the "Gate Schedule." Lifts shall operate the gate with a maximum pull of 40 lb on the handwheel or crank. Handwheel or crank shall be located approximately 36 in. above grating or walkway. All lifts shall have thrust bearings, bronze lift nuts and a bronze stop nut to limit the downward travel of the stem and slide. All geared lifts shall have cast iron housings and pedestals. Aluminum housings and pedestals shall not be acceptable. All lifts shall be rising stem type. Stem covers made of clear butyrate shall be furnished for all lifts. Lifts shall be grease lubricated and regreasable through grease zerks. Oil bath lifts are not acceptable.

F. Leakage:

Allowable leakage under the design head, seating or unseating head, as specified, shall not exceed .1gpm/ft of seating perimeter.

Culverts and Headwalls

THE FOLLOWING HAS BEEN ADDED TO THIS SECTION:

The contractor is responsible for all excavation, placement of concrete, dewatering and cleanup associated with the construction of the proposed headwall.

602.04 – Measurement and Payment

THE FOLLOWING HAS BEEN ADDED TO THIS SECTION:

The Owner will measure and make payment for Items as follows:

<i>Item</i>	<i>Pay Unit</i>
___" CONCRETE HEADWALL	UNIT
OUTLET STRUCTURE	LS

Payment for Outlet Structure will include excavation, dewatering, temporary shoring, backfill, precast concrete structure, weir gate, casting, pipe connections, and all other work and materials necessary to provide the Outlet Structure as described in the Contract Documents.

THIS NEW SECTION IS CREATED AND IS ADDED TO DIVISION 600:

Section 613 - Goose Fence

613.01 – DESCRIPTION

The Contractor shall provide all labor, materials and equipment to carry out installation of terrestrial and aquatic goose fence and bird netting as indicated on the construction drawings. The goose fence and bird netting is designed to prohibit Canada Geese and other water fowl from damaging the shoreline plantings. This section includes the requirements for installation of the goose fence, bird netting and posts.

613.02 – MATERIALS

Provide materials as specified:

A. Goose Fence shall be Caution Fence per Section 913.02.02 of the NJDOT Specifications.

B. Bird netting shall be lightweight 1 ¼ inch mesh polyethylene or polypropylene mesh bird control netting.

C. Posts shall be per Caution Fence per Section 913.02.02 of the NJDOT Specifications.

613.04 – EXECUTION

A. The Contractor shall install Goose Fence in accordance with Sections 605 – Fence and Sections 913.02.02 – Caution Fence and the construction drawings.

B. At the end of each work day, Goose Fence and bird netting shall be installed around each planted area so as to prohibit Geese and other water fowl from entering the planted area.

C. The Contractor shall install goose fencing on the lake side and the land side of the planted areas as shown on the construction drawings.

D. The Contractor shall install the posts a maximum of eight (8) feet apart and shall trench the posts 24” into the ground, as specified on the construction drawings.

E. The Contractor shall firmly affix the fence to the posts.

F. The Contractor shall install fence and posts per manufacturer’s directions.

G. The Contractor shall maintain the fence during construction. If any fence or posts are damaged or improperly installed, the Contractor shall repair or reinstall immediately.

H. The Contractor shall install hardwood stakes according to a 6-foot spacing interval and drive the stakes two feet into the ground.

I. Bird netting shall then be attached to the upper edges of the goose fencing using clips to prevent geese from landing inside planted areas.

J. Goose Fence and bird netting shall remain onsite for a minimum of six (6) months and a maximum of one year after the installation of all plantings, unless directed by the RE to remove.

K. The Contractor is responsible for removal and disposal of Goose Fence and bird netting when directed and the fencing shall be maintained until it is removed.

613.05 – MEASUREMENT AND PAYMENT

The Owner will measure and make payment for Items as follows:

<u>Item</u>	<u>Pay Unit</u>
GOOSE FENCE	LINEAR FOOT

THIS NEW SECTION IS CREATED AND IS ADDED TO DIVISION 600:

Section 614 – Biologs

614.01 – DESCRIPTION

Biologs by Bonterra Products or equal.

Biologs are 12” diameter x 20’ long tubes of coconut fiber that are used to stabilize eroding shorelines and stream banks. Herbaceous plants will be inserted into the biolog and the log provides a secure growing medium enabling the plants to become established. The biologs shall be installed in accordance with the construction drawings and manufacturer’s specifications.

614.02 – MEASUREMENT AND PAYMENT

The Owner will measure and make payments for Items as follows:

<u>Item</u>	<u>Pay Unit</u>
BIOLOGS	LINEAR FOOT

DIVISION 700 – ELECTRICAL

THIS NEW SECTION IS CREATED AND IS ADDED TO DIVISION 700:

Section 705 – Aerator

705.01 - DESCRIPTION

The Contractor shall provide all labor, material and equipment to furnish and install the floating aerator as indicated on the construction drawings. The Contractor shall install one (1) Triton Floating Aspirator (2 HP, 230 volt, 1 phase) by Otterbine Barebo, Inc. or an approved equal. The Contractor is responsible for installing all electric lines necessary for providing power to the aerator and removing existing lines. The Contractor is responsible for anchoring the aerator. The Contractor shall submit for approval working drawings for the aerator and electrical installation.

705.02 - MATERIALS

- A. **Pumping Capacities.** The aerator shall be a submerged, horizontal mixing aspirator. The pumping capacity of the aerator shall be sufficient to influence 420,000 cubic feet or 11,893 cubic meters of water.
- B. **Float.** The float shall be made of seamless, one piece high-density polyethylene plastic, filled with high density closed cell polyurethane foam. The float shall be capable of providing full floatation if the shell is punctured or cracked. Metal floats or those with an internal void for additional ballast are not acceptable.
- C. **Impeller.** The impeller shall be constructed of 420 Valox thermal plastic material molded by the injection molding process. The impeller shall be connected to the motor by a type 304 stainless steel bolt, extending through the impeller and sleeve. Flexible shaft coupling are not acceptable.
- D. **Motor.** The motor shall be a 2 HP, 230 volt, 1 phase, 60/50 Hz submersible motor operating at 1725 RPM. 50 Hz motors shall operate at 1425 RPM. The service factor shall be 1.15. The motor shall operate in a reservoir of Otterbine oil for continuous lubrication of bearings and for efficient transfer of heat through the motor housing wall. Top mounted motors and water-lubricated motors are not acceptable. The rotor shall be dynamically balanced. The winding (stator) wires shall be covered with class F rated insulation designed for complete immersion in oil. The motor shall be attached to a Valox thermoplastic injection molded upper plate. This plate will house the bearings and upper motor seals (internal and external). The motor shall be protected against oil and water leakage by a combination of rotary seals, stationary seals, and molded rubber “O” rings. The motor shall be serviceable.
- E. **Motor Housing.** The external motor housing shall be a canister formed from deep drawn 316 stainless steel tube welded with a type 308 stainless steel weld.
- F. **Support Frame.** The support frame for the aerator shall be constructed of type 304 stainless steel tube welded with a type 308 type stainless steel weld. The frame shall minimize vibration of the unit.
- G. **Aspiration Tube.** The aspiration tube shall be constructed of a ½ inch (1cm) diameter by 50ft or 15m long black polyethylene. Attached to the tube shall be a 5in x 3.5in or 13cm x 9cm float. The float shall be black styrene and shall incorporate a muffler.
- H. **Mooring Cable Leads.** The mooring or anchor cable leads shall be of 1/8 inch or .32 cm diameter by 4’ or 1 meter long, type 300 series stainless steel wire rope.
- I. **Fasteners.** All fasteners are to be type 304 or 316 stainless steel.
- J. **Electrical Connectors.** The electrical connectors shall consist of a receptacle and a plug constructed of non-conductive polymers. The system shall create a vacuum seal when connected and have a threaded nut system as a backup. The plug shall have a keyway and be threaded into the top plate. The connector system shall be ETL, UL and CSA approved.
- K. **Underwater Power Cable.** The power cables shall be type SOOW specifically designed for underwater use. The conductors shall be flexible, bunch stranded bare copper AWG 12, 10 or 8 triple insulated to resist moisture, wicking,

cracking, and softening. The outer jacket of the cable shall be a black CPE material. All underwater connections shall be vulcanized. Power cable shall be able to be furnished in un-spliced lengths up to 1000ft or 305 meters if necessary.

- L. Power Control Center.** The electrical components shall be mounted in a NEMA 3R or greater enclosure with an externally mounted disconnect switch and a HAND – OFF – AUTO selector switch. The electrical system for units operating on 115, 208-230 volt, single or three phase, shall include a circuit breaker and a GFCI (ground fault circuit interrupter.) To operate the GFCI on 208-230 volt systems a grounded neutral must be present or an optional control transformer may be supplied. The electrical system for units operating on 380 volt 50Hz and 460 volt 60Hz shall include fuses. Fuses, if used, shall be dual-element type, mounted in three pole fuse blocks, with spring reinforced clips. For all units the motor starter shall be a combination magnetic full-voltage non-reversing type, 600 volts maximum, with bimetallic, ambient compensated overload relays. The electrical system shall include a three-pole lightning arrester, rated for a maximum of 60,000 amperes discharge. The system shall include a 24-hour timer.

705.03 - ACCEPTABLE MANUFACTURER

This unit shall be an OTTERBINE Triton Aspirator, 2 horsepower manufactured by OTTERBINE/BAREBO, INC., 3840 MAIN ROAD EAST, EMMAUS, PA U.S.A.18049 PH: (610) 965-6018, www.otterbine.com or an approved equal.

705.04 – EXECUTION

See the owner’s manual for installation directions. Each owner’s manual provides the steps necessary to securely place the unit in the waterway by anchoring/mooring.

705.05 - TESTING

The aerator system shall be safety tested and approved as a package (unit, cable and power control center). Separate component testing is not allowed. The aerator package must be tested and approved by ETL, ETL-C, CE, UL or other accredited testing facilities.

705.06 – WARRANTY

Warranty shall be three (3) years.

705.07 MEASUREMENT AND PAYMENT

The Owner will measure and make payments for Items as follows:

<i>Item</i>	<i>Pay Unit</i>
AERATOR	LUMP SUM

Payment for Aerator shall include the supply and installation of aerator, control box, cable, conduit, electrical service and other electrical work, anchoring of aerator, and all other work and materials to provide a fully operational aerator.

DIVISION 800 – LANDSCAPING

Section 804 – Topsoiling

804.02 MATERIALS

THE FOLLOWING PARAGRAPHS ARE ADDED TO THIS SUBSECTION:

Topsoil shall be selected material which is obtained from sources within or outside of the project limits. Topsoil shall have the same relative composition and structure, a friable sandy loam character, and be free of roots, clods, and stones larger than 1/2 inch in greatest dimension, pockets of coarse sand, noxious weeds, sticks, brush and other litter. It will be fine raked to a non-undulated manner to eliminate gullies and depressions.

804.03 CONSTRUCTION

804.03.01 Topsoiling

THE FOLLOWING PARAGRAPHS ARE ADDED TO THIS SUBSECTION:

Topsoil thickness shall be at least 4 in. over all native planting and seeding areas.

804.04 MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED TO THIS SUBSECTION:

<u>Item</u>	<u>Pay Unit</u>
TOPSOILING, 4" THICK	SQUARE YARD

Section 806 – Fertilizing and Seeding

806.02 MATERIALS

THE FOLLOWING PARAGRAPHS ARE ADDED TO THIS SUBSECTION:

Grass Seed Mixture shall be of the type as specified on the Soil Erosion and Sediment Control plans or approved equal. Empty seed bags shall be submitted to the RE after installation. Seed bags shall include labels specifying vendor name, names of all species, and relative percentages of each species (by weight).

806.03 CONSTRUCTION

806.03.01 Turf Seeding

C. Seed and Fertilizer Application

THE FOLLOWING SUBSECTION IS CHANGED TO:

2. Dry Method. The Contractor shall sow half of the seed over the entire area in one direction, then broadcast the remaining seed in a pattern that is perpendicular to the first broadcasting.

E. Turf Establishment

THE FOLLOWING PARAGRAPHS ARE ADDED TO THIS SUBSECTION:

Aerial coverage of the seeded areas will be at least 75% with no large bare spots. No more than 10% (by aerial cover or field inspection) of the seeded area will be dominated by perennial weedy species. If these standards are not met, the Contractor will be responsible for supplemental seeding and planting as approved by the Owner's Landscape Architect.

806.04 MEASUREMENT AND PAYMENT

The Owner will measure and make payments for Items as follows:

<i>Item</i>	<i>Pay Unit</i>
FERTILIZING AND SEEDING TYPE A-3	SQUARE YARD

Section 809 – Mulching

809.02 MATERIALS

THE ENTIRE SECTION IS CHANGED TO:

Provide materials as specified:

Grass Seed Mixture, Type A-3.....	917.05.01
Mulch	917.06
Tackifiers.....	917.07

809.03 CONSTRUCTION

806.03.01 Straw Mulching

THE FOLLOWING SECTION IS CHANGED TO:

Uniformly spread straw mulch in 3/4 to 1- 1/2-inch loose layers over turf areas within 7 days of seeding. Bind the mulch in place using the following tackifiers:

- 1. Vegetable-Based Gels.** Mix vegetable-based gels with water, and apply using hydraulic pressure equipment. Apply vegetable-based gels as recommended by the manufacturer, except thoroughly mix at least 40 pounds of the dry material with 750 gallons of water per acre. Do not apply vegetable-based gels in precipitation or in freezing weather.

When immediate protection of newly graded slopes is necessary at times other than during optimum seeding seasons, apply straw mulch with a temporary seed mixture.

Leave straw mulch in place and allow to disintegrate. If straw mulch is displaced before the grass reaches a height of 1-1/2 inches, refertilize, reseed, and remulch the area.

809.03 MEASUREMENT AND PAYMENT

The Owner will measure and make payments for the Items as follows:

<i>Item</i>	<i>Pay Unit</i>
STRAW MULCHING	SQUARE YARD

Section 811 – Planting

THE FOLLOWING PARAGRAPHS ARE ADDED TO THIS SUBSECTION:

811.02 MATERIALS

Flowering Trees shall consist of the following species (QUANTITY PER PLANS):

- Amelanchier Canadensis (Shadblow Serviceberry)
- Betula Nigra (River Birch)
- Halesia Tetraptera (Carolina Silverbell)

Shrubs shall consist of the following species (QUANTITY PER PLANS):

- Clethra Alnifolia (Summersweet Clethra)
- Cornus Racemosa (Gray Dogwood)
- Itea Virginica (Virginia Sweetspire)
- Lindera Benzoin (Spicebush)

Herbaceous Species shall consist of the following species (QUANTITY PER PLANS):

- Acorus Americanus (Sweetflag)
- Hibiscus Moscheutos (Swamp Rose-Mallow)
- Iris Versicolor (Blueflag Iris)*
- Juncus Canadensis (Canada Rush)

*In both 2” plugs and 12”-15” heights, see Landscape Plan.

811.03 CONSTRUCTION

811.03.01 Planting

THE FOLLOWING SECTION IS CHANGED TO:

Handle and pack plants to prevent injuries during transit. Do not dump or drop plants while unloading. Protect the roots of all plants from freezing or desiccating by heeling-in, watering, covering or keeping shaded, or placing in a climate controlled building or trailer.

Coordinate work to prevent delays in planting that may expose the root systems of plants to the air, sun or freezing conditions.

(1) **Dry Method of Planting.** The Contractor shall have experience planting plant materials at critical height or nursery grade to ensure proper acclimation to the desired location in the appropriate layout.

(2) **Moist Condition of Planting.** The Contractor shall have experience planting plant material in a moderate to liquid soil condition. This procedure will be performed in a manner to which the plantings will remain in a vertical state and be planted at critical height or nursery grade. This procedure will be conducted in a technical manner to prevent the swinging or leaning of the newly installed plant material.

(3) **Wet Condition of Planting.** The Contractor shall have experience in planting plant material in wet conditions contained in a soil batch within the water. This procedure will be performed in a manner to ensure that the plant material does not become dislodged from the soil media and that all plant material are planted at the appropriate critical height or nursery grade to ensure proper acclimation to the desired location in the appropriate layout. The Contractor will take the necessary steps to ensure that the plant materials do not become buoyant within the planting area.

(4) **Watering.** Water plants with sufficient frequency and quantity to ensure that the soil surrounding the root system remains moist but not saturated.

811.03.02 Plant Establishment Period

THE FOLLOWING SECTION IS CHANGED TO:

Upon completion of all plantings, the Contractor shall request that an inspection be made by the RE to determine if the plants are alive and healthy. The RE will inspect plantings between May 15 and October 1st. The Contractor shall replace plants as specified in 811.03.01 that are missing or not alive and healthy. If the Contractor must replace plants outside of the optimal planting season as specified in Table 811.03.01-1, the Contractor shall only use containerized or balled and burlapped plants that are certified as being dug dormant. The plant establishment period will begin when the RE determines that 100 percent of the plants are alive and healthy.

The Contractor shall ensure the plantings are cared for during the plant establishment period by keeping the plants in a healthy growing condition by watering, weeding, spraying with pesticides, pruning, remulching disturbed areas, maintaining guys and stakes and by other operations as horticulturally necessary.

The RE will re-inspect the plants approximately 1 year after the start of the plant establishment period. If the RE determines that plants need to be replaced, replant plants as specified in 811.03.01 within 3 weeks. If the Contractor must replant outside of the optimal planting season as specified in Table 811.03.01-1, the Contractor shall only use containerized or balled and burlapped plants that are certified as being dug dormant.

811.04 MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED:

The Owner will measure and make payments for Item as follows:

<u>Item</u>	<u>Pay Unit</u>
<i>(Plant Species), (Size)</i>	UNIT

THIS NEW SECTION IS CREATED AND IS ADDED TO DIVISION 800:

Section 812 – Woodchips

812.01 – DESCRIPTION

The contractor is responsible for providing a 4” layer of woodchips where indicated on the Landscape Plan. Included in the bid item WOODCHIPS are any costs associated with the construction of the 4” layer of woodchips. Woodchips are to be constructed according to the manufacturer’s specifications.

812.04 – MEASUREMENT AND PAYMENT

The Owner will measure and make payments for Items as follows:

<u>Item</u>	<u>Pay Unit</u>
WOODCHIPS	SQUARE YARD

No separate payment will be made for woodchips relating to GRAVEL ACCESS DRIVE AND TEMPORARY STAGING AREA. Costs for woodchips associated with GRAVEL ACCESS DRIVE AND TEMPORARY STAGING AREA shall be paid for in the GRAVEL ACCESS DRIVE AND TEMPORARY STAGING AREA item.

Section 813 – Site Amenities

813.01 – DESCRIPTION

This section includes the construction of benches.

Benches shall be model #57-60PL as manufactured by Dumor or approved equal.

813.04 – MEASUREMENT AND PAYMENT

The Owner will measure and make payments for Items as follows:

<u>Item</u>	<u>Pay Unit</u>
BENCH	UNIT

Payment for benches will include the supply and installation of a bench including ACQ treated lumber anchor system.

APPENDIX A:
NJDEP PERMIT AND APPROVED PLANS



**STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF LAND USE REGULATION**

Mail Code 501-02A, P.O. Box 420, Trenton, New Jersey 08625-0420
Telephone: (609) 777-0454 or Fax: (609) 777-3656
www.state.nj.us/dep/landuse



PERMIT

<p>In accordance with the laws and regulations of the State of New Jersey, the Department of Environmental Protection hereby grants this permit to perform the activities described below. This permit is revocable with due cause and is subject to the limitations, terms and conditions listed below and on the attached pages. For the purpose of this document, "permit" means "approval, certification, registration, authorization, waiver, etc." Violation of any term, condition or limitation of this permit is a violation of the implementing rules and may subject the permittee to enforcement action.</p>		Approval Date JUL 07 2018
		Expiration Date JUL 06 2021
Permit Number(s): 2017-05-0001.1 FHA160001 2017-05-0001.1 FWW160001 2017-05-0001.1 FWW160002 2017-05-0001.1 FWW160003	Type of Approval(s): Flood Hazard Area Individual Permit Freshwater Wetlands General Permit 1 Freshwater Wetlands General Permit 13 Freshwater Wetlands General Permit 20	Enabling Statute(s): NJSA 13:9B FWPA NJSA 58:10A WPCA NJSA 58:16A FHACA
Permittee: Union County, Dept. of Parks & Community Renewal 10 Elizabethtown Plaza Elizabeth, NJ 07747		Site Location: Block(s) & Lot(s): [1402, 20] Municipality: Springfield Township County: Union
Description of Authorized Activities: This Permit authorizes, as shown on the approved plans, the removal of accumulated sediment from Meisel Pond and in-kind reconstruction of outlet structure/outfall structure, on the project site located within Lot 20 of Block 1402, in Springfield Township, Union County. This permit also authorizes the temporary disturbance of 348 square feet (0.008 acre) of wetlands and 611 square feet (0.014 acre) of transition areas for the restoration of existing outlet structure and reconstruction of existing outfall structures that connect the pond to Van Winkles Brook under Freshwater Wetlands General Permit 1; the permanent disturbance of 7,835 square feet (0.18 acre) of palustrine emergent freshwater wetlands and 740 square feet (0.016 acre) of transition areas for dredging approximately 4,700 cubic yards of sediment from the pond as shown on the approved cross-section plans and the temporary disturbance of 4,317 square feet (0.10 acre) of wetlands and 1,235 square feet (0.028 acre) of transition areas for dredging access under Freshwater Wetlands General Permit 13; the permanent disturbance of 60 square feet (0.001 acre) of wetlands for 20 lineal feet of bio-engineering bank stabilization along the pond under Freshwater Wetlands General Permit 20.		
Prepared by: <u>Vinaya Vardhana</u> Vinaya Vardhana		Received and/or Recorded by County Clerk:
<p>THIS PERMIT IS NOT EFFECTIVE AND NO CONSTRUCTION APPROVED BY THIS PERMIT, OR OTHER REGULATED ACTIVITY, MAY BE UNDERTAKEN UNTIL THE APPLICANT HAS SATISFIED ALL PRE-CONSTRUCTION CONDITIONS AS SET FORTH HEREIN.</p>		
<p>This permit is not valid unless authorizing signature appears on the last page.</p>		

PRE-CONSTRUCTION CONDITIONS:

1. **Timing:** If this permit contains a condition that must be satisfied prior to the commencement of construction, the permittee must comply with such condition(s) within the time required by the permit or, if no time specific requirement is imposed, then within six months of the effective date of the permit, or provide evidence satisfactory to the Division that such condition(s) cannot be satisfied.

SPECIAL CONDITIONS:

1. **Material Disposal:** All excavated material and dredge material shall be disposed of in a lawful manner. The material shall be placed outside of any flood hazard area, riparian zone, regulated water, freshwater/coastal wetlands and adjacent transition area, and in such a way as to not interfere with the positive drainage of the receiving area.
2. In order to protect the warmwater fishery within Meisel Pond and Van Winkles Brook, no regulated activities, including grading, construction or clearing is permitted within the pond or brook between May 1st and June 30th. Furthermore, any activity within 50 feet from the top of bank, which would likely introduce sediment into the pond or brook, and/or increase its turbidity, is also prohibited during this period. The Division reserves the right to suspend all regulated activities onsite should it be determined that the permittee has not taken proper precautions to ensure continuous compliance with this condition.
3. The Department has determined that the riparian zone adjacent to Meisel Pond and Van Winkles Brook is 50 feet wide. Therefore, vegetation within 50 feet of the top of the bank shall only be disturbed in the areas specifically shown on the approved drawings. This permit authorizes the temporary disturbance to riparian zone vegetation (lawn) associated with shoreline vegetation bank stabilization along the perimeter of the pond and dredging access as shown on the approved plans. This permit also authorizes the temporary disturbance of 959 square feet (0.022 acre) of riparian zone vegetation disturbance for the reconstruction/rehabilitation of an outfall structure; and the permanent disturbance of 60 square feet (0.001 acre) of riparian zone vegetation disturbance for 20 lineal feet of bio-engineering bank stabilization along the pond. No trees within the riparian zone shall be removed for any reason.
4. Upon completion of the project, all temporarily disturbed areas within 50 feet of the top of the pond shall be restored to original topography and replanted with indigenous, non-invasive vegetation in accordance with N.J.A.C. 10.2(u).
5. Provisions of the Freshwater Wetlands Statewide General Permit No. 1:
 - a. This permit authorizes the temporary disturbance of 348 square feet (0.008 acre) of wetlands and 611 square feet (0.014 acre) of transition areas for the restoration of an existing outlet structure and the reconstruction of existing outfall structures that connect the pond to Van Winkles Brook. No permanent disturbance to wetlands, transition areas and State open waters are permitted under the FWW GP 1. The authorization of activities under this Freshwater Wetlands Stateside General Permit includes a Water Quality Certificate.
 - b. Any pipes laid through wetlands, transition areas, or State open water must be properly sealed so as to prevent leaking or infiltration. Pipes and backfilled materials must be placed entirely beneath the pre-existing ground elevation.

- c. The excavation within the wetlands and transition area must be backfilled with the original soil material or suitable material to within 18 inches of the surface. The upper 18 inches must be backfilled with the original topsoil material to the preexisting elevation and replanted with indigenous species.
 - d. The permittee shall be responsible for ensuring that the back-filling activities do not interfere with the natural hydraulic characteristics of the wetland, such as flow characteristics of groundwater on the site.
 - e. Any and all precautions must be taken to prevent raw concrete from coming in contact with the waters of the tributary; raw concrete is toxic to aquatic biota.
6. Provision of the Freshwater Wetlands Statewide General Permit No. 13:
- a. This permit authorizes the permanent disturbance of 7,835 square feet (0.18 acre) of palustrine emergent freshwater wetlands and 740 square feet (0.016 acre) of transition areas for dredging approximately 4,700 cubic yards of sediment from the pond as shown on the approved cross-section plans. No additional sediments shall be removed from the pond and brook. This permit also authorizes the temporary disturbance of 4,317 square feet (0.10 acre) of wetlands and 1,235 square feet (0.028 acre) of transition areas for dredging access. The authorization of activities under this Freshwater Wetlands Stateside General Permit includes a Water Quality Certificate.
 - b. Prior to dredging the pond, the permittee shall contact the New Jersey Department of Environmental Protection, Bureau of Freshwater Fisheries at (908) 236-2118 for a water lowering permit.
 - c. Dredging activities shall not begin before the pond is lowered and dredging activities shall end before the pond is refilled.
 - d. Inflow waters shall be diverted around the pond to maintain stream flows to the downstream watershed. The diverted waters shall be free of sediment from the project. If pumps are used, the area around the pump intake shall be screened to prevent entrainment of fish and other aquatic organisms.
 - e. Access shall only be as shown on the above-referenced plan, and shall be restored to its pre-existing elevation and condition upon completion of the dredging.
7. Provision of the Freshwater Wetlands Statewide General Permit No. 20:
- This permit authorizes the permanent disturbance of 60 square feet (0.001 acre) of wetlands for 20 lineal feet of bio-engineering bank stabilization along the pond. No additional disturbances to freshwater wetlands, transition areas and State open waters are permitted. The authorization of activities under this Freshwater Wetlands Stateside General Permit includes a Water Quality Certificate.

STANDARD CONDITIONS:

- 1. **Responsibilities:**
 - a. The permittee, its contractors and subcontractors shall comply with all conditions of this permit, authorizing and/or supporting documents and approved plans and drawings.

- b. A copy of this permit, other authorizing documents, records and information including all approved plans and drawings shall be maintained at the authorized site at all times and made available to Department representatives or their designated agents upon request.
2. **Permit modification:** Plans and specifications in the application and conditions imposed by this permit shall remain in full force and effect so long as the proposed development or any portion thereof is in existence, unless modified by the Department. No change in plans or specifications upon which this permit is issued shall be made except with the prior written permission of the Department. The filing of a request to modify an issued permit by the permittee, or a notification of planned changes or anticipated noncompliance does not stay any condition of this permit.
3. **Duty to minimize environmental impacts:** The permittee shall take all reasonable steps to prevent, minimize or correct any adverse impact on the environment resulting from activities conducted pursuant to the permit, or from noncompliance with the permit. The permittee shall immediately inform the Department of any unanticipated adverse effects on the environment not described in the application or in the conditions of this permit. The Department may, upon discovery of such unanticipated adverse effects, and upon the failure of the permittee to submit a report thereon, notify the permittee of its intent to suspend the permit
4. **Proper site maintenance:** While the regulated activities are being undertaken, neither the permittee, its contractors nor subcontractors shall cause or permit any unreasonable interference with the free flow of a regulated feature by placing or dumping any materials, equipment, debris or structures within or adjacent to the regulated area. Upon completion or abandonment of the work, the permittee, its contractors or subcontractors shall remove and dispose of in a lawful manner all excess materials, debris, equipment, silt fences and other temporary soil erosion and sediment control devices from all regulated areas. Only clean non-toxic fill shall be used where necessary.
5. **Sediment control:** Development which requires soil disturbance, creation of drainage structures, or changes in natural contours shall conduct operations in accordance with the latest revised version of "Standards for Soil Erosion Sediment Control in New Jersey," promulgated by the New Jersey State Soil Conservation Committee, pursuant to the Soil Erosion and Sediment Control Act of 1975, N.J.S.A. 4:24-42 et seq. and N.J.A.C. 2:90-1.3-1.14.
6. **Rights of the State:**
 - a. This permit does not convey any property rights of any sort, or any exclusive privilege.
 - b. Upon notification and presentation of credentials, the permittee shall allow Department representatives or their designated agents, to enter upon the project site and/or where records must be kept under the conditions of this permit, inspect at reasonable times any facilities, equipment, practices or operations regulated or required under the permit, and sample or monitor for the purposes of determining compliance. Failure to allow reasonable access shall be considered a violation of this permit and subject the permittee to enforcement action.
 - c. The issuance of this permit shall in no way expose the State of New Jersey or the Department to liability for the sufficiency or correctness of the design of any construction, structure or structures. Neither the State nor the Department shall, in any way, be liable for the loss of life or property which may occur by virtue of the activity of development resulting from any permit.

7. **Duty to Reapply:** If the permittee wishes to continue an activity covered by the permit after the expiration date of the permit authorization, the permittee must apply for and obtain a new permit authorization.
8. **Transfer of Permit:** This permit may not be transferable to any person unless the transfer is approved by the Department. Please refer to the applicable rules for more information.
9. **Other Approvals:** The permittee must obtain any and all other Federal, State and/or Local approvals. Authorization to undertake a regulated activity under this permit does not indicate that the activity also meets the requirements of any other rule, plan or ordinance.
10. **Noncompliance:**
 - a. Any noncompliance with this permit constitutes a violation, and is grounds for enforcement action, as well as modification, suspension and/or termination of the permit.
 - b. The permittee shall immediately report to the Department by telephone at (877) 927-6337 any noncompliance that may endanger health or the environment. In addition, the permittee shall report all noncompliance to Bureau of Coastal and Land Use Compliance and Enforcement, 401 E. State Street, 4th Floor, P.O. Box 420, Mail Code: 401-04C, Trenton, NJ 08625, in writing within five business days of the time the permittee becomes aware of the noncompliance. The written notice shall include: a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated length of time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the noncompliance. Such notice shall not, however, serve as a defense to enforcement action if the project is found to be in violation of this chapter.
11. **Appeal of Permit:** In accordance with the applicable regulations, any person who is aggrieved by this decision or any of the conditions of this permit may request a hearing within 30 days after notice of the decision is published in the DEP Bulletin. This request must include a completed copy of the Administrative Hearing Request Checklist. The DEP Bulletin is available through the Department's website at <http://www.nj.gov/dep/bulletin> and the Checklist is available through the Division's website at http://www.nj.gov/dep/landuse/download/lur_024.pdf. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please see the website www.nj.gov/dep/odr for more information about this process.

APPROVED PLANS:

The drawings hereby approved are seven (7) sheets prepared by Maser Consulting P.A., dated November 3, 2015, last revised April 1, 2016, unless otherwise noted, entitled:

“NJDEP PERMITTING PLAN FOR MEISEL POND LOT 20, BLOCK 1402 TOWNSHIP OF SPRINGFIELD UNION COUNTY NEW JERSEY”

“DREDGING OPERATIONS & GRADING PLAN”, Sheet 4 of 10,

“LANDSCAPE PLAN”, Sheet 5 of 10,

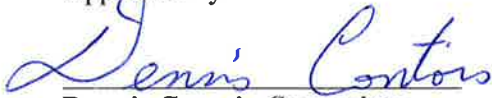
“LANDSCAPE DETAILS”, Sheet 6 of 10,

“SOIL EROSION & SEDIMENT CONTROL PLAN”, Sheet 7 of 10, dated July 24, 2015,

“SOIL EROSION & SEDIMENT CONTROL DETAILS”, Sheet 8 of 10, unrevised,
“POND CROSS-SECTIONS”, Sheet 9 of 10, last revised April 14, 2016, and
“CONSTRUCTION DETAILS”, Sheet 10 of 10.

If you need clarification on any section of this permit or conditions, please contact the Division of Land Use Regulation’s Technical Support Call Center at (609) 777-0454.

Approved By:

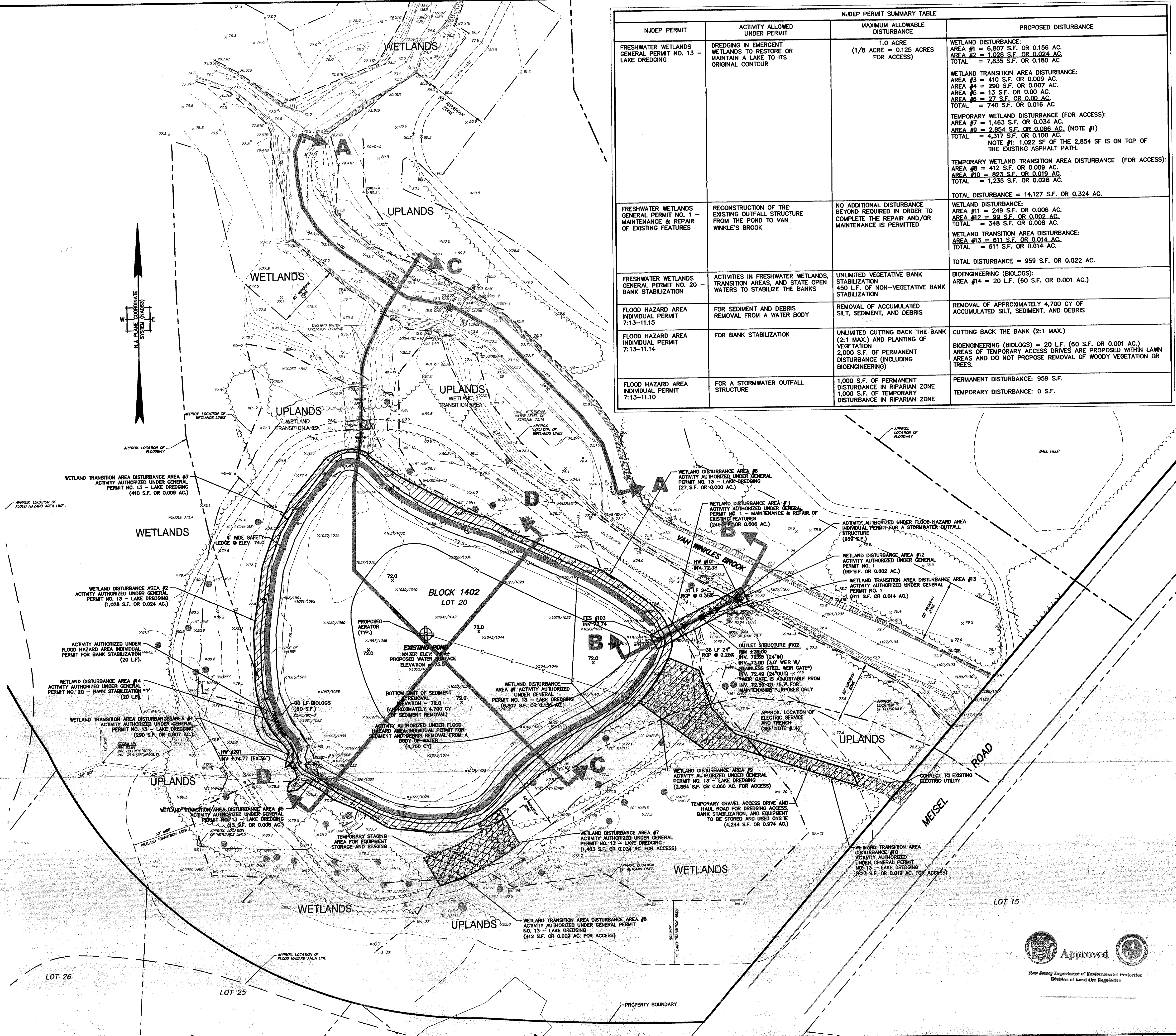


Dennis Contois, Supervisor
Division of Land Use Regulation

7-7-2016
Date

Original sent to Agent to record
c: Permittee

NJDEP PERMIT SUMMARY TABLE			
NJDEP PERMIT	ACTIVITY ALLOWED UNDER PERMIT	MAXIMUM ALLOWABLE DISTURBANCE	PROPOSED DISTURBANCE
FRESHWATER WETLANDS GENERAL PERMIT NO. 13 - LAKE DREDGING	DREDGING IN EMERGENT WETLANDS TO RESTORE OR MAINTAIN A LAKE TO ITS ORIGINAL CONTOUR	1.0 ACRE (1/8 ACRE = 0.125 ACRES FOR ACCESS)	WETLAND DISTURBANCE: AREA #1 = 5,807 S.F. OR 0.156 AC. AREA #2 = 1,028 S.F. OR 0.024 AC. TOTAL = 7,835 S.F. OR 0.180 AC. WETLAND TRANSITION AREA DISTURBANCE: AREA #3 = 410 S.F. OR 0.009 AC. AREA #4 = 290 S.F. OR 0.007 AC. AREA #5 = 13 S.F. OR 0.00 AC. AREA #6 = 27 S.F. OR 0.00 AC. TOTAL = 740 S.F. OR 0.016 AC. TEMPORARY WETLAND DISTURBANCE (FOR ACCESS): AREA #7 = 1,463 S.F. OR 0.034 AC. AREA #8 = 2,854 S.F. OR 0.066 AC. (NOTE #1) TOTAL = 4,317 S.F. OR 0.100 AC. NOTE #1: 1,022 SF OF THE 2,854 SF IS ON TOP OF THE EXISTING ASPHALT PATH. TEMPORARY WETLAND TRANSITION AREA DISTURBANCE (FOR ACCESS): AREA #9 = 412 S.F. OR 0.009 AC. AREA #10 = 823 S.F. OR 0.019 AC. TOTAL = 1,235 S.F. OR 0.028 AC. TOTAL DISTURBANCE = 14,127 S.F. OR 0.324 AC.
FRESHWATER WETLANDS GENERAL PERMIT NO. 1 - MAINTENANCE & REPAIR OF EXISTING FEATURES	RECONSTRUCTION OF THE EXISTING OUTFALL STRUCTURE FROM THE POND TO VAN WINKLE'S BROOK	NO ADDITIONAL DISTURBANCE BEYOND REQUIRED IN ORDER TO COMPLETE THE REPAIR AND/OR MAINTENANCE IS PERMITTED	WETLAND DISTURBANCE: AREA #11 = 249 S.F. OR 0.006 AC. AREA #12 = 98 S.F. OR 0.002 AC. TOTAL = 345 S.F. OR 0.008 AC. WETLAND TRANSITION AREA DISTURBANCE: AREA #13 = 611 S.F. OR 0.014 AC. TOTAL = 611 S.F. OR 0.014 AC. TOTAL DISTURBANCE = 959 S.F. OR 0.022 AC.
FRESHWATER WETLANDS GENERAL PERMIT NO. 20 - BANK STABILIZATION	ACTIVITIES IN FRESHWATER WETLANDS, TRANSITION AREAS, AND STATE OPEN WATERS TO STABILIZE THE BANKS	UNLIMITED VEGETATIVE BANK STABILIZATION 450 L.F. OF NON-VEGETATIVE BANK STABILIZATION	BIOENGINEERING (BIOLOGS): AREA #14 = 20 L.F. (60 S.F. OR 0.001 AC.)
FLOOD HAZARD AREA INDIVIDUAL PERMIT 7:13-11.15	FOR SEDIMENT AND DEBRIS REMOVAL FROM A WATER BODY	REMOVAL OF ACCUMULATED SILT, SEDIMENT, AND DEBRIS	REMOVAL OF APPROXIMATELY 4,700 CY OF ACCUMULATED SILT, SEDIMENT, AND DEBRIS
FLOOD HAZARD AREA INDIVIDUAL PERMIT 7:13-11.14	FOR BANK STABILIZATION	UNLIMITED CUTTING BACK THE BANK (2:1 MAX.) AND PLANTING OF VEGETATION 2,000 S.F. OF PERMANENT DISTURBANCE (INCLUDING BIOENGINEERING)	CUTTING BACK THE BANK (2:1 MAX.) BIOENGINEERING (BIOLOGS) = 20 L.F. (60 S.F. OR 0.001 AC.) AREAS OF TEMPORARY ACCESS DRIVES ARE PROPOSED WITHIN LAWN AREAS AND DO NOT PROPOSE REMOVAL OF WOODY VEGETATION OR TREES.
FLOOD HAZARD AREA INDIVIDUAL PERMIT 7:13-11.10	FOR A STORMWATER OUTFALL STRUCTURE	1,000 S.F. OF PERMANENT DISTURBANCE IN RIPARIAN ZONE 1,000 S.F. OF TEMPORARY DISTURBANCE IN RIPARIAN ZONE	PERMANENT DISTURBANCE: 959 S.F. TEMPORARY DISTURBANCE: 0 S.F.

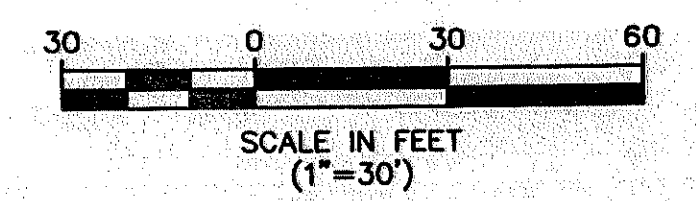


LEGEND

PROPOSED	EXISTING	DESCRIPTION
75.32	75.32	CONTOUR
---	---	SPOT ELEVATION
---	---	PROPERTY LINE
---	---	RIGHT OF WAY LINE
---	---	EDGE OF PAVEMENT
---	---	CURB
---	---	DEPRESSED CURB
---	---	SIDEWALK
---	---	PAVED PATH
---	---	TREELINE
---	---	WETLAND LINE
---	---	WETLAND BUFFER
---	---	STATE OPEN WATER LINE
---	---	RIPARIAN ZONE
---	---	MUNICIPAL BOUNDARY LINE
---	---	"B" INLET
---	---	"E" INLET
---	---	MANHOLE
---	---	UTILITY POLE
---	---	HEADWALL
---	---	STREAM FLOW
---	---	ELECTRIC SERVICE
---	---	WETLAND DISTURBANCE
---	---	4' WIDE SAFETY LEDGE
---	---	TEMPORARY GRAVEL ACCESS DRIVE
---	---	TEMPORARY STAGING AREA
---	---	RIP-RAP
---	---	BIOLOG SHORELINE STABILIZATION

- NOTES:**
- ANY CONTAMINATED MATERIALS REMOVED FROM THE SITE SHALL BE DIRECTLY TRUCKED OFF-SITE AND DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS.
 - DEWATERING OPERATION IS NOT REQUIRED FOR DREDGING OPERATIONS. THE CONTRACTOR SHALL OBTAIN A LAKE LOWERING PERMIT FROM THE DEPARTMENT'S DIVISION OF FISH AND WILDLIFE PRIOR TO PERFORMING ANY LAKE LOWERING OPERATIONS.
 - ALL PROPOSED GRAVEL ACCESS DRIVES ARE TEMPORARY. GRAVEL ACCESS DRIVES SHALL BE REMOVED AND LAWN & VEGETATION REESTABLISHED UPON COMPLETION OF DREDGING OPERATIONS. AREAS OF TEMPORARY ACCESS SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS IN ACCORDANCE WITH THE SOIL EROSION AND SEDIMENT CONTROL STANDARDS (SEE SHEETS 7 AND 8).
 - ELECTRICAL LAYOUT IS SHOWN FOR SCHEMATIC PURPOSES ONLY. FINAL ELECTRICAL UTILITY DESIGN SHALL BE PERFORMED BY AN ELECTRICIAN LICENSED IN THE STATE OF NEW JERSEY. ELECTRICAL UTILITIES SHALL BE INSTALLED BELOW GRADE AND TRENCHING SHALL BE BACKFILLED TO EXISTING GRADE.
 - ALL COUNTY FACILITIES INCLUDING, BUT NOT LIMITED TO, CURB, PAVEMENT, PAVED WALKS, PEDESTRIAN BRIDGES, EXERCISE EQUIPMENT, UTILITIES, SIGNS, BENCHES, FENCES, GATES, ETC., DAMAGED OR MODIFIED DURING CONSTRUCTION SHALL BE REPAIRED AND/OR RESTORED TO PRE-CONSTRUCTION CONDITIONS.

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REV.	DATE	DRAWN BY	DESCRIPTION
1	4/7/16	AG	REV. PER NJDEP COMMENTS

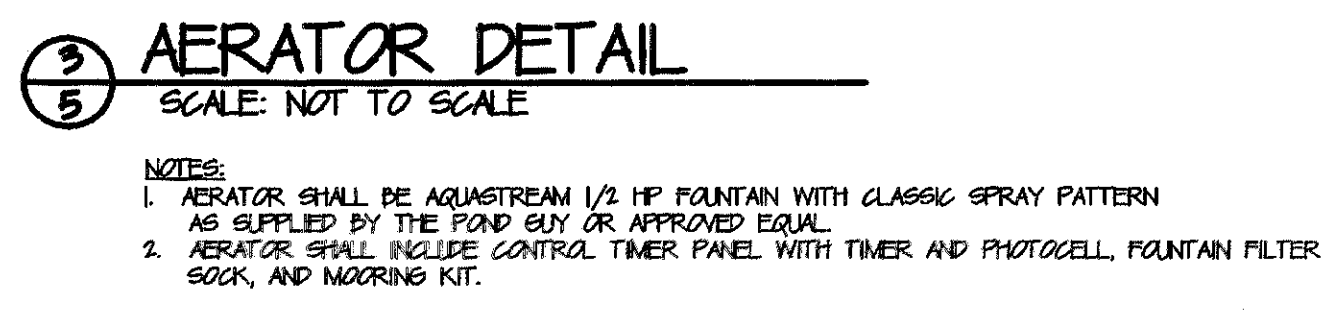
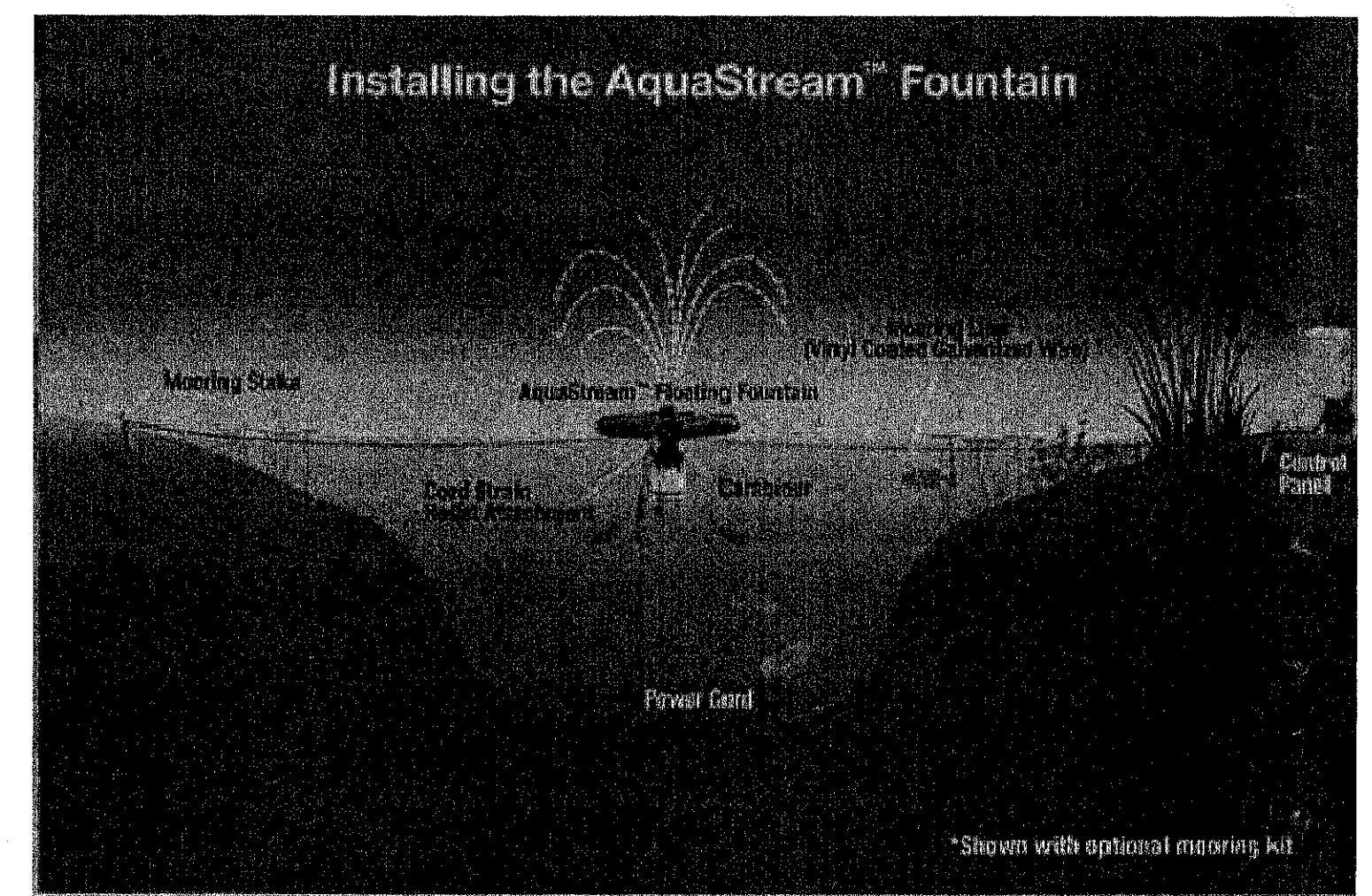
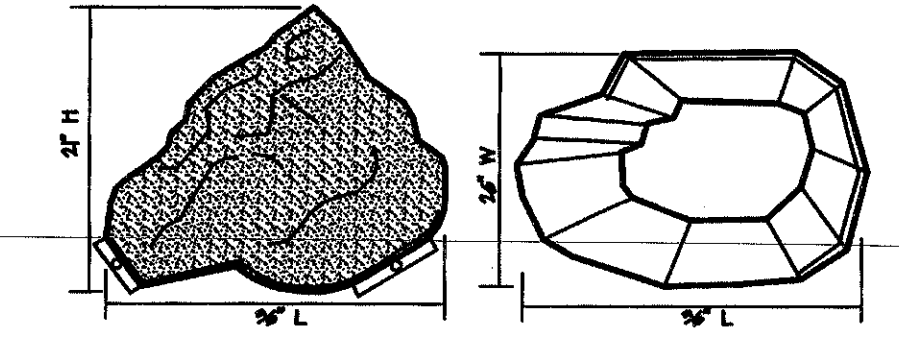
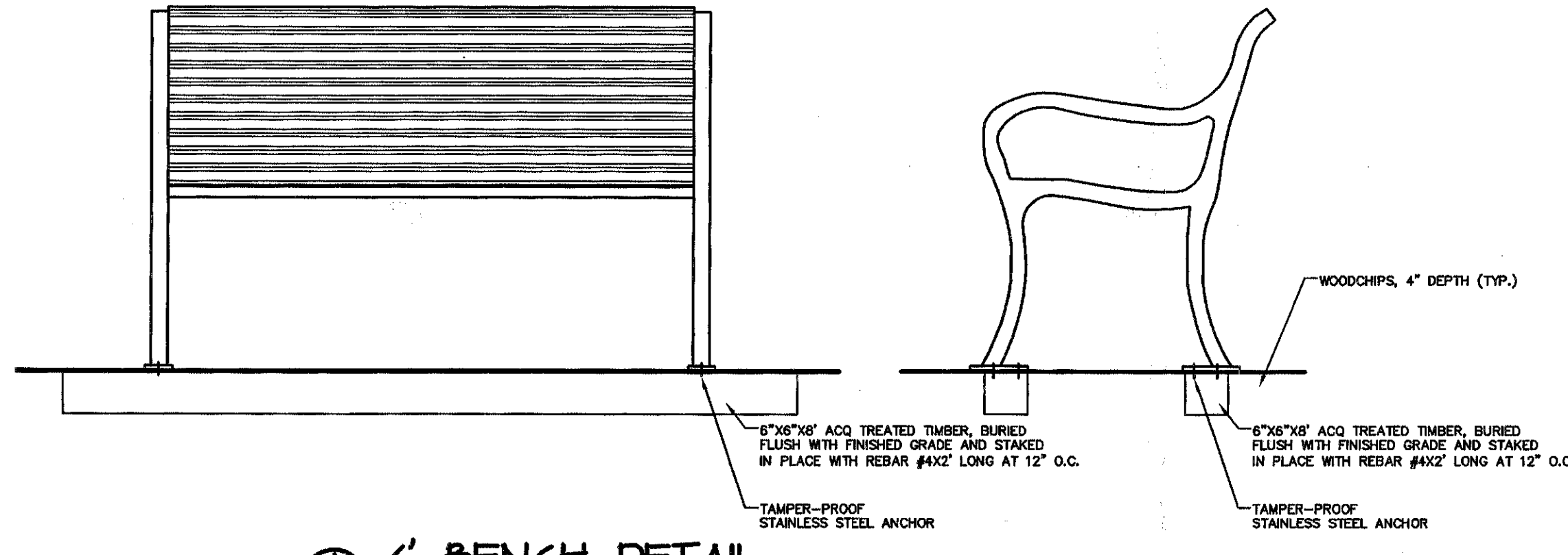
JULIA G. ALGEO
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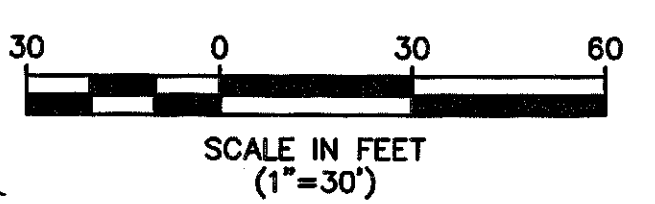
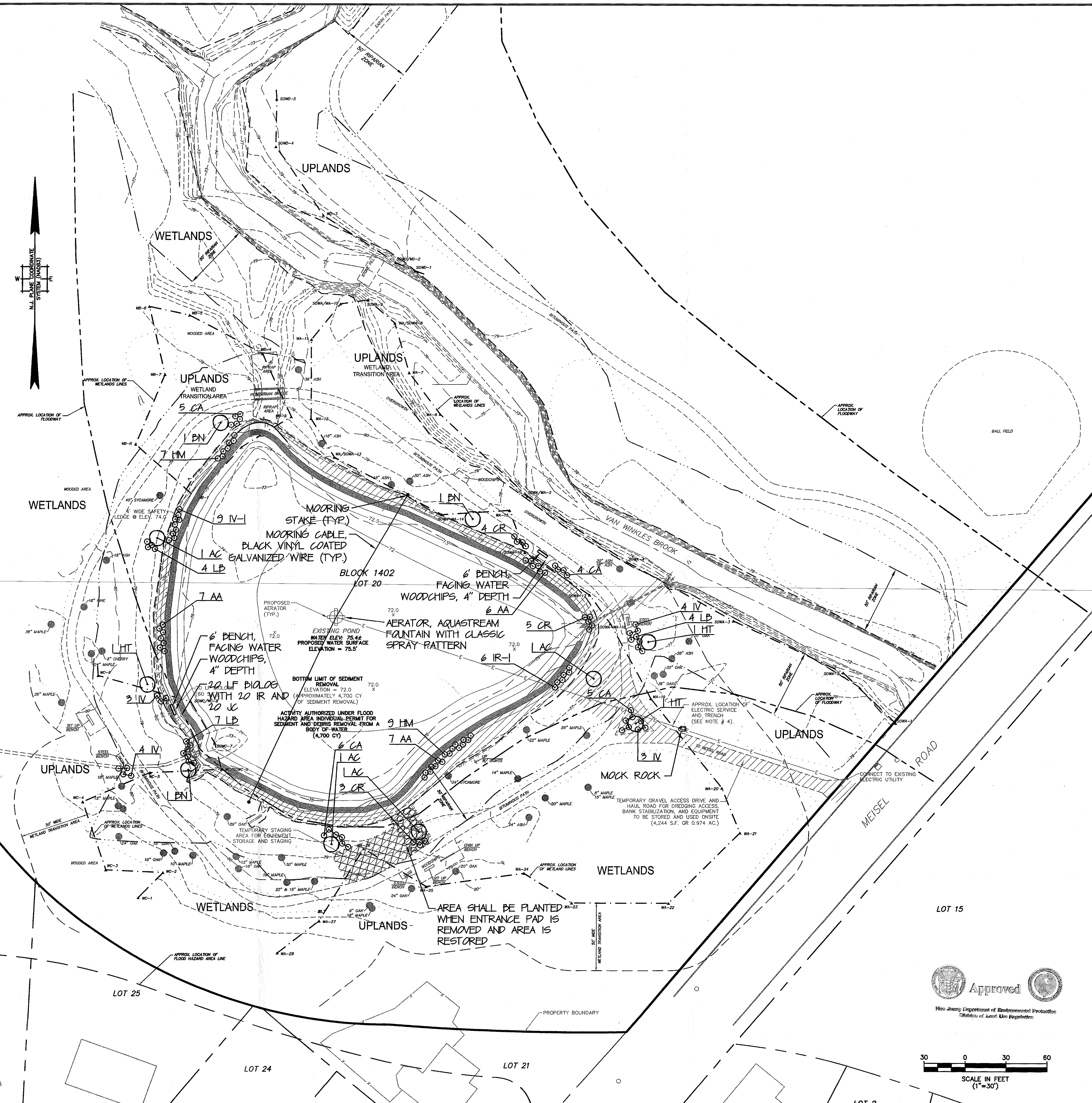
Regional Office:
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 Bethlehem, PA.

DREDGING OPERATIONS & GRADING PLAN
 FOR
MEISEL POND
 LOT 20, BLOCK 1402
 TOWNSHIP OF SPRINGFIELD UNION COUNTY NEW JERSEY

JOB NUMBER: 08000459E
 DATE: NOV. 3, 2015
 SCALE: 1"=30'
 LATEST REVISION: APRIL 1, 2016
 INDEX NUMBER: HA028630
 DESIGN BY: KEC/MAJ
 SHEET NUMBER: 4 of 10



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REV.	DATE	DRAWN BY	DESCRIPTION
1	4/7/16	AG	REV PER NJDEP COMMENTS

GUSTAVE E. DeBLASIO
NEW JERSEY LICENSED TREE EXPERT LIC. NO. 455

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NJDEP PERMITTING PLAN
LANDSCAPE PLAN
FOR
MEISEL POND
LOT 20, BLOCK 1402
TOWNSHIP OF SPRINGFIELD UNION COUNTY NEW JERSEY

JOB NUMBER: 08000459E	DATE: NOV. 3, 2015
SCALE: AS SHOWN	LATEST REVISION: APRIL 1, 2016
DRAWING NUMBER: HA028632	DESIGN BY: JGA
SHEET NUMBER: 5	of 10

PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME	COMMON NAME	HEIGHT	CALIPER	SPREAD	ROOT	NOTES
AC	4	AMELANCHIER CANADENSIS	SHADBLOW SERVICEBERRY	5'-6"			D # D	CLUMP
BN	3	BETULA NIGRA	RIVER BIRCH	5'-6"			D # D	CLUMP
HT	3	HALESIA TETRAPTERA	CAROLINA SILVERBELL	5'-6"			D # D	CLUMP
SHRUBS								
CA	20	CLETHRA ALNIFOLIA	SUMMERSWEET CLETHRA	18-24"			3 GAL. CONT.	FULL BODY, WELL BRANCHED
CR	12	CORNUS RACEMOSA	GRAY DOGWOOD	18-24"			3 GAL. CONT.	FULL BODY, WELL BRANCHED
IV	14	ITEA VIRGINICA	VIRGINIA SWEETSPIRE	18-24"			3 GAL. CONT.	FULL BODY, WELL BRANCHED
LD	15	LINDERA BENZOIN	SPICEBUSH	18-24"			3 GAL. CONT.	FULL BODY, WELL BRANCHED
HERBACEOUS SPECIES								
AA	22	ACORUS AMERICANUS	SWEETFLAG	12-15"			1 QUART CONT.	
HM	16	HIBISCUS MOSCHEUTOS	SWAMP ROSE-MALLOW	12-15"			1 QUART CONT.	
IR	20	IRIS VERSICOLOR	BLUEFLAG IRIS	2" PLUG			2" PLUG	PLANTED IN BIOLOG AT 6" O.C.
IR-1	15	IRIS VERSICOLOR	BLUEFLAG IRIS	12-15"			1 QUART CONT.	
JC	20	JUNCUS CANADENSIS	CANADA RUSH	2" PLUG			2" PLUG	PLANTED IN BIOLOG AT 6" O.C.

GENERAL PLANTING NOTES

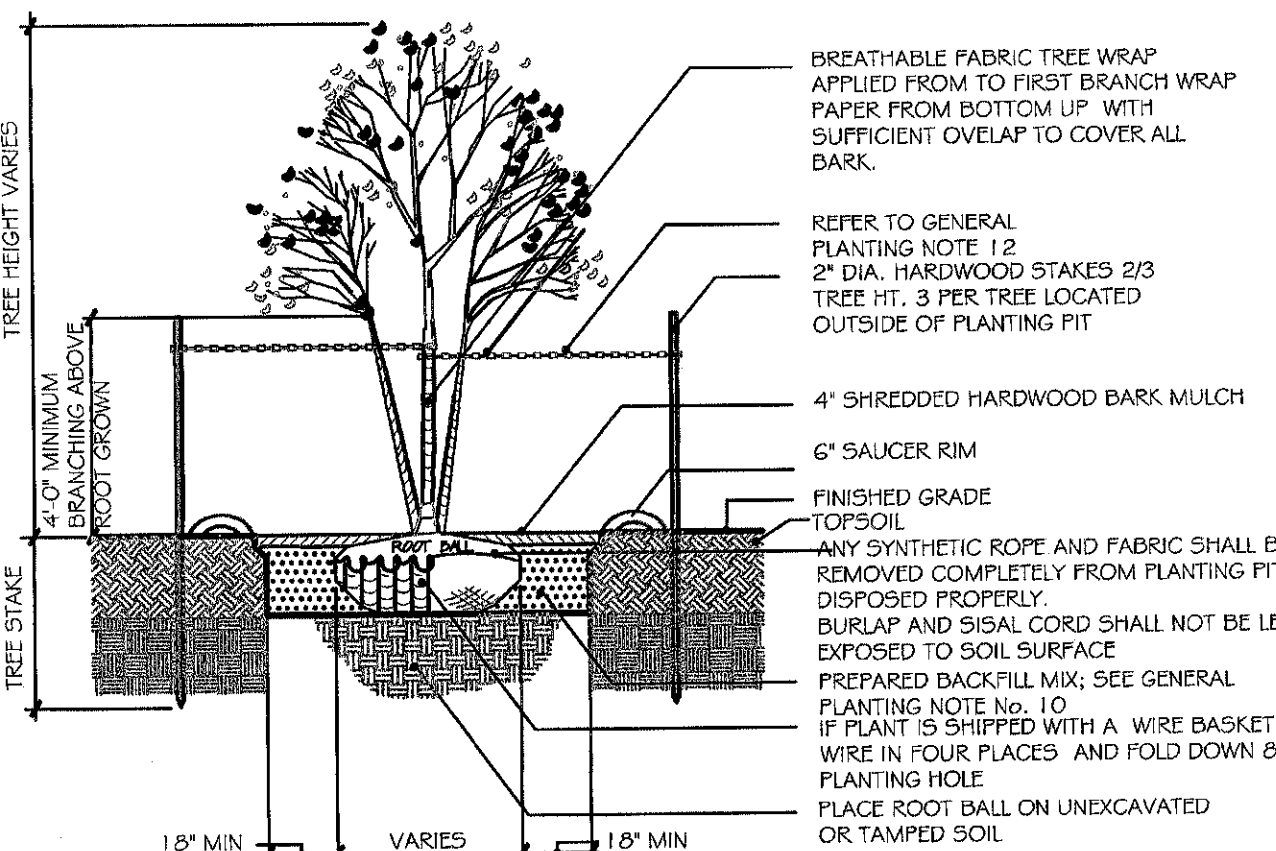
1. THIS PLAN SHALL BE USED FOR RESTORATION PLANTING PURPOSES ONLY. EXAMINE ALL ENGINEERING DRAWINGS AND FIELD CONDITIONS FOR SPECIFIC LOCATIONS OF UTILITIES, AND STRUCTURES AND NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES OR LOCATION CONFLICTS PRIOR TO PLANTING INSTALLATION.
2. THE CONTRACTOR IS RESPONSIBLE TO LOCATE AND VERIFY LOCATION OF ALL UTILITIES ON SITE PRIOR TO CONSTRUCTION.
3. ALL PLANT MATERIAL SHALL CONFORM TO THE STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERMEN OR THE PLANT MATERIAL WILL BE UNACCEPTABLE. ALL PLANT MATERIAL SHALL BE TRUE TO SPECIES, VARIETY, SIZE AND BE CERTIFIED DISEASE AND INSECT FREE. THE OWNER AND/OR THE LANDSCAPE ARCHITECT OR RESTORATION BIOLOGIST RESERVES THE RIGHT TO APPROVE ALL PLANT MATERIAL ON SITE PRIOR TO INSTALLATION.
4. NO PLANT SUBSTITUTIONS SHALL BE PERMITTED WITH REGARD TO SIZE, SPECIES, OR VARIETY WITHOUT WRITTEN PERMISSION OF THE LANDSCAPE ARCHITECT, RESTORATION BIOLOGIST OR RESIDENT ENGINEER. WRITTEN PROOF OF PLANT MATERIAL UNAVAILABILITY MUST BE DOCUMENTED.
5. THE LOCATION OF ALL PLANT MATERIAL INDICATED ON THE LANDSCAPE PLANS ARE APPROXIMATE. THE FINAL LOCATION OF ALL PLANT MATERIAL AND PLANTING BED LINES SHALL BE DETERMINED IN THE FIELD UNDER THE DIRECTION OF THE LANDSCAPE ARCHITECT OR RESTORATION BIOLOGIST.
6. THE PLANTING PLAN SHALL TAKE PRECEDENCE OVER THE PLANT SCHEDULE SHOULD ANY PLANT QUANTITY DISCREPANCIES OCCUR.

7. ALL PLANT MATERIAL SHALL BE GUARANTEED FOR ONE YEAR AFTER THE DATE OF FINAL ACCEPTANCE. ANY PLANT MATERIAL THAT DIES WITHIN THAT TIME PERIOD SHALL BE REMOVED AND REPLACED BY A PLANT OF SIMILAR SIZE AND SPECIES.
8. NEWLY INSTALLED PLANT MATERIAL SHALL BE WATERED AT THE TIME OF INSTALLATION OR AS NEEDED. TO BE DETERMINED BY THE LANDSCAPE ARCHITECT OR RESTORATION BIOLOGIST. REGULAR WATERING SHALL BE PROVIDED TO ENSURE THE ESTABLISHMENT, GROWTH AND SURVIVAL OF ALL PLANTS.
9. ALL PLANT MATERIAL SHALL BE GUARANTEED FOR ONE YEAR AFTER THE DATE OF FINAL ACCEPTANCE. ANY PLANT MATERIAL THAT DIES WITHIN THAT TIME PERIOD SHALL BE REMOVED AND REPLACED BY A PLANT OF SIMILAR SIZE AND SPECIES.
10. THE LANDSCAPE CONTRACTOR SHALL PROVIDE TOPSOIL IN THE TRANSITION AREA AND WETLAND AREA AS PRESCRIBED BY SOIL ANALYSIS TO DETERMINE THE NEED, BUT IN ANY CASE THE FINAL GRADE SHALL NOT EXCEED THE ELEVATIONS SHOWN ON THE CONCEPTUAL LANDSCAPE RESTORATION PLAN (SHEET 5).
11. EXISTING TREES AND SHRUBS TO BE PRESERVED ON SITE SHALL BE PROTECTED AGAINST CONSTRUCTION DAMAGE BY TREE PROTECTION FENCING. ALL FENCING SHALL BE PLACED OUTSIDE THE INDIVIDUAL TREE CANOPY. ALL TREES TO REMAIN SHALL BE IDENTIFIED IN THE FIELD PRIOR TO COMMENCEMENT OF CONSTRUCTION. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION, GRADING OR CLEARING. ALL EXISTING VEGETATION BEING PRESERVED AND LOCATED AT THE EDGE OF THE NEW TREE LINE, SHALL BE PRUNED AND TRIMMED TO REMOVE ALL DEAD, DISEASED, OR DAMAGED BRANCHES.
12. ALL PLANTING DEBRIS (WIRE, TWINE, RUBBER HOSE, BACKFILL ETC.) SHALL BE REMOVED FROM THE SITE AFTER PLANTING IS COMPLETE. PROPERTY IS TO BE LEFT IN A NEAT ORDERLY CONDITION IN ACCORDANCE WITH ACCEPTED PLANTING PRACTICES.
13. PLANTS TO BE SPOTTED IN THE FIELD BY A QUALIFIED RESTORATION BIOLOGIST OR LANDSCAPE ARCHITECT.
14. PLANT QUANTITY CALCULATIONS HAVE BEEN DERIVED WITH A FORMULA BASED ON THE PLANTING AREA AND THE PLANT SPACING (AS SHOWN).

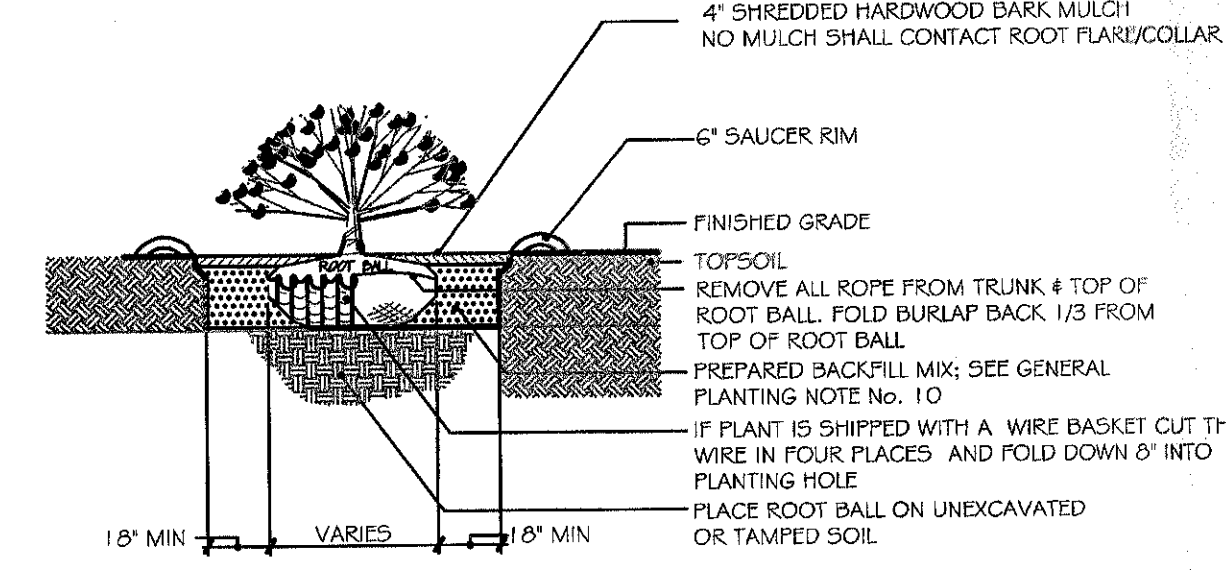
GENERAL ACTIVITY NOTES

- UPLAND/WETLAND TRANSITION**
1. CONTRACTOR SHALL MAINTAIN ALL THE PLANTINGS INSTALLED PRIOR TO THE DATE INDICATED IN THE WATER LOWERING PERMIT WHEN THE WATER LEVEL MUST BE RETURNED TO ITS ORIGINAL ELEVATION.
 2. PLACE BIOLOGS (500 LF MAX.) AND ROCKS (150 LF MAX.) FOR STABILIZATION (AS SHOWN).
 3. REMOVE NON-NATIVE PLANT SPECIES.
 4. REMOVE TRASH AND DEBRIS.
 5. TRIM EXISTING VEGETATION AND REMOVE DEAD AS NEEDED.
 6. PLANT EMERGENT AND SHRUB SPECIES IN TRANSITION AREA AS SHOWN ON SPACING DETAIL.
 7. REVEGETATE WITH NATIVE SPECIES (SEE NOTES).

- SLOPE EMERGENT WETLAND**
1. PLANT EMERGENT SPECIES ON SLOPE AS SHOWN ON SPACING DETAIL.
 2. REVEGETATE USING NATIVE SPECIES (SEE NOTES).
- BENCH EMERGENT WETLAND**
1. PLANT EMERGENT SPECIES ON BENCH AS SHOWN ON SPACING DETAIL.
 2. REVEGETATE USING NATIVE SPECIES (SEE NOTES).
- GOOSE FENCING**
1. TEST ALL 4" TALL TERRESTRIAL GOOSE FENCE BETWEEN SILT FENCE AND TRANSITIONAL PLANTING AREA.
 2. INSTALL AQUATIC GOOSE FENCE MID-WAY ON BENCH PLANTING AREA BEYOND PROPOSED PLANTINGS. EXTEND GOOSE FENCE 4' ABOVE WATER SURFACE.
 3. BIRD NETTING SHALL BE LIGHTWEIGHT 1/2" MESH POLYETHYLENE OR POLYPROPYLENE BIRD CONTROL NETTING. BIRD NETTING SHALL BE ATTACHED TO THE UPPER EDGES OF THE GOOSE FENCING USING CLIPS TO PREVENT GEESSE FROM LANDING INSIDE PLANTED AREAS.



1 MULTI-STEM TREE PLANTING DETAIL
NOT TO SCALE



2 SHRUB PLANTING DETAIL
NOT TO SCALE

BIOLOG GENERAL NOTES

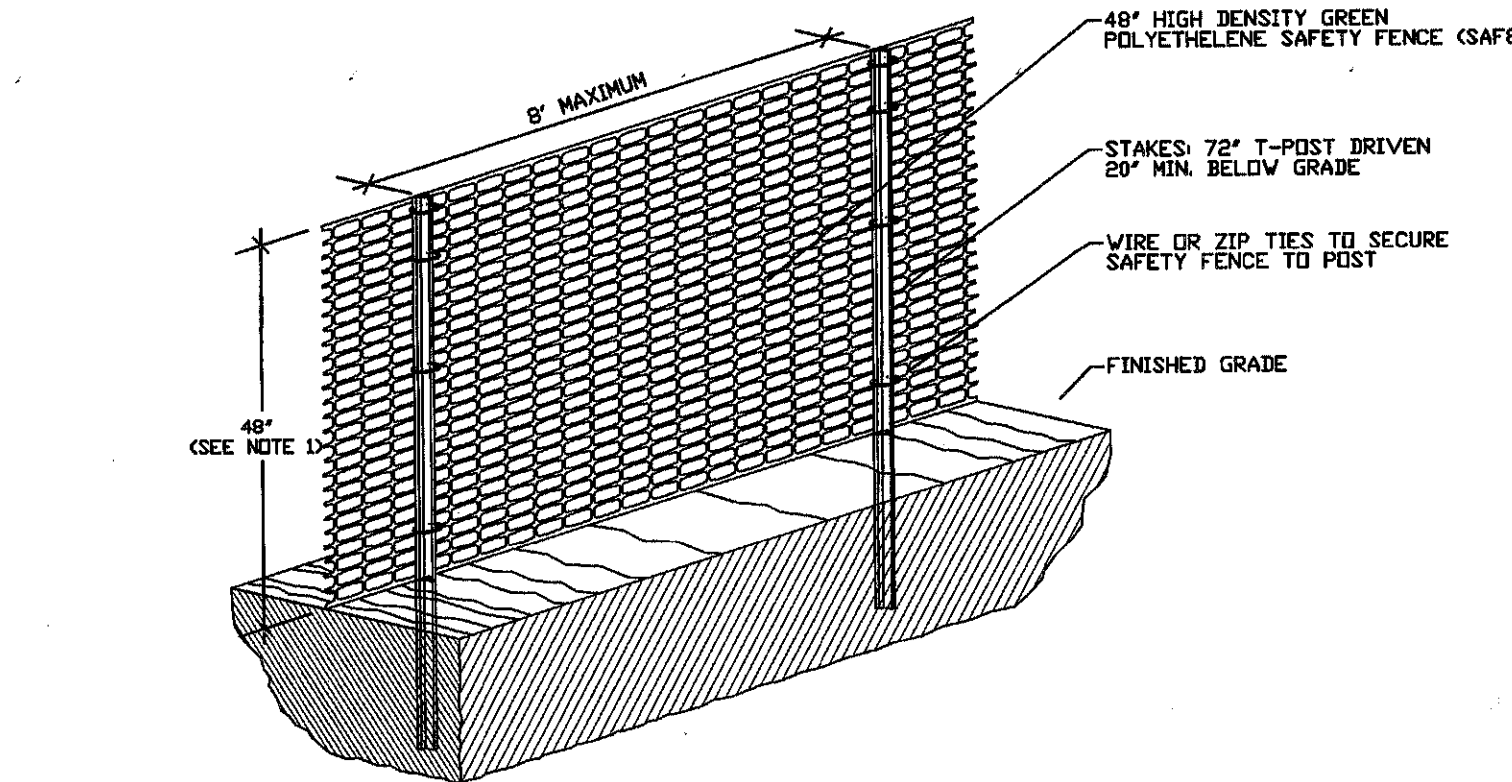
1. BIOLOGS ARE INSTALLED SO THAT THEY REST AGAINST THE SHORELINE AND THE BOTTOM OF THE WATERWAY.
2. BIOLOGS ARE ALSO STAKED AWAY FROM THE SHORELINE. THE SPACE BETWEEN THE BIOLOGS SERVES AS A WATER POOL OR THE SPACE IS BACKFILLED. THE NEED TO BACKFILL OR CONTOUR THE SOIL BEHIND THE BIOLOGS WILL DEPEND ON THE SPECIFIC AESTHETIC AND PHYSICAL REQUIREMENTS OF THE PROJECT.
3. THE RE-CONToured SOIL BEHIND THE BIOLOGS SHOULD BE SECTED AND COVERED WITH AN EROSION CONTROL BLANKET TO PREVENT SOIL EROSION WHERE REQUIRED.
4. PLUG PLANTS SHALL BE PLANTED IN AN ALTERNATING PATTERN ALONG THE TOP OF THE BIOLOG, PLANTING BETWEEN THE COIR FIBER NETTING OR AS DIRECTED BY THE RESTORATION BIOLOGIST.
5. PLANT SPACING DEPENDS ON SPECIFIC PLANTS USED (SEE DETAIL BELOW).
6. IF WATER LEVELS ARE TOO LOW FOR THE BIOLOG TO BE 1/2 TO 2/3 UNDER WATER, PLUG PLANTS INTO THE SIDE OF THE BIOLOG WHERE THEY WILL RECEIVE ADEQUATE MOISTURE.
7. TO INSURE PLANT ROOTS EXTEND INTO THE SOIL, PLUG PLANTS INTO THE SIDES OF THE BIOLOG NEAR THE SOIL, OR IN THE SOIL, OR AS DIRECTED BY THE RESTORATION BIOLOGIST.

BIOLOG INSTALLATION NOTES

1. PLACE THE BIOLOG ALONG THE TOP OF THE BANK AT WATER EDGE.
2. SUBMERGE THE BIOLOG AT A CONSTANT DEPTH OF 1/2 TO 2/3 OF THE LOGS HEIGHT. THE PROPER SUBMERSION OF THE BIOLOG IS IMPORTANT FOR THE PLUGGED PLANTS SURVIVAL.
3. TIE THE ENDS OF ADJACENT LOGS TOGETHER WITH A STRONG TWINE IN THE END NETTING OF THE ADJACENT BIOLOGS - EFFECTIVELY LACING THE BIOLOGS TOGETHER.
4. PUSH WOOD STAKES (3"x3"x30") THROUGH TWO LOOPS OF THE BIOLOGS COIR NETTING ON THE WATERSIDE OF THE BIOLOG. SLANT WOOD STAKES TOWARD BIOLOG, IF FEASIBLE (DETAIL 1).
5. DRIVE THE STAKES IN AT THE RECOMMENDED SPACING OF 24" x 48" O.C. - FOUND THE STAKES DOWN SO THE TOP OF THE STAKE IS LEVEL WITH THE TOP OF THE BIOLOG (DETAIL 1).
6. WHERE A BIOLOG DOES NOT ADJUT ANOTHER BIOLOG, BEND THE BID IN TOWARDS THE SHORE AND DIG IT INTO THE BANK. THIS KEEPS THE WATER FROM GETTING BEHIND THE BIOLOG, PREVENTING PULL OUT OF THE LOGS. BE CERTAIN TO TRENCH IN BOTH ENDS OF EITHER A SINGLE OR A CONTINUOUS LINE OF BIOLOGS.
7. BEGIN PLANTING THE BIOLOG AFTER IT HAS BEEN IN THE WATER FOR A SHORT TIME.
8. PLUG PLANTS INTO THE BIOLOG BY PULLING THE COIR FIBERS APART WITH FINGERS AND GENTLY PUSHING THE PLUG DEEP INTO THE BIOLOG OR AS DIRECTED BY THE RESTORATION BIOLOGIST.
9. PLACE FIVE (5) STAKES ON THE WATER SIDE OF EACH BIOLOG WITH 48" SPACING.
10. CUT A 3/4" DEEP NOTCH IN EACH STAKE, ABOUT 2" FROM THE TOP THIS IS TO HELP SECURE THE TWINE.
11. PULL TWINE TAUT BETWEEN THE STAKES OPPOSITE EACH OTHER. (DETAIL 2) COIR TWINE IS RECOMMENDED FOR ITS LONGEVITY, BUT A STURDY SIAL SHOULD BE SUFFICIENT.
12. DRIVE STAKES IN SO THAT THE TWINE IS SECURED AGAINST THE TOP OF THE BIOLOG.
13. PLANT THE BIOLOG USING INSTRUCTIONS FOR LOW KINETIC ENERGY INSTALLATIONS AND GENERAL INSTRUCTIONS.
14. BIOLOGS ARE INSTALLED IN A PREFERENTIAL PATTERN AND WITH JUTE NETTING COVERING THE SUBSTRATE (SHEET 7) ALONG THE BENTON RIVER TO HELP SECURE THE LOW MARSH PLANTINGS AND TO PROVIDE A METHOD TO ASSESS THE SUCCESS OF PLANT ESTABLISHMENT WITHIN THE VASCULAR CELLS CREATED BY THE GRID PATTERN.

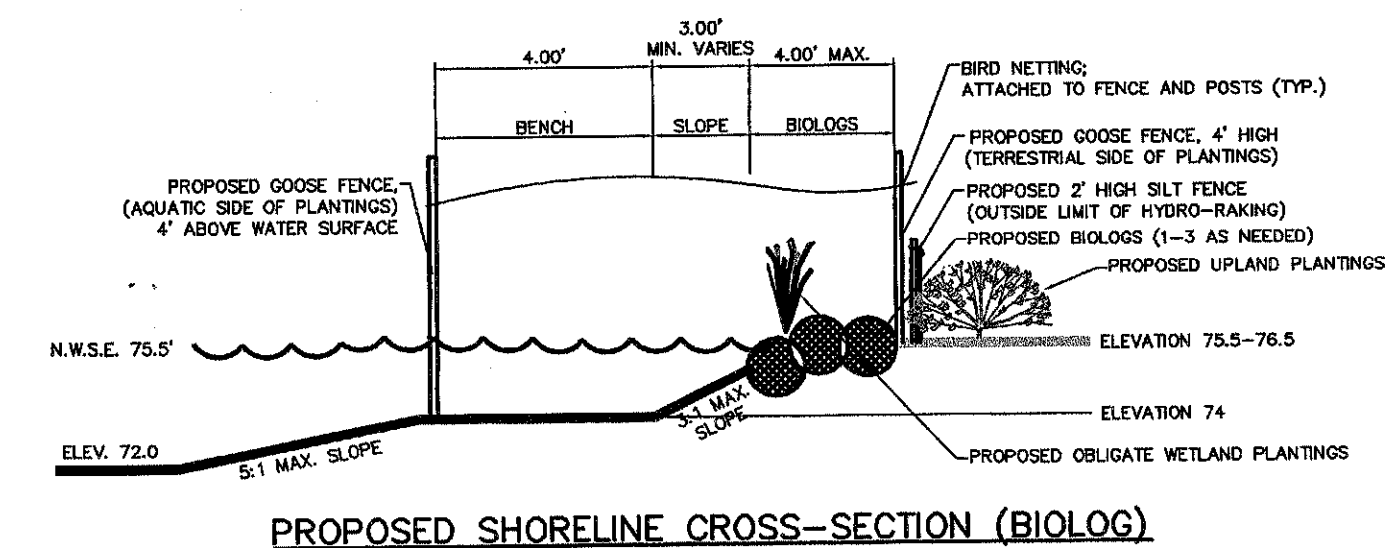
NOTES:
1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.

NOTES:
1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT FLARE/COLLAR OF PLANT.
2. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.

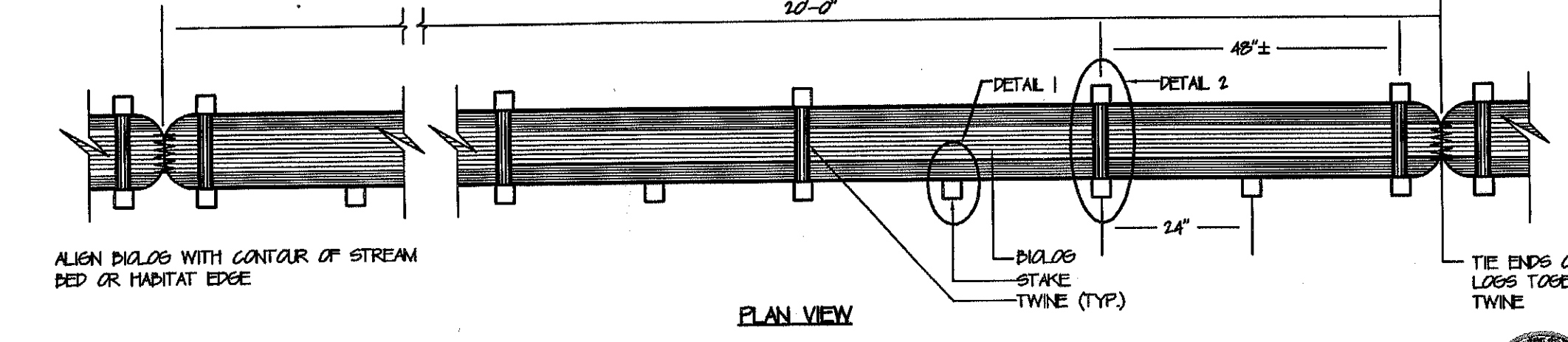
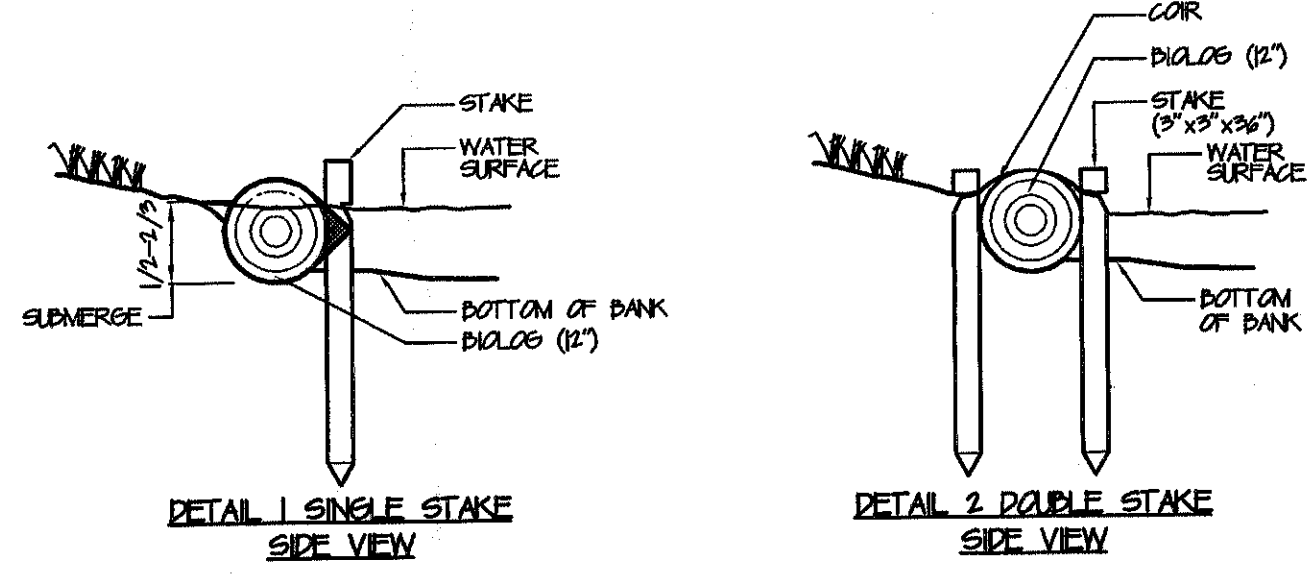
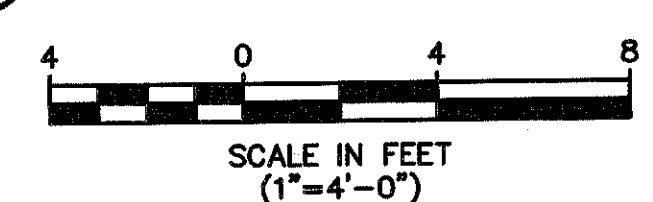


- NOTES:**
1. INSTALL 4" TALL TERRESTRIAL GOOSE FENCE BETWEEN SILT FENCE AND TRANSITIONAL PLANTING AREA.
 2. INSTALL AQUATIC GOOSE FENCE MID-WAY ON BENCH PLANTING AREA BEYOND PROPOSED PLANTINGS. EXTEND GOOSE FENCE 4' ABOVE WATER SURFACE.
 3. BIRD NETTING SHALL BE LIGHTWEIGHT 1/2" MESH POLYETHYLENE OR POLYPROPYLENE BIRD CONTROL NETTING. BIRD NETTING SHALL BE ATTACHED TO THE UPPER EDGES OF THE GOOSE FENCING USING CLIPS TO PREVENT GEESSE FROM LANDING INSIDE PLANTED AREAS.
 4. THE FENCING MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION; ANY CHANGE OF THE FENCING MUST BE APPROVED BY LANDSCAPE ARCHITECT.

3 GOOSE FENCE DETAIL
NOT TO SCALE



4 CROSS SECTIONS
SCALE: 1"=4'-0"



5 BIOLOG INSTALLATION DETAIL
NOT TO SCALE



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REV.	DATE	DRAWN BY	DESCRIPTION
1	4/1/18	AG	REV. PER ALOP COMMENTS

Gustave E. DeBlasio
NEW JERSEY LICENSED TREE EXPERT LIC. NO. 485

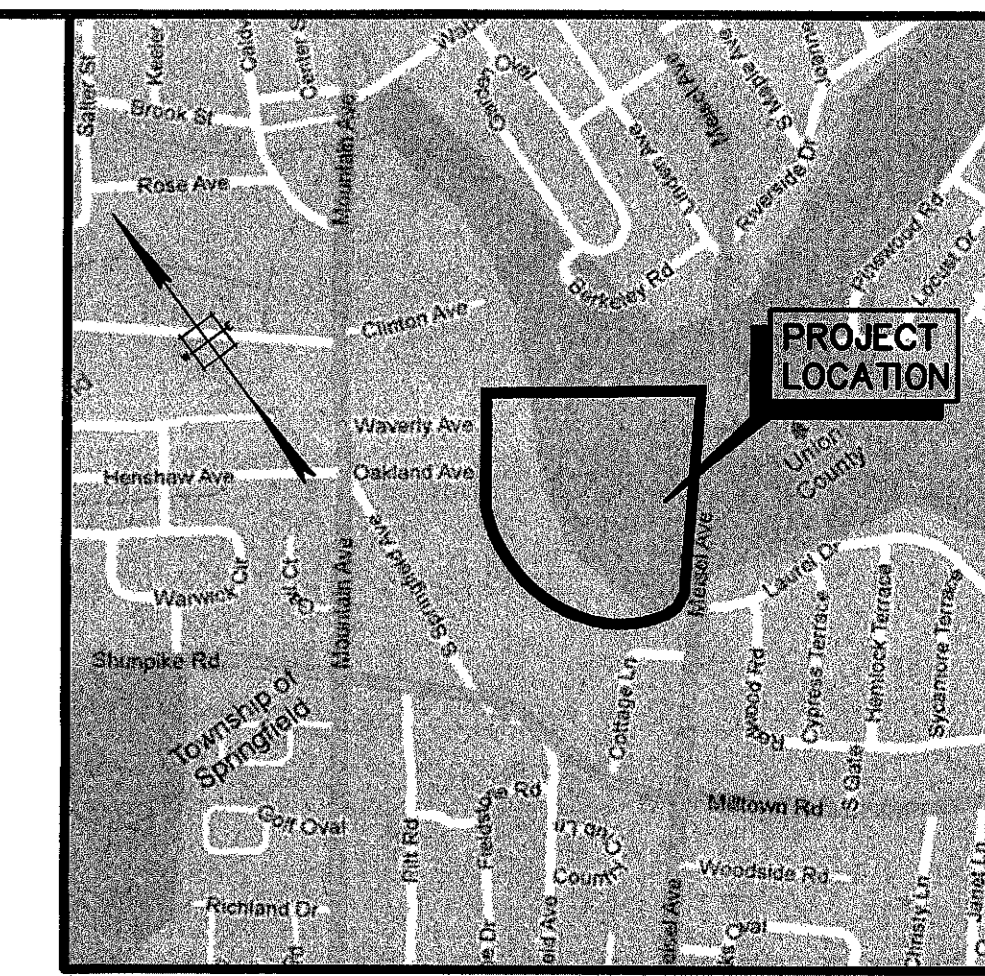


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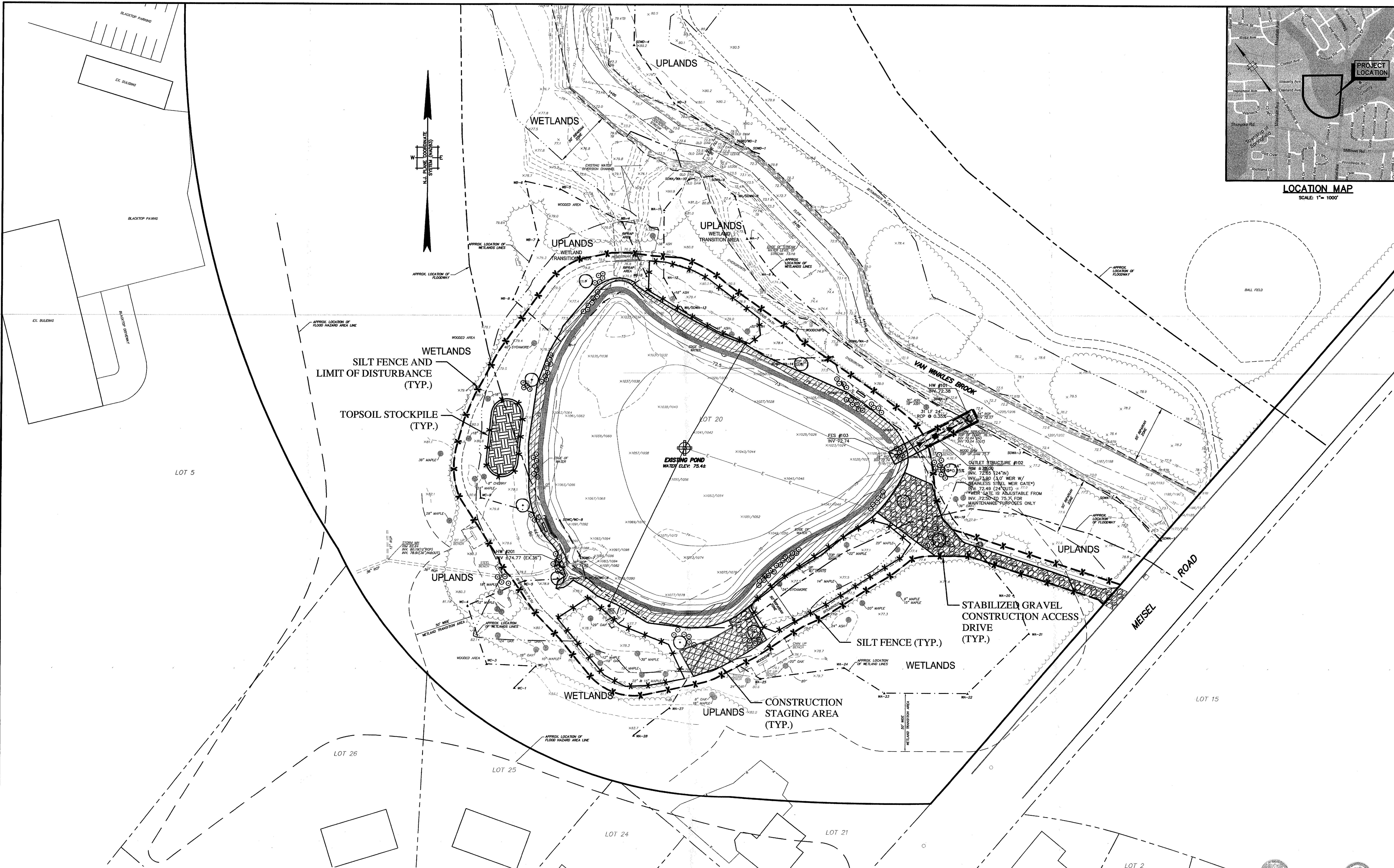
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NJDEP PERMITTING PLAN
LANDSCAPE DETAILS
FOR
MEISEL POND
LOT 20, BLOCK 1402
TOWNSHIP OF SPRINGFIELD UNION COUNTY NEW JERSEY

JOB NUMBER: 08000439E	DATE: NOV. 3, 2015
SCALE: 1"=30'	LATEST REVISION: APRIL 1, 2016
INDEX NUMBER: HA028633	DESIGN BY: JGA
SHEET NUMBER: 6	OF 10

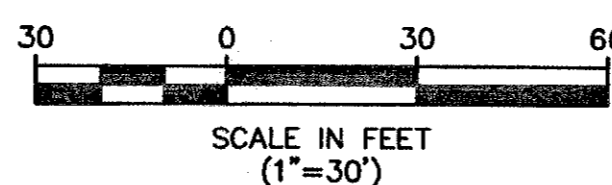


LOCATION MAP
SCALE: 1" = 1000'



LEGEND

- SILT FENCE
- SILT FENCE AND LIMIT OF DISTURBANCE
- LIMIT OF DISTURBANCE
- CONSTRUCTION ACCESS DRIVE
- CONSTRUCTION STAGING AREA
- TOPSOIL STOCKPILE
- WETLANDS



REV.	DATE	DRAWN BY	DESCRIPTION
1	4/7/16	AG	REV FOR N.J.P.E.P. COMMENTS

Julia G. Algeo
JULIA G. ALGEO
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N.J.P.E.P. PERMITTING PLAN
SOIL EROSION & SEDIMENT CONTROL PLAN
 FOR
MEISEL POND
 LOT 20, BLOCK 1402
 TOWNSHIP OF SPRINGFIELD UNION COUNTY NEW JERSEY

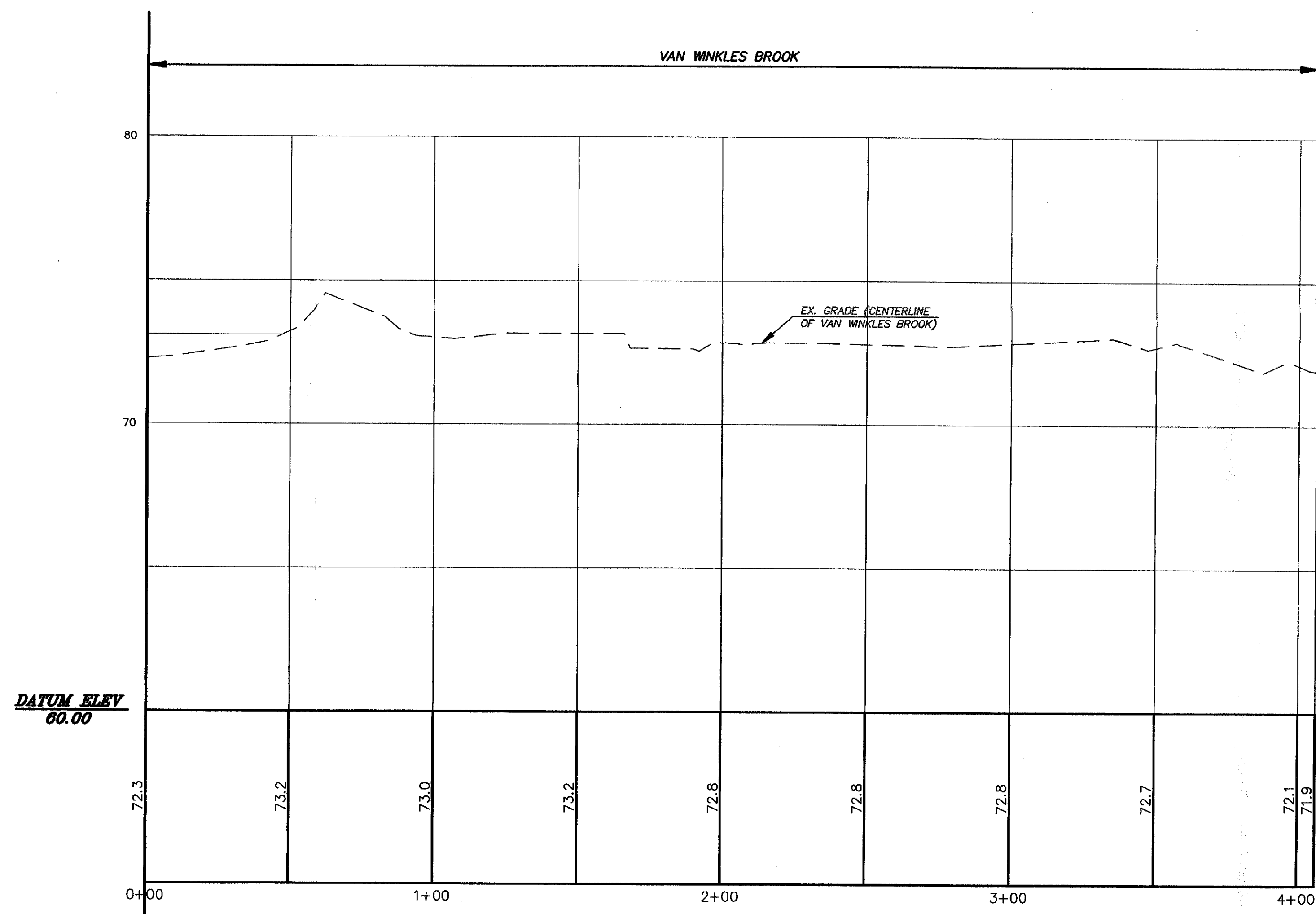
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 LATEST REVISION: APRIL 1, 2016
 INDEX NUMBER: HA028634
 DESIGN BY: KEC
 SHEET NUMBER: 7 of 10



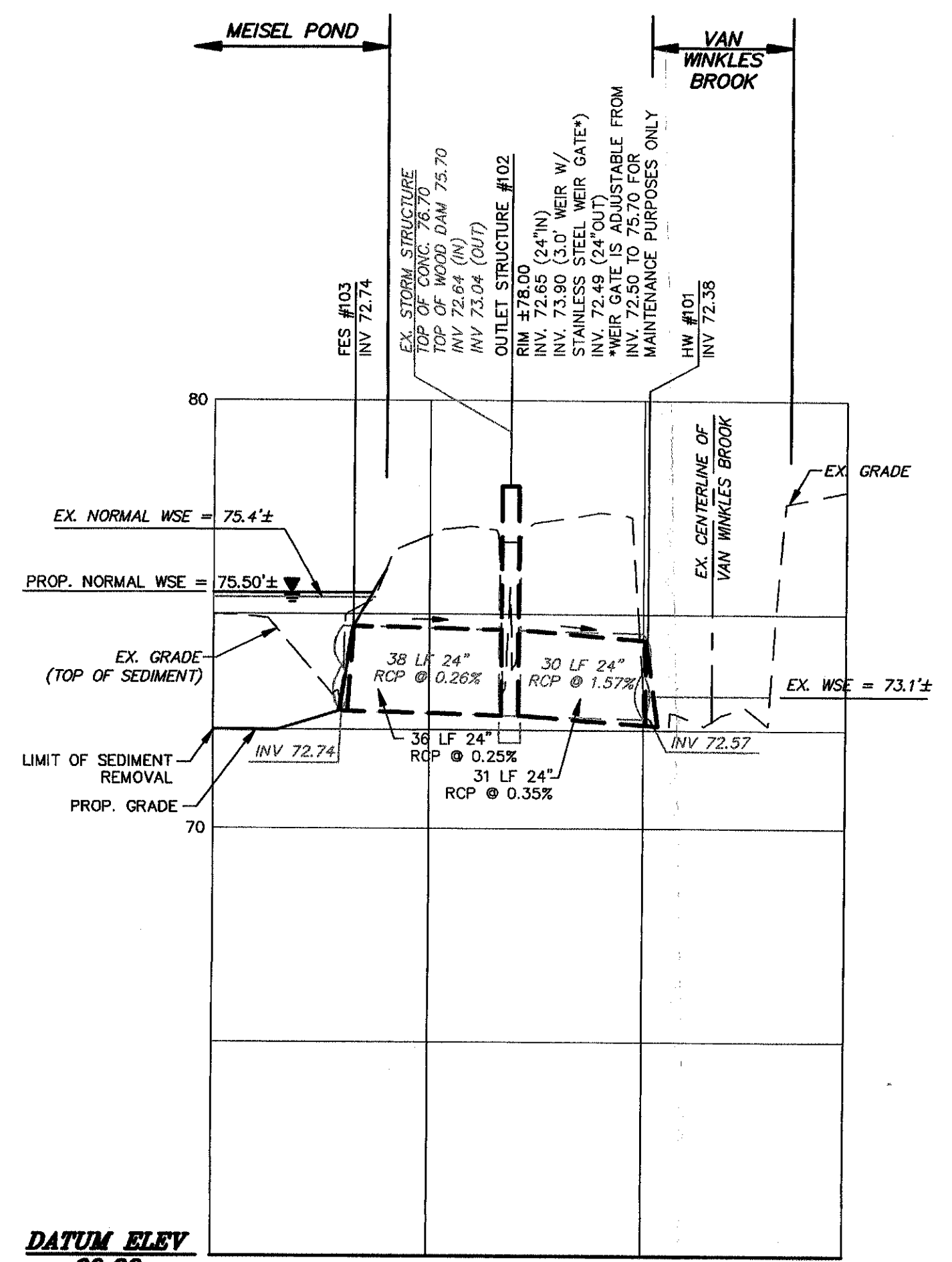
THIS PLAN IS FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY.

TOTAL LIMIT OF DISTURBANCE AREA = 3 ACRES

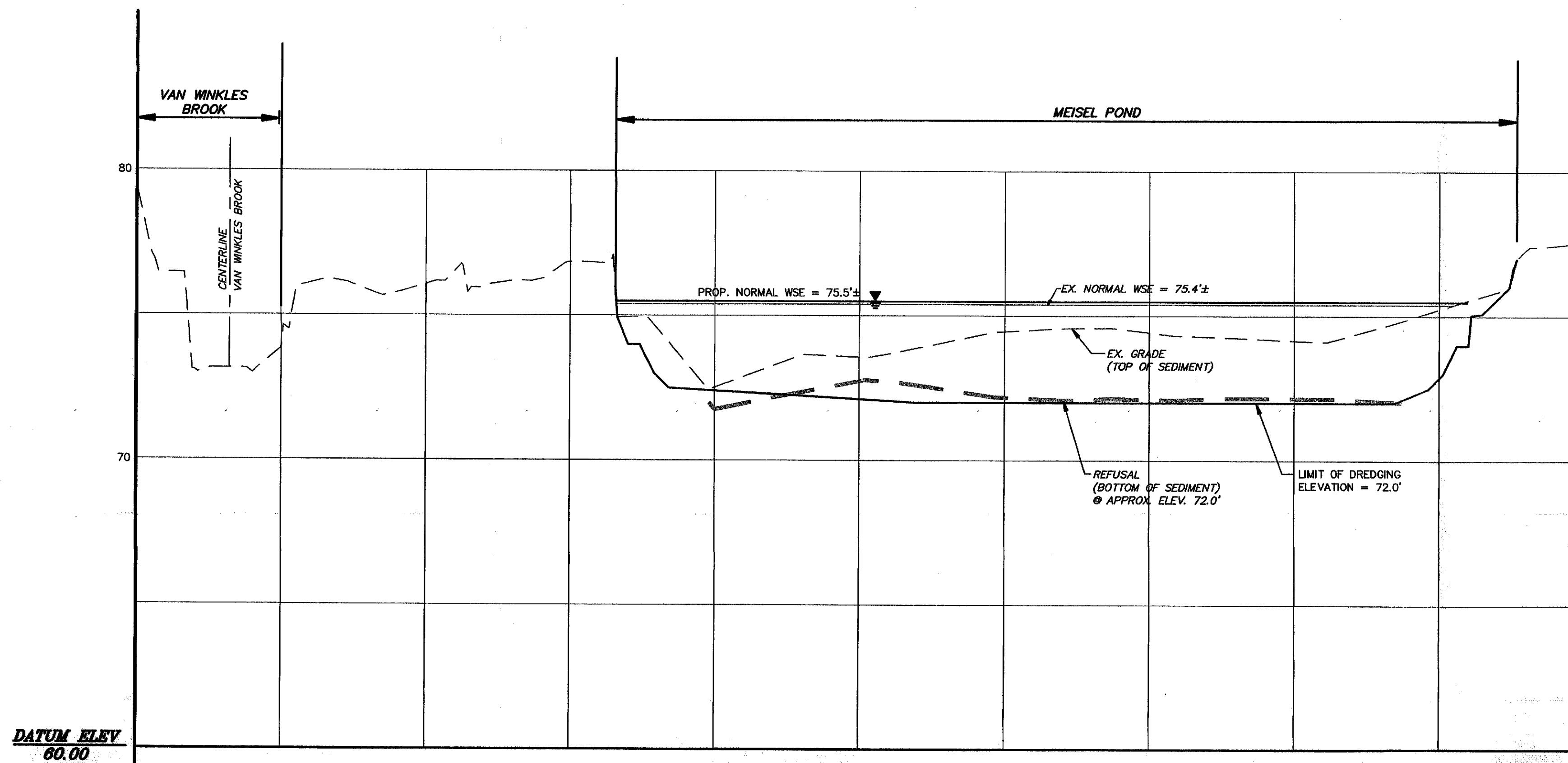
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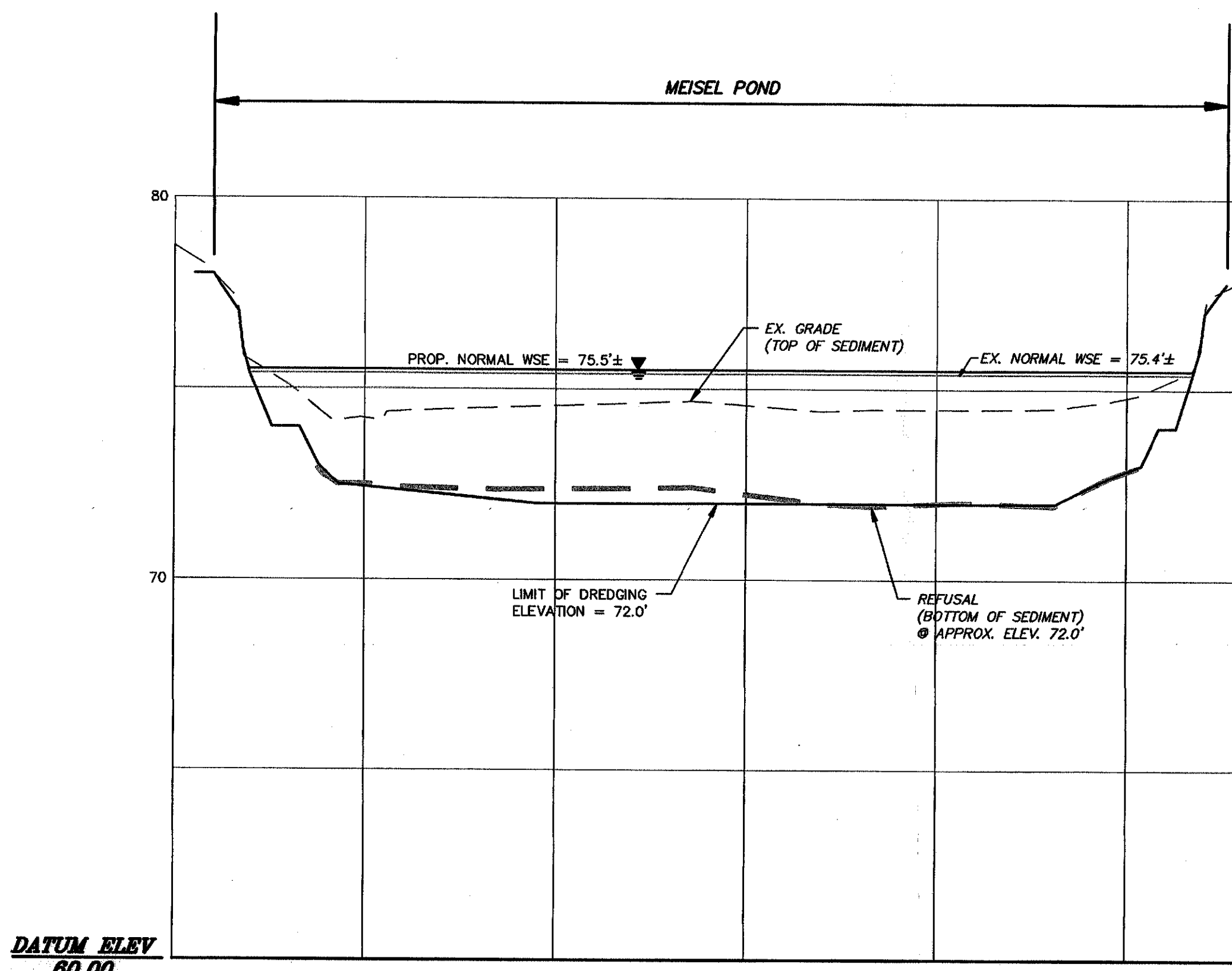
CROSS SECTION A-A
 SCALE: 1"=30' (HORIZONTAL)
 1"=3' (VERTICAL)



CROSS SECTION B-B
 SCALE: 1"=30' (HORIZONTAL)
 1"=3' (VERTICAL)



CROSS SECTION C-C
 SCALE: 1"=30' (HORIZONTAL)
 1"=3' (VERTICAL)



CROSS SECTION D-D
 SCALE: 1"=30' (HORIZONTAL)
 1"=3' (VERTICAL)

NOTE:
 1. BOTTOM OF SEDIMENT INTERPOLATED FROM REFUSAL SHOTS TAKEN FROM BATHYMETRIC SURVEY. DESIGN INTENT IS TO BE CONSISTENT WITH ORIGINAL POND BOTTOM ELEVATIONS.

LEGEND
 - - - - - EXISTING GRADE
 - - - - - EXISTING NORMAL WSE
 - - - - - PROPOSED NORMAL WSE
 - - - - - REFUSAL (BOTTOM OF SEDIMENT)
 - - - - - LIMIT OF DREDGING



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1	4/7/16	AG	REV. PER NJDEP COMMENTS

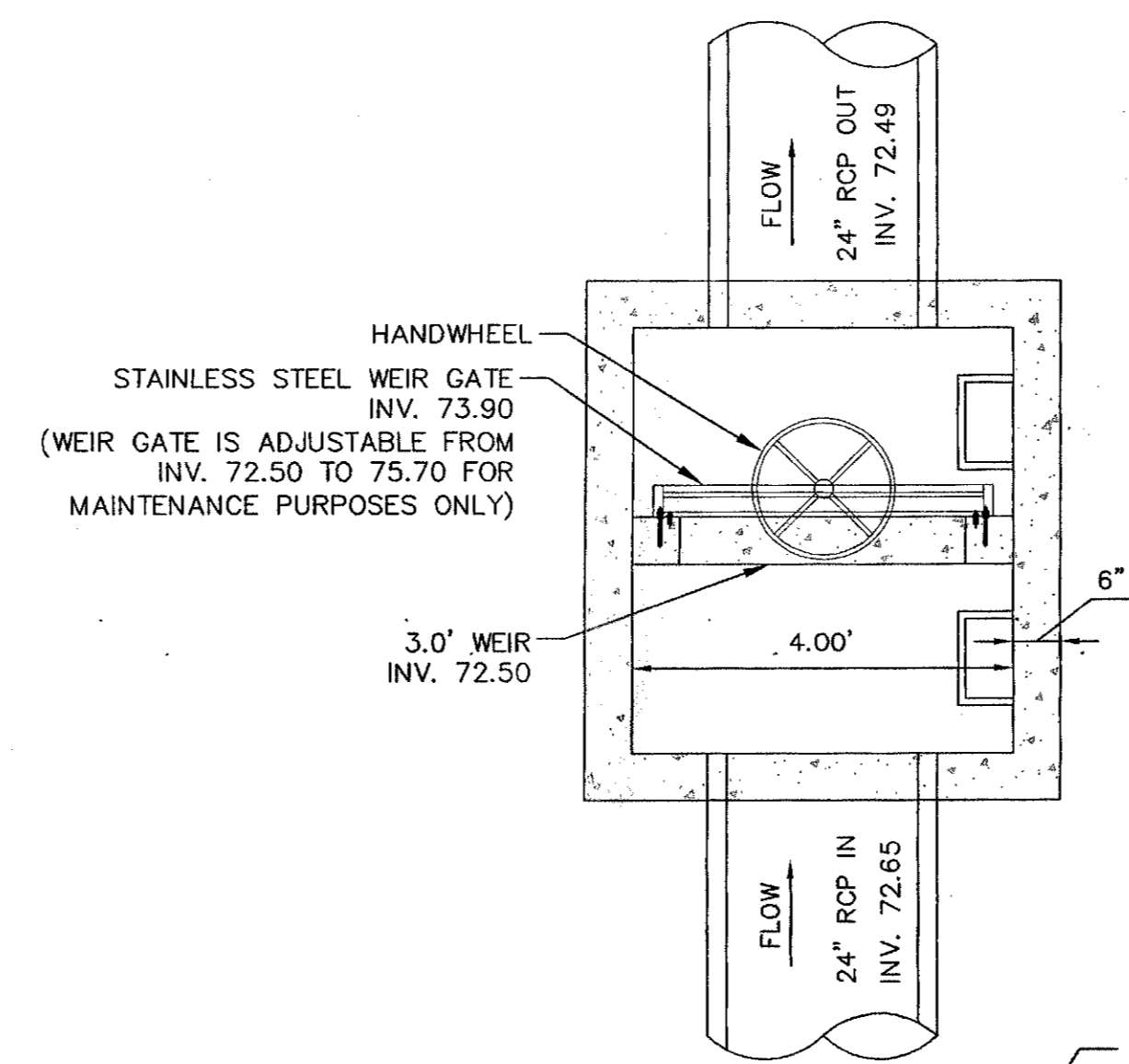
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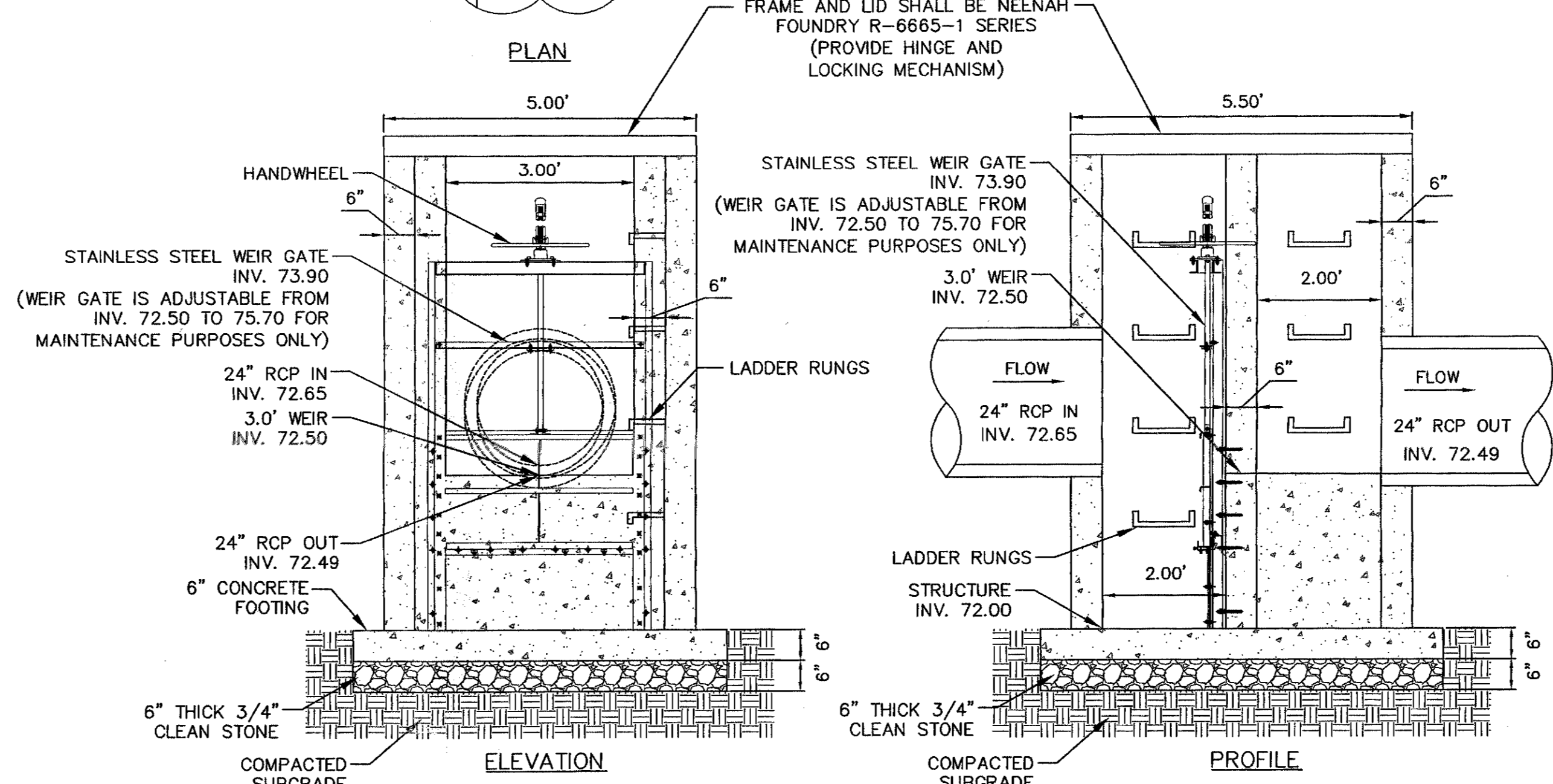
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NJDEP PERMITTING PLAN
POND CROSS-SECTIONS
 FOR
MEISEL POND
 LOT 20, BLOCK 1402
 TOWNSHIP OF SPRINGFIELD UNION COUNTY NEW JERSEY

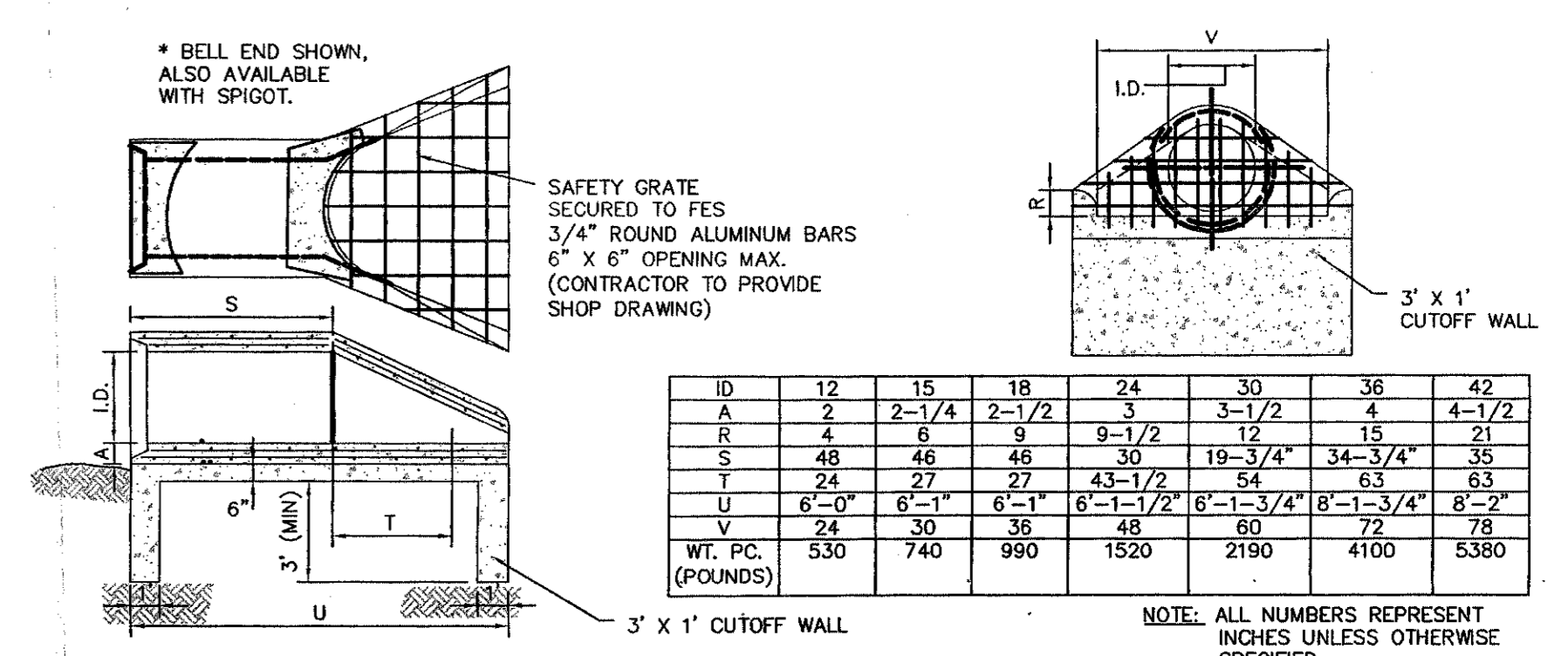
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PROJECT NUMBER: HA028636	DESIGN BY: KEC/MAJ
SHEET NUMBER: 9	of 10



- NOTES:
- STRUCTURE SHALL BE CONCRETE CLASS "B", PRE-CAST.
 - FOOTING SHALL BE CONCRETE CLASS "B".
 - PROVIDE LADDER RUNGS 18" O.C.
 - STAINLESS STEEL WEIR GATE SHALL BE SHALL BE MANUFACTURED BY HYDRO GATE (MODEL #HG 561) OR APPROVED EQUAL. WEIR GATE SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
 - CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR STRUCTURE AND ALL APPURTENANCES.

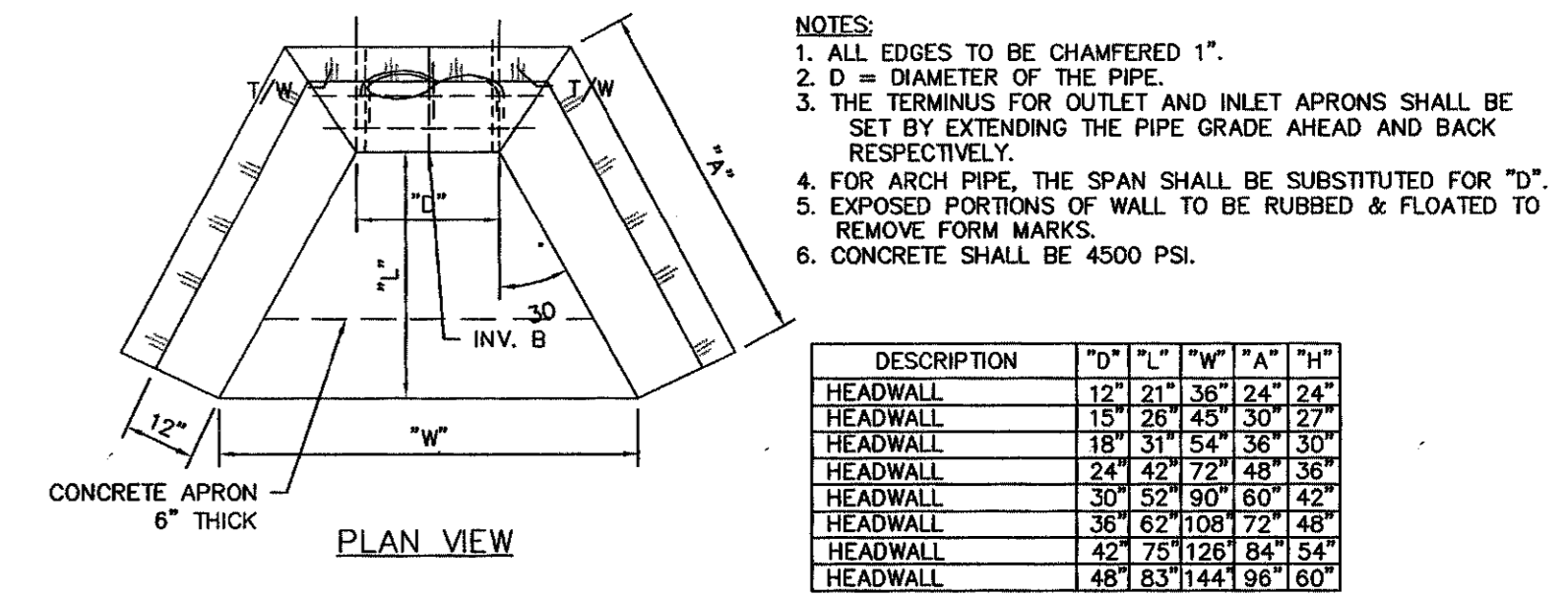


OUTLET STRUCTURE #102
N.T.S.



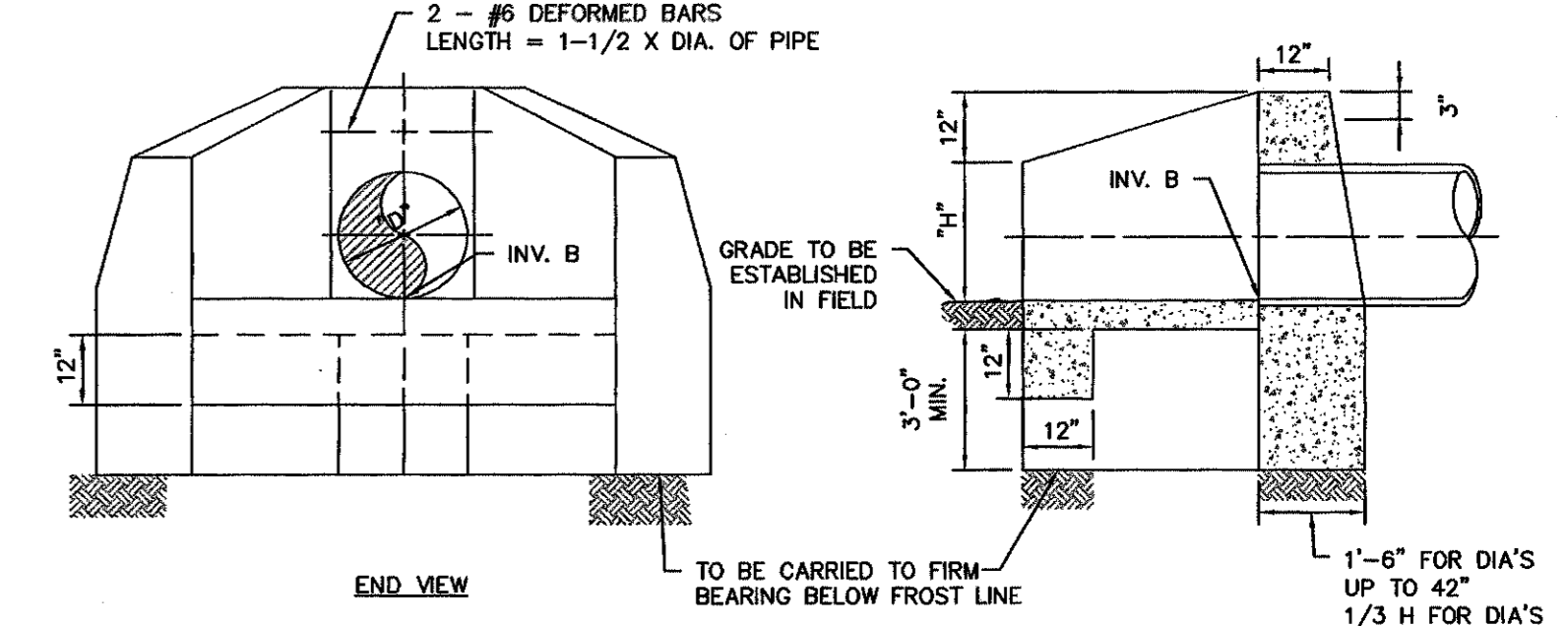
ID	12	15	18	24	30	36	42
A	2	2-1/4	2-1/2	3	3-1/2	4	4-1/2
R	4	6	9	9-1/2	12	15	21
S	48	48	48	30	19-3/4	34-3/4	35
T	24	27	27	43-1/2	54	63	63
U	6'-0"	6'-1"	6'-1"	6'-1-1/2"	6'-1-3/4"	8'-1-3/4"	8'-2"
V	24	30	36	48	60	72	78
WT. PC. (POUNDS)	530	740	990	1520	2190	4100	5380

FLARED END SECTION
N.T.S.

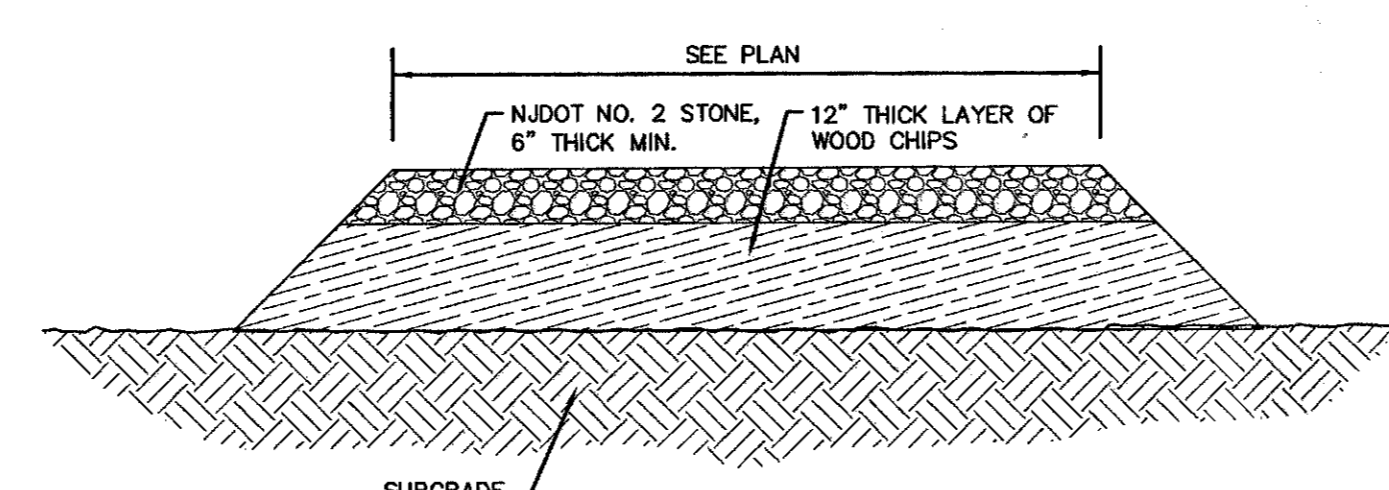


DESCRIPTION	"D"	"L"	"W"	"A"	"H"
HEADWALL	12	21	36	24	24
HEADWALL	15	28	30	27	27
HEADWALL	18	31	36	30	30
HEADWALL	24	42	48	36	36
HEADWALL	30	54	60	42	42
HEADWALL	36	62	72	48	48
HEADWALL	42	75	84	54	54
HEADWALL	48	81	90	60	60

- NOTES:
- ALL EDGES TO BE CHAMFERED 1".
 - D = DIAMETER OF THE PIPE.
 - THE TERMINUS FOR OUTLET AND INLET APRONS SHALL BE SET BY EXTENDING THE PIPE GRADE AHEAD AND BACK RESPECTIVELY.
 - FOR ARCH PIPE, THE SPAN SHALL BE SUBSTITUTED FOR "D".
 - EXPOSED PORTIONS OF WALL TO BE RUBBED & FLOATED TO REMOVE FORM MARKS.
 - CONCRETE SHALL BE 4500 PSI.

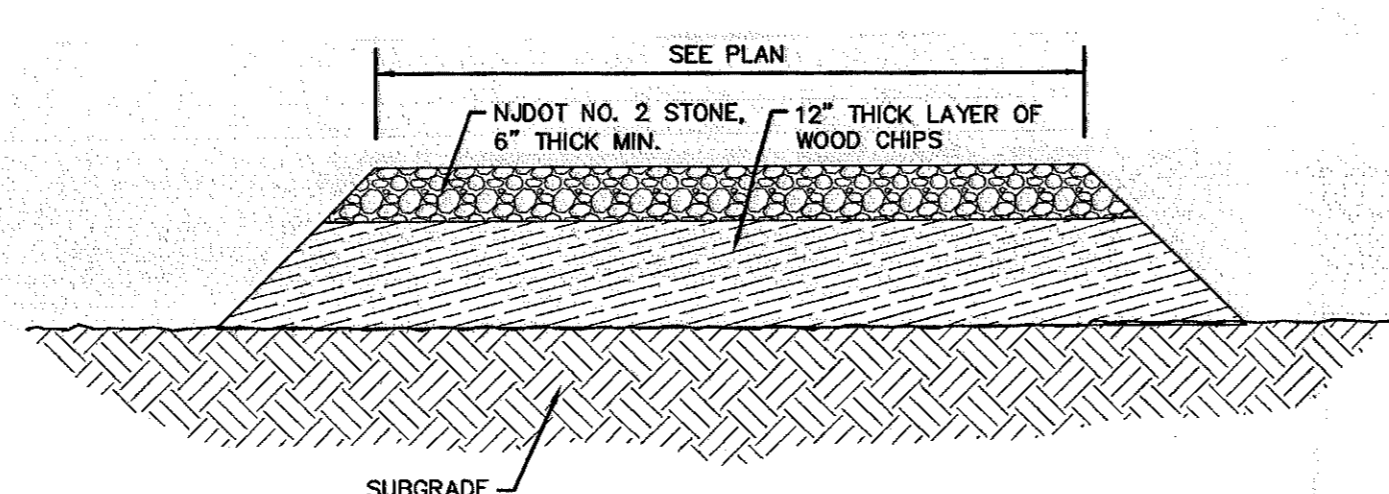


CONCRETE HEADWALL
N.T.S.



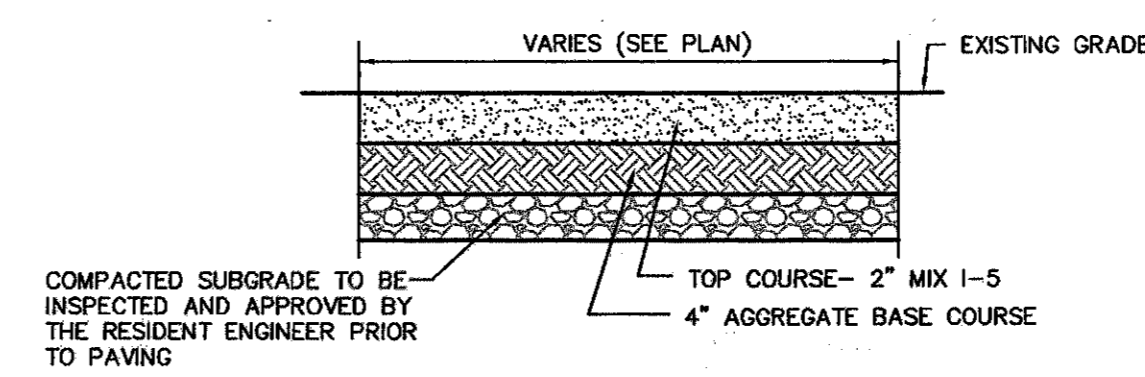
- NOTES:
- CONTRACTOR SHALL INSTALL WOOD CHIPS AND LIGHTLY COMPACT.
 - CONTRACTOR SHALL INSTALL STONE AS REQUIRED TO SUPPORT CONSTRUCTION VEHICLES.
 - AFTER CONSTRUCTION, ALL STONE AND WOOD CHIPS SHALL BE REMOVED AND THE AREA SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS IN ACCORDANCE WITH SECTIONS 4-1 AND 6-1 OF THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
 - ENGINEER MAY WAIVE WOOD CHIP REQUIREMENT WHEN OUTSIDE TREE DRIPLINES OR CANOPY.

GRAVEL ACCESS DRIVE DETAIL
N.T.S.



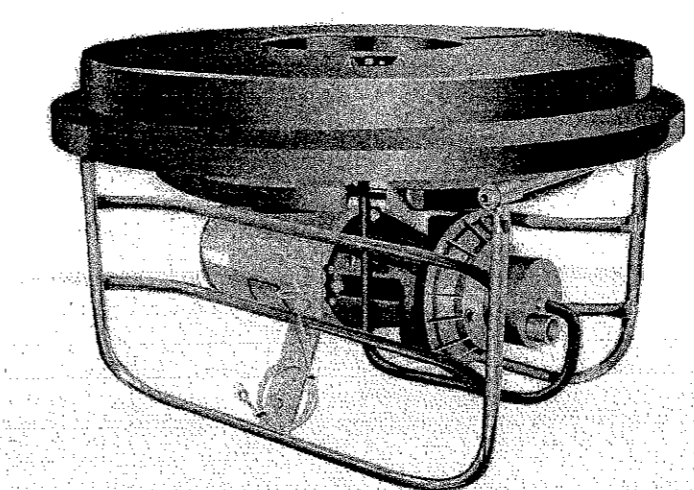
- NOTES:
- CONTRACTOR SHALL INSTALL WOOD CHIPS AND LIGHTLY COMPACT.
 - CONTRACTOR SHALL INSTALL STONE AS REQUIRED TO SUPPORT CONSTRUCTION VEHICLES.
 - AFTER CONSTRUCTION, ALL STONE AND WOOD CHIPS SHALL BE REMOVED AND THE AREA SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS IN ACCORDANCE WITH SECTIONS 4-1 AND 6-1 OF THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
 - ENGINEER MAY WAIVE WOOD CHIP REQUIREMENT WHEN OUTSIDE TREE DRIPLINES OR CANOPY.

STAGING AREA DETAIL
N.T.S.



COMPACTED SUBGRADE TO BE INSPECTED AND APPROVED BY THE RESIDENT ENGINEER PRIOR TO PAVING.

HMA PATH DETAIL
N.T.S.



MODEL: TRITON FLOATING ASPIRATOR (2 HP, 230 VOLT, 60Hz) BY OTTERBINE BARBO, INC. OR APPROVED EQUAL.

DESIGN NOTE: 1 HP PER ACRE OF SURFACE WATER, POND SURFACE WATER = APPROX. 1.5 ACRES THEREFORE, USE ONE (1), 2 HP ASPIRATOR

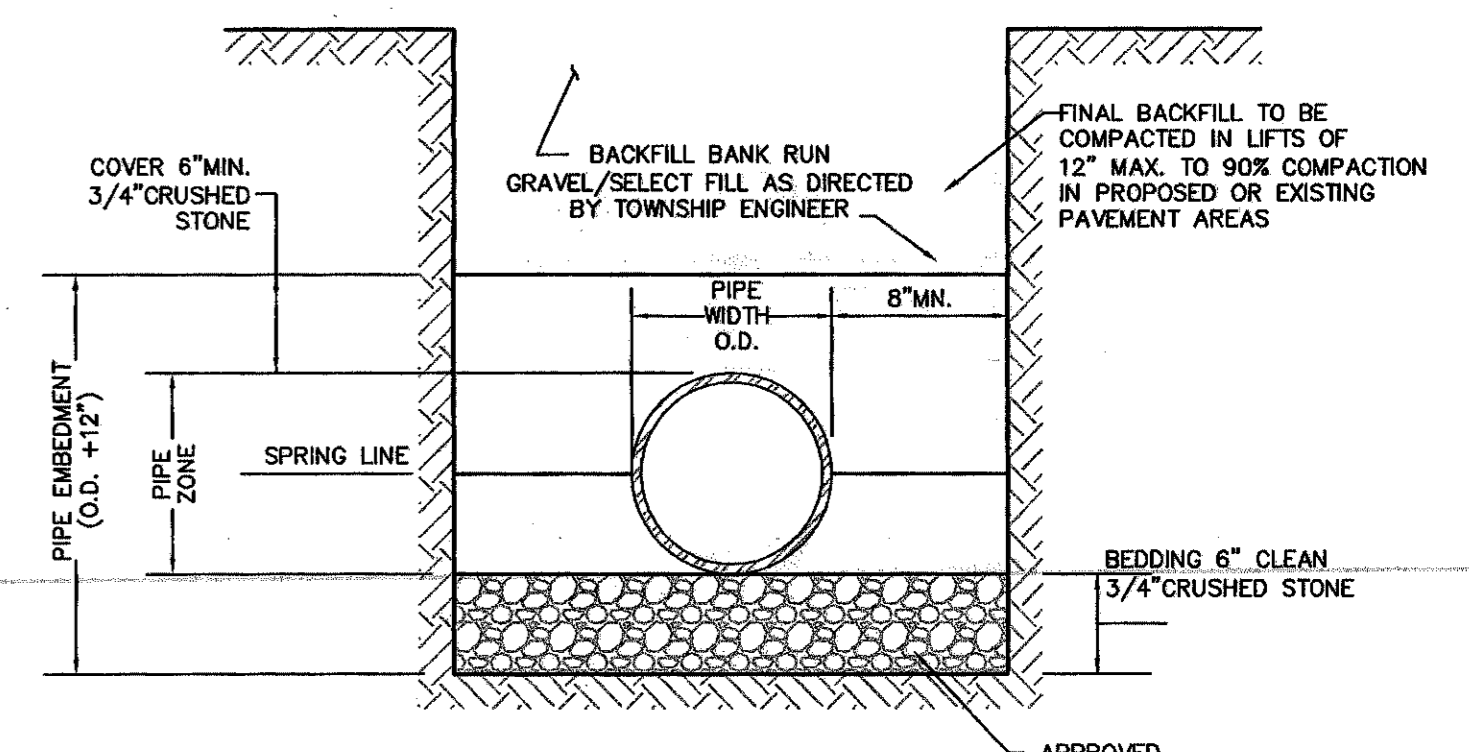
- NOTES:
- INSTALL PRODUCT IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 - REPORT ANY DISCREPANCIES TO OWNER PRIOR TO INSTALLATION.
 - ALL ELECTRICAL INSTALLATION IS TO MEET LOCAL BUILDING CODES.

AERATOR DETAIL
N.T.S.

ANNUAL AERATOR MAINTENANCE SCHEDULE

NOVEMBER 1 - REMOVE ASPIRATOR, CLEAN ASPIRATOR AND DRAIN OIL, REMOVE FILTER.

APRIL 1 - REPLACE OIL, INSTALL CLEAN, NEW FILTER, BEGIN OPERATION.



- NOTES:
- PIPE EMBEDMENT SHALL BE 3/4" CLEAN CRUSHED STONE.
 - WHERE SUBGRADE IS UNACCEPTABLE FOUNDATION SHALL BE REQUIRED AS SPECIFIED BY THE MUNICIPAL ENGINEER.
 - TYP. CONCRETE FOUNDATION IS SPECIFIED BELOW.
 - ENTIRE TRENCH WIDTH SHALL BE BACKFILLED AS SPECIFIED IN THE TRENCH DETAIL ABOVE.
 - FOR WIDE TRENCHES (GREATER THAN 6 PIPE DIA.) SEE TYP. SUBTRENCH DETAIL BELOW.
 - ON-SITE MATERIAL SHALL ONLY BE USED AS BACKFILL WITH THE PRIOR APPROVAL OF THE MUNICIPAL ENGINEER.

TRENCH DETAIL
N.T.S.



REV.	DATE	DRAWN BY	DESCRIPTION
1	4/7/16	AD	REV. PER NJDEP COMMENTS

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NJDEP PERMITTING PLAN
CONSTRUCTION DETAILS
FOR
MEISEL POND
LOT 20, BLOCK 1402
TOWNSHIP OF SPRINGFIELD UNION COUNTY NEW JERSEY

JOB NUMBER	DATE
08000459E	NOV. 3, 2015
SCALE	LATEST REVISION
AS SHOWN	APRIL 1, 2016
DRAWING NUMBER	DESIGN BY
HA029648	MJ
SHEET NUMBER	TOTAL SHEETS
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APPENDIX B:

**DIAGNOSTIC-FEASIBILITY STUDY AND
WATERSHED MANAGEMENT PLAN FOR
MEISEL POND**

PREPARED BY F.X. BROWNE, INC.

DATED JUNE 2002

**DIAGNOSTIC-FEASIBILITY STUDY
AND
WATERSHED MANAGEMENT PLAN
FOR**

MEISEL POND

FINAL REPORT

June 2002

Presented to:

**County of Union
Department of Parks and Recreation**

Prepared by:

**F. X. Browne, Inc.
1101 South Broad Street
Lansdale, Pennsylvania 19446**

File No. 1289-02Z

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Acknowledgments

Meisel Pond was one of eleven lakes and ponds that was investigated as part of the Union County Eleven Lakes Phase I Diagnostic-Feasibility Study. The Union County Eleven Lakes Phase I Study was funded entirely by the County of Union. Appreciation is extended to all members of the Board of Chosen Freeholders for their dedication and commitment towards preserving the water quality of county-owned lakes.

Thanks is extended to all County employees who assisted in this study. Special gratitude is extended to Mr. Daniel Bernier for his invaluable perspective on all eleven study lakes and their surrounding watersheds and his diligent assistance throughout the entire length of this study.

Board of Chosen Freeholders

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Mary P. Ruotolo, Vice-Chair
Angel Estrada
Chester Holmes
Alexander Mirabella
Rick Proctor
Deborah P. Scanlon
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Charles Sigmund, Jr., Director
Department of Parks and Recreation

Daniel J. Bernier, Director
Division of Park Planning and Maintenance

Executive Summary

Overview

Meisel Pond is a 0.9 acre impoundment located in the Rahway River Parkway. The Rahway River Parkway is a green space corridor in the New Jersey municipalities of Clark, Cranford, Linden, Rahway, Springfield, and Union. Meisel Pond is located in the Township of Springfield, New Jersey. The Union County Park Commission created Meisel Pond in 1958.

Several problems are common to the county's waterways including degraded lake water quality, sedimentation, eroding shorelines, proliferation of nuisance weed growth and waterfowl, and inadequate public accessibility. Union County established a team to study and make recommendations for improvement to the County's waterbodies, including 30 lakes, ponds and lagoons within the County park system, as well as three major rivers and their tributaries. Out of the 30 lakes, the Waterways Team prioritized the top twelve lakes. Of the 12 priority lakes, Meisel Pond was given a priority rating of #8. The pond is in danger of losing a variety of uses due to eroding shorelines, excessive siltation, algae blooms and an overabundance of aquatic plants and waterfowl. Another concern is the quality of stormwater runoff flowing into the pond via a stormwater drain.

In April 1996, Union County commissioned F. X. Browne, Inc. to perform a Phase I Diagnostic - Feasibility Study of Meisel Pond. The Diagnostic-Feasibility Study was conducted in two stages. The diagnostic portion of the study was conducted to determine current water quality conditions, identify existing problems, and determine the pollutant sources that are responsible for the observed problems. The feasibility aspect of the study evaluated a variety of lake and watershed management alternatives based on the results of the diagnostic study. The product of this study is a Diagnostic-Feasibility Report that provides a recommended management plan for the restoration of Meisel Pond.

Conclusions

As part of the Meisel Pond Phase I Study, a water quality monitoring program was conducted from May through August 1996. Conclusions of the study are based on the diagnostic portion of the project.

Water Quality

- During most of the year, Meisel Pond is generally well mixed and oxygenated at all water depths.
- Phosphorus appears to be the "limiting" nutrient in Meisel Pond that causes the excessive algae and aquatic weed growth.

- The average total phosphorus concentration in Meisel Pond was 0.229 milligrams per liter (mg/L) and the average Secchi disk transparency measurement was 0.42 meters (1.34 feet). The average chlorophyll a concentration in the lake was 63.3 micrograms per liter ($\mu\text{g/L}$). A pond with a total phosphorus concentration of 0.03 mg/L or greater is considered eutrophic. A pond with a Secchi disk transparency measurement of less than 2.0 meters (6.6 feet) is considered eutrophic, and a pond with a chlorophyll a concentration of greater than 10 $\mu\text{g/L}$ is considered eutrophic. Based on these parameters, Meisel Pond is classified as a highly productive or hyper-eutrophic waterbody.
- Meisel Pond has a long flushing rate; however, since the water sources to the pond are stormwater runoff and springs, it is difficult to determine the actual detention time of the pond. During rain events, the pond may flush completely during the rain event; however, during dry conditions, the water may stay in the pond until the next major rain event. Generally, shallow lakes and ponds with a long flushing rate have poor water quality because pollutants are not readily flushed out and can settle and cause problems.

Bathymetry and Sediment Chemistry

- The average water depth in Meisel Pond is 2.21 feet. The maximum water depth is 4.3 feet.
- Meisel Pond contains approximately 1,920 cubic yards of unconsolidated sediments. The average sediment thickness in the pond is 1.83 feet, and the maximum sediment thickness in the pond is 2.8 feet.
- Sediments in Meisel Pond contain lead, benzo(a)anthracene, benzo(a)pyrene, and indeno(1,2,3-cd)pyrene in concentrations that exceed the acceptable level for residential sediment disposal. This means that sediments can not be disposed of on residential land; however, sediments can be disposed of on non-residential property, such as county-owned parkland.

Macrophytes

- During the summer months, most of the surface area of Meisel Pond is covered with duckweed. Other macrophytes are concentrated in a small area in the northeast corner of the pond, and along most of the shoreline of the pond. The pond is currently chemically treated for duckweed and watermeal.

Watershed Characteristics

- The ratio of the watershed area to pond surface area is 357:1. Implementing watershed management practices should have a positive impact on the water quality in Meisel Pond.

- The most dominant land use within the watershed area is medium density residential. Parkland and part of a golf course are also included in the watershed area. A steep forested area is located in the extreme northwest portion of the watershed.
- Most of the land immediately adjacent to Meisel Pond is parkland consisting of grassed, open space area.

Recommendations

Based on the diagnostic portion of the Meisel Pond Phase I Study, the following recommendations were developed as part of a Comprehensive Pond and Watershed Management Plan. The pond and watershed management plan focuses on increasing the water depth in the pond, adding Aquashade (a water colorant), stabilizing the shoreline of the pond, and reducing nonpoint sources of pollution from the surrounding watershed.

Each element of the recommended Pond and Watershed Management Plan for Meisel Pond is described below.

Dredging

- Meisel Pond contains approximately 1,920 cubic yards of unconsolidated sediment that should be removed by dredging. Due to sedimentation over the years, Meisel Pond has lost approximately 58% of its original volume (5500 cubic yards were excavated to create the pond; the current volume of the pond is approximately 2,327 cubic yards).
- Meisel Pond should be mechanically dredged. The sediment must be disposed of in an approved disposal area. Potential disposal areas for contaminated sediments include available non-residential land, including County parkland.
- A dredging feasibility study should be performed before detailed dredging design and permitting begins. The main work elements of the dredging feasibility study should include the following:
 1. Attend a pre-application meeting with the DEP to discuss the project, to determine what permits will be required for this specific project, and to discuss potential disposal areas. A pre-application meeting is required by the DEP for dredging projects.
 2. Identify a suitable disposal area for the sediments. Suitable areas may include non-residential properties, including County property.

3. Prepare a dredging feasibility report for submission to Union County. Based on information provided in this report, Union County can determine if dredging Meisel Pond is feasible.
4. Evaluate the feasibility of beneficial soil reuse and reclamation of contaminated sediments.

Lake Aeration

- Aeration is recommended for Meisel Pond to increase circulation in the pond and provide oxygen to the pond water. The aeration system should be installed after the pond is dredged for maximum benefit and so that any dredging operations do not interfere with the aerator.

Dilution/Flushing

- Dilution and flushing may be a feasible option for improving the water quality in Meisel Pond. Other options such as dredging and pond aeration are preferable and should be considered before dilution and flushing options. Dredging may open up existing springs that would naturally help flush the pond.
- If dilution and flushing of the pond water is attempted, an evaluation should be performed to determine if water from Van Wenkel's Brook can be diverted into the pond and then released back into the brook.

Water Colorant

- Aquashade, an EPA-registered non-toxic blue dye should be added to the pond to block sunlight which will inhibit algae and aquatic plant growth. In addition, this blue dye will greatly improve the aesthetic quality of the pond.

Alum Treatment

- Alum treatment may be a feasible restoration option for Meisel Pond, especially due to its long detention time. This option should be further investigated by conducting bench tests to determine application rates of alum. This option typically works by adding alum to the water. The alum combines with the phosphorus in the water column and settles to the bottom of the pond. Therefore, the phosphorus in the water column is significantly reduced and algal populations are reduced. This option could be utilized even if dredging is not implemented.

Watershed Investigations

As part of this study, limited watershed investigations were conducted to identify specific nonpoint source pollution problem areas. However, a more comprehensive study is necessary in order to locate specific problem areas within the watershed.

The following steps should be taken to complete a more detailed watershed investigation:

1. Identify specific nonpoint source problem areas. Areas to be investigated should include, but not be limited to, streambanks, culverts, roadways, roadway stream crossings, storm drainage pipes, parking lots, and areas of excessive stormwater runoff.
2. Once problem areas have been identified, they should be prioritized.
3. The problem areas should be analyzed in order of priority for possible retrofit controls, or best management practices (BMPs). Possible retrofit controls may include constructed wetlands, erosion control, stormwater diversion, and modification of fertilization and mowing procedures.

The watershed investigations should be coordinated by Union County. The initial investigations can be performed by volunteers. The prioritization of nonpoint source problem areas and the evaluation of retrofit opportunities, however, should be performed by professionals.

Shoreline Stabilization

Eroded areas along the pond shoreline should be stabilized.

- Approximately 90 percent of the shoreline of Meisel Pond requires shoreline stabilization. All areas can be stabilized using coir fiber bundles and vegetation or vegetative matting. No structural shoreline stabilization should be required for Meisel Pond.
- Existing vegetation directly adjacent to the water should be left uncut to provide for increased wildlife habitat and to allow for the maximum benefit of vegetative shoreline stabilization control.
- Topsoil should be added to bare areas around the pond and should be seeded and mulched.
- Outlet protection should be installed at the inlet culvert to reduce erosion and scouring. Riprap or a gabion mattress are possible alternatives for outlet protection.

Waterfowl Control

- Canada geese populations at Meisel Pond may be excessive and should be controlled. Geese droppings are a significant and direct source of phosphorus, nitrogen, and bacteria to Meisel Pond.
- Geese populations should be controlled by landscaping, egg inactivation, chemical deterrents, scare tactics, and culling during summer molt.
- Park visitors should be discouraged from feeding the geese and other waterfowl. Signs should be posted at strategic locations in the park to inform people about not feeding the waterfowl.
- An ordinance to prohibit feeding is recommended. The ordinance should include stringent provisions for enforcement.

Urban Stormwater Management

- Union County and local municipalities should evaluate street sweeping schedules. Increased street sweeping is recommended, especially in the spring and summer months.
- Stormwater catch basins should be cleaned after major storm events or at least once every three months. Cooperation between Union County and the local municipalities is recommended for this task.
- Although most of the watershed is developed, every opportunity to improve stormwater quality should be taken. For example, if a commercial establishment changes ownership, and the new owner needs approvals from the local municipality, local ordinances should be in place to require improving stormwater runoff quality from the site before approvals are granted. Possible stormwater quality treatment systems that could be installed on a developed property include sand filters, peat filters, or bioretention systems. The purpose of these systems is to treat the first 0.5 inches of stormwater runoff from roads and parking lots. The first 0.5 inches of runoff is called the "first flush" and typically contains the highest concentration of pollutants from a storm event.
- Existing homeowners and business owners should be encouraged to direct roof runoff to dry pits or rain barrels to reduce the amount of stormwater that enters the storm sewer system. Using a rain barrel or cistern gives the homeowner the advantage of water use reduction by storing rain water for watering gardens or lawns during dry periods.

Homeowner Practices

Homeowner practices should be implemented as part of the public education program described in the following section.

- Lawn fertilizer can be a significant source of nutrients to lakes and ponds, especially in suburban areas where nice green lawns are desirable. A fact sheet on the importance of proper lawn fertilization should be prepared and distributed to homeowners in the watershed. This task could be facilitated through the public education program described below or by an "extra" in the local newspaper. Fact sheets should be posted at the park and possibly at local businesses.
- Leaf management is also important in reducing nonpoint source pollution in a developed watershed. The existing leaf management program should be evaluated to determine if there are ways to improve the program so that leaves do not end up in the street for a long period of time. If leaves are left in the street too long, nutrients leach from the leaves and are carried into the storm sewers and eventually into the pond with stormwater runoff. Encouraging or requiring homeowners to bag leaves in biodegradable bags is one possibility for improving the leaf management program.
- Homeowners should be informed that if they dump household chemicals and other substances into storm sewers, these substances will end up in the pond. Stenciling should be painted on storm inlets to educate homeowners that anything that goes down the storm sewer eventually drains to the pond.
- Homeowners should be encouraged to wash cars and trucks on grassy areas, if possible. This practice will reduce the amount of phosphorus and detergents that run down the driveway, into a nearby storm sewer, and eventually into Meisel Pond. Another alternative is to use a commercial car wash.

Public Education Program

Union County is continuing to develop and implement an extensive environmental education program throughout the County. The County's environmental education program should be integrated into the Meisel Pond watershed project. The environmental education program for Meisel Pond should include the following elements:

1. Develop and distribute nonpoint source brochure,
2. Develop a watershed management curriculum for presentation to local schools,
3. Develop and install an educational kiosk at Meisel Pond,

4. Develop fact sheet on watershed management for distribution at the kiosk and at park events, and
5. Include staffing at the satellite operation of Trailside Nature and Science Center being developed by the County in Warinanco Park for conducting watershed management education programs.

Water Quality Monitoring Program

- A limited water quality monitoring program should be implemented, after dredging has been completed, to document water quality improvements. Yearly monitoring of selected parameters (i.e., total phosphorus, total nitrogen, chlorophyll a, and Secchi disk depth) should be conducted to document water quality changes in the pond.

Fish Stocking

- Fish stocking is recommended only after watershed management practices have been implemented, and a suitable fish species diversity study has been completed in order to ensure optimum survival rates for the introduced fish.

Institutional Approaches

- The Union County Waterways Team should work closely with municipal officials to improve the water quality in Meisel Pond and to implement this Watershed Management Plan.
- The Union County Waterways Team and local municipalities should evaluate existing subdivision ordinances, erosion and sedimentation control ordinances, stormwater management ordinances, and other existing ordinances to look for ways to strengthen these ordinances to protect the water quality in Meisel Pond.

1.0 Project Description

1.1 Introduction

In the early 1920's, Union County Sheriff James E. Warner had a dream to protect the Rahway River from overdevelopment and pollution. Rahway River Parkway was established in the early 1920's as a part of the Union County Park Commission's vision to see the Sheriff's dream become reality. Rahway River Parkway and 26 other parks that today comprise 5000 acres of park land in Union County were the result of years of hard work and political activism on the part of Union Park Commissioners and dedicated volunteers. Four acres of land for the Rahway River Park was donated to the Union County Park Commission in 1922 by the Wheatena Company. This was the first parcel of land to become part of the Union County Park System. More land was donated to expand the Rahway River Park in the 1920's by several Clark and Cranford residents, and the Town of Rahway, which transferred the title to its "Poor Farm" tract. Additional land was purchased or donated little by little over the next several decades to form a greenway called the Rahway River Parkway that would connect the South Mountain Reservation in Essex County to the rest of the Union County Park System, including the Watchung Reservation. Several small lakes were formed, including Meisel Pond, by damming up sections of the Rahway River and its tributaries.

1.2 Background

In 1995, the County of Union established a "Waterways Team" which had the primary objective of developing a strategic plan to improve the County's waterways. The Waterways Team, consisting of ten County staff employees and a municipal watershed inspector, initially set its sights on dealing with 30 or more lakes, ponds, and lagoons that are County-owned and located in the County's vast park system. More recently, the team has also begun to examine problems along the County's rivers and streams, most notably the Rahway River which Meisel Pond drains to.

The most common lake problems noted by the Waterways Team were degraded water quality, accumulation of litter, debris, and sediments, eroding shorelines, proliferation of nuisance weed growth, overabundance of waterfowl, degraded dam structures, and poor accessibility for the public.

The Waterways Team has determined the 12 most critical lakes in the Union County Park System. The team used a priority ranking system to evaluate the overall degradation of County-owned lakes. One of these lakes, Lake Surprise, was studied by F. X. Browne, Inc. (1995). The Lake Surprise Phase I Diagnostic-Feasibility Study was conducted in accordance with CFR, Part 35, Subpart H entitled "Cooperative Agreements for Protecting and Restoring Publicly Owned Freshwater Lakes" which pertains to the federal Clean Lakes Program. Based on qualifications and the success of the Lake Surprise Phase I Study, Union County retained F. X. Browne, Inc. to implement the Lake Surprise Phase II Restoration Project. The major components of the Lake Surprise Phase II Restoration

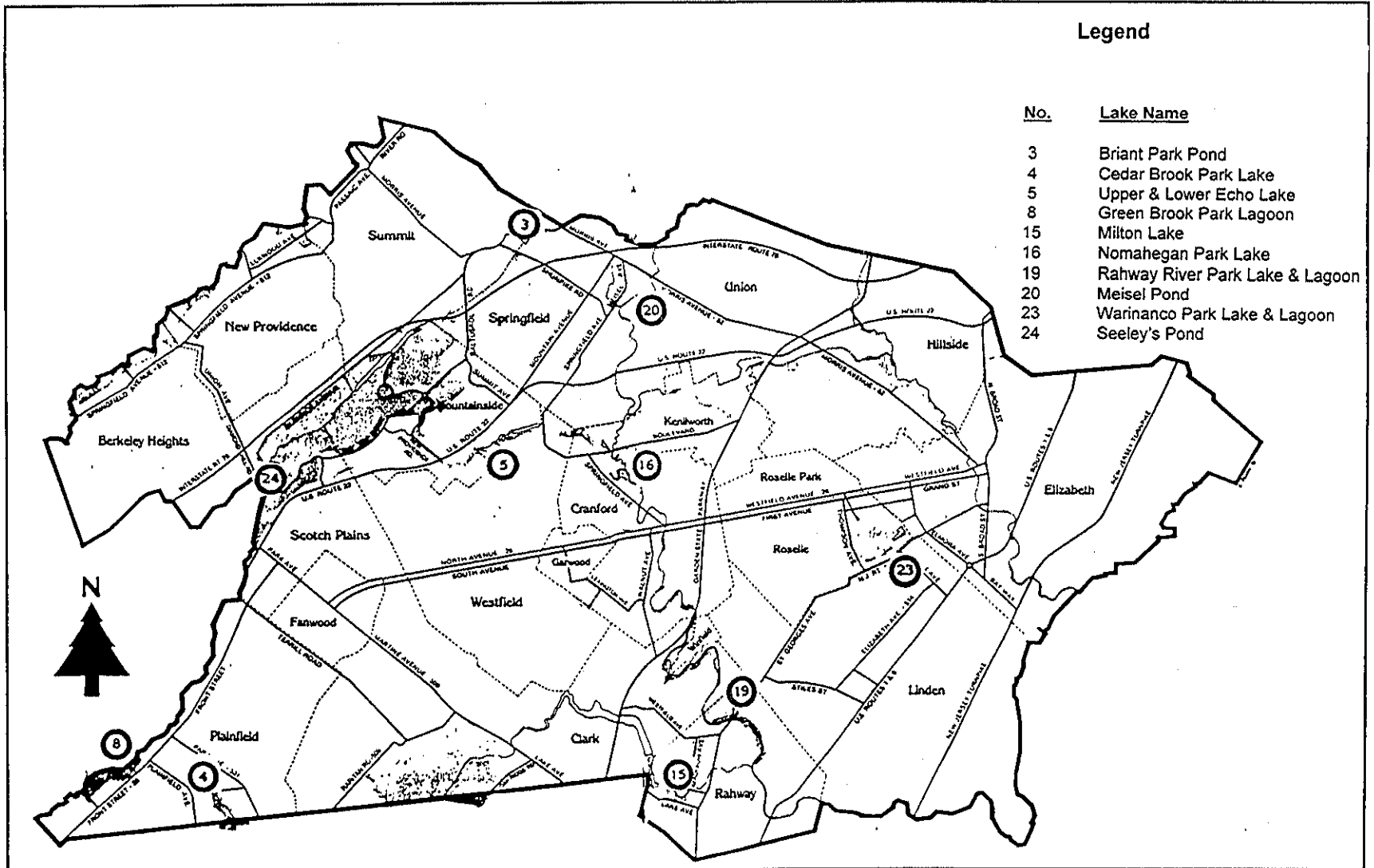
Project are the removal of excessive accumulated sediments in the lake, the design and implementation of watershed best management practices, the development of an environmental education curriculum, and the implementation of a post-dredging water quality monitoring program.

The eleven remaining critical lakes and ponds, as ranked by the Waterways Team from most to least degraded, are Green Brook Park Lagoon, Upper Echo Lake, Seeley's Pond, Rahway River Park Lake, Warinanco Park Lake and Lagoon, Milton Lake, **Meisel Pond**, Lower Echo Lake, Nomahegan Lake, Briant Pond, and Cedar Brook Park Lake. The locations of the above eleven lakes are shown in Figure 1.1.

In an effort to restore these lakes as natural, recreational, and aesthetic resources, the Union County Division of Parks and Recreation, retained F. X. Browne, Inc. to perform Diagnostic-Feasibility Studies for these remaining eleven critical lakes and ponds. The Phase I Diagnostic-Feasibility Studies have been performed by using a modified monitoring program that generally meets the requirements in 40 CFR, Part 35, Subpart H entitled "Cooperative Agreements for Protecting and Restoring Publicly Owned Freshwater Lakes".

Based on the recommended comprehensive management plans offered as part of the Phase I Diagnostic-Feasibility Studies, Union County will then implement the recommended lake and watershed restoration strategies as capital appropriations and operating funds become available. Union County also will use these studies to apply for various sources of state and federal funding.

Individual reports were prepared for each of the eleven Union County study lakes. This document represents the Phase I Diagnostic - Feasibility Report for Meisel Pond. Meisel Pond is located near the confluence of the East Branch of the Rahway River and an unnamed tributary of Rahway River, in the northcentral portion of the County.



No.	Lake Name
3	Briant Park Pond
4	Cedar Brook Park Lake
5	Upper & Lower Echo Lake
8	Green Brook Park Lagoon
15	Milton Lake
16	Nomahegan Park Lake
19	Rahway River Park Lake & Lagoon
20	Meisel Pond
23	Warinanco Park Lake & Lagoon
24	Seeley's Pond

Figure 1.1

Location of the Eleven Study Lakes in Union County, New Jersey

1.3 Project Objectives

The Diagnostic-Feasibility Studies for all eleven study lakes were conducted in two stages. The diagnostic portion of the studies was conducted to determine current water quality conditions, identify existing problems, and determine the pollutant sources that are responsible for the observed problems. The feasibility aspect of the studies evaluated a variety of lake and watershed restoration alternatives based on the results of the diagnostic study. These alternatives included watershed management practices and in-lake restoration methods. The management plan resulting from the feasibility study includes a description of identified lake and watershed problems, proposed solutions, and a suggested implementation program.

The primary objectives of the Phase I Diagnostic-Feasibility Studies for all eleven County-owned study lakes were:

1. To evaluate the existing water quality conditions in eleven study lakes and to determine the impacts on the recreational uses of these lakes and their surrounding areas,
2. To identify the sources and magnitude of pollutants entering the eleven study lakes,
3. To evaluate feasible control alternatives and restoration methods, and
4. To develop and recommend conceptual lake and watershed management plans that are cost-effective, environmentally sound, acceptable to the public, and can be used as the basis for Phase II Implementation Grant Applications for submission to the U.S. Environmental Protection Agency (U.S. EPA) and other government agencies.

2.0 Lake and Watershed Characteristics

2.1 Lake Morphology

Meisel Pond is a 0.9 acre impoundment located in the northcentral portion of Union County in the Township of Springfield, New Jersey. Meisel Pond is fed by springs, stormwater runoff and a small piped stream. The water in the pond sometimes becomes stagnant during the hot summer months due to the minimal baseflow to the pond. The watershed of Meisel Pond is approximately 323 acres. The watershed boundary is shown in Figure 2.1 and includes a mostly wooded parkland with areas of grassed open space, medium density residential areas, the Baltusrol Golf Course, and a steep forested area in the extreme northwest portion of the watershed.

A complete listing of morphometric and hydrologic characteristics of Meisel Pond is summarized in Table 2.1.

Lake Surface Area	0.9 acres
Lake Volume	0.47 million gallons
Average Depth	2.2 feet
Maximum Depth	4.3 feet
Hydraulic Retention Time	*
Average Discharge	*
Drainage Basin Area (excluding lake area)	322.1 acres

* The hydraulic retention time and the average discharge were not calculated since there are no major inlet streams to the pond. It is not possible to determine an accurate number for these parameters without a detailed evaluation of the system. This level of detail was not in the scope of this project.

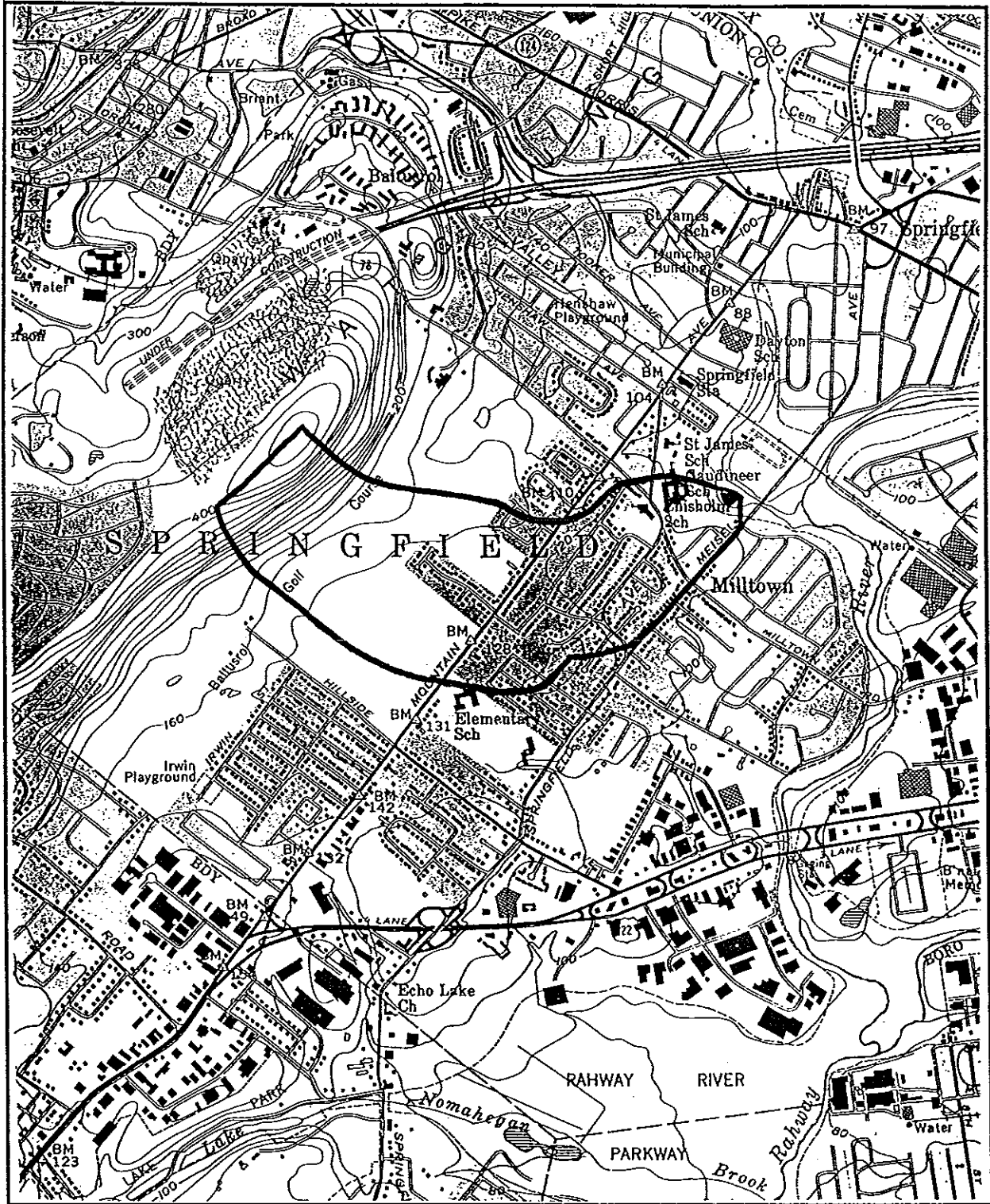


Figure 2.1

Meisel Pond Watershed
 Roselle, NJ USGS Quadrangle
 Scale: 1" = 2000'

2.2 Benefits and Recreational Uses of Meisel Pond

2.2.1 Present Uses

Meisel Pond is located in the Rahway River Parkway, a greenspace corridor, in Union County, New Jersey. The pond adds to the recreational atmosphere of the park, is owned and maintained by Union County, and is open to the public. The pond also serves as a sedimentation basin by allowing suspended solids and nutrients to settle in the pond before the water is discharged to Van Wenkel's Brook and ultimately to the Rahway River. Therefore, Meisel Pond serves an important function by helping to improve downstream water quality.

In addition to Meisel Pond and Rahway River Parkway, there are other parks in the immediate area offering a variety of recreational activities to the general public. Rahway River Parkway is a very enjoyable place to recreate, and has a variety of offerings. Considering the population density of the area, this is an important recreational, economic and ecologic resource.

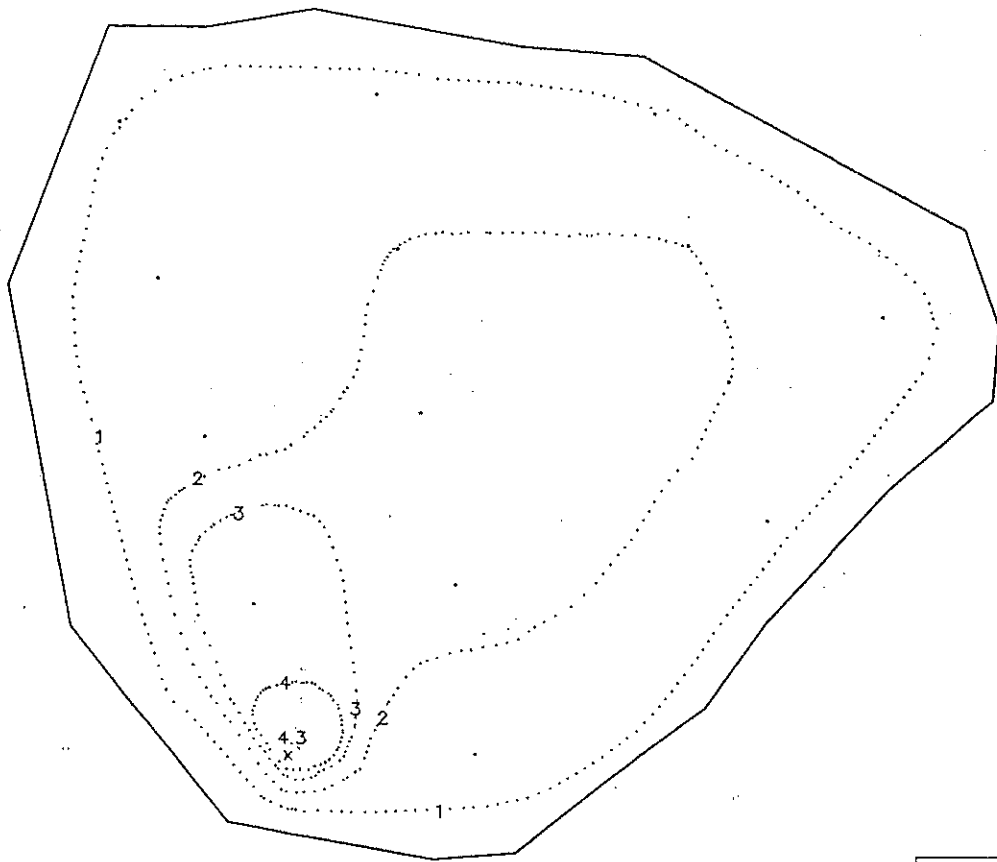
2.2.2 Impairment of Recreational Uses

Meisel Pond is very small and will never be used for boating. In the past the pond was a focal point for the park and was enjoyed for passive recreational activities such as picnicking. Due to the excessive amounts of algae and aquatic plants, and the stagnant nature of the pond, the water quality has been deteriorating. Recently, the pond has been treated for duckweed and watermeal.

Due to sedimentation, the volume of the pond has decreased to only 58 percent of its design volume. Therefore, in order for Meisel Pond to continue to act effectively as a sedimentation basin, it will need to be dredged in the near future.

2.3 Lake Bathymetry

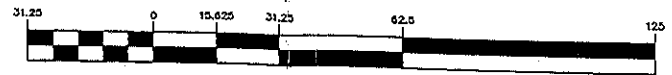
A bathymetric survey was conducted by F. X. Browne, Inc. in September 1996. Water and sediment depth measurements were collected along five transects. From these measurements, water depth and sediment thickness maps were prepared and are shown as Figures 2.2 and 2.3, respectively. The water depth map was used to determine the lake's volume, average depth, and maximum depth as presented in Table 2.1. Based on the sediment thickness mapping, Meisel Pond contains 1,920 cubic yards of unconsolidated sediments. The average sediment thickness is 1.8 feet, and the maximum sediment thickness is 2.8 feet.



LEGEND

..... 2 WATER DEPTH CONTOURS (FEET)

GRAPHIC SCALE



(IN FEET)
1 inch = 31.25ft.



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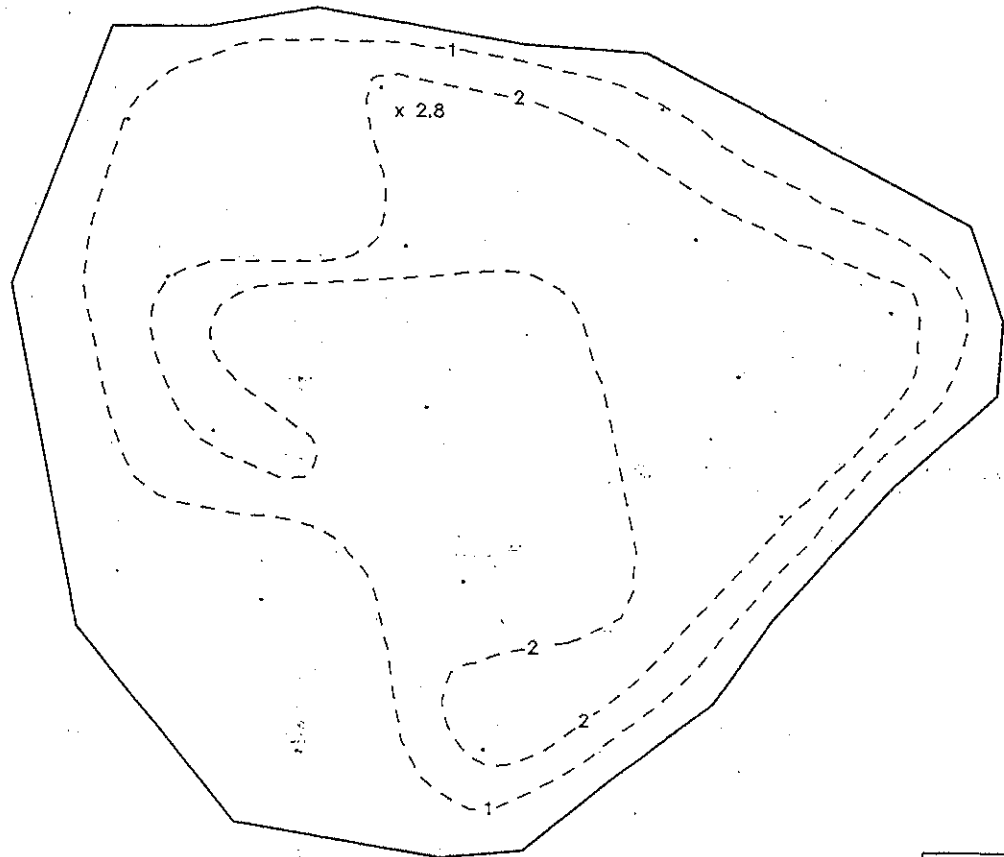
LANSDALE, PA

MARSHALLS CREEK, PA

SARANAC LAKE, NY

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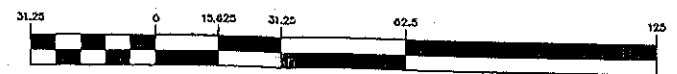
FIGURE 2.2
BATHYMETRIC MAP OF
MEISEL POND



LEGEND

---2--- SEDIMENT THICKNESS CONTOURS (FEET)

GRAPHIC SCALE



(IN FEET)
1 inch = 31.25ft

	F. X. BROWNE, INC.		
	ENGINEERS	PLANNERS	SCIENTISTS
LANSDALE, PA	MARSHALLS CREEK, PA	SARANAC LAKE, NY	

FIGURE 2.3
SEDIMENT THICKNESS MAP OF
MEISEL POND

2.4 Watershed Characteristics

The Meisel Pond watershed covers 322.1 acres. The ratio of the watershed area to the water surface area is 357:1. This ratio is high, but a combination of watershed management activities such as erosion control and stormwater management, and in-lake restoration techniques should effectively reduce the sediments and nutrients entering Meisel Pond and improve water quality. Approximately three percent of the Meisel Pond watershed lies within Rahway River Parkway.

Union County, and therefore the Meisel Pond watershed, lies entirely in the Piedmont Plains sub-province of Northern New Jersey. Comprising about one-fifth of the total area of New Jersey, the Piedmont Plains sub-province extends southwestward from the Hudson River, between the Coastal Province and Highlands sub-province, with an extension continuing further south (into Alabama and Georgia), between the Blue Ridge Mountains and the older Appalachians.

Topographically, the Piedmont Plains sub-province includes ridges, hills, and higher elevations rising as much as 400 feet above adjoining lands. This sub-province is primarily a lowland of smooth, rounded hills separated by wide valleys sloping gently down to the Coastal Plain with no clear topographic distinction between these two divisions.

2.4.1 Topography

The Meisel Pond watershed is shown in Figure 2.1. The pond itself is located just east of the Watchung Mountains, which are generally oriented in a northeast to southwest direction. Lands in Union County east of the mountains are gently sloping plains that eventually become areas of tidal marsh land bordering the Arthur Kill and Newark Bay. Meisel Pond is located on sloping plains. Portions of the park and watershed have slopes ranging from 2 percent to 40 percent. The northwestern portion of the watershed, near the Baltusrol Golf Course has slopes up to 40 percent. The land immediately surrounding the lake is in the 2 percent to 5 percent range.

2.4.2 Geology

Glacial activity has influenced the majority of the subsurface geology in Northern New Jersey. Though influenced by glaciers, no significant glacial surface deposits, such as stratified drift, ground moraine, or terminal moraine, are found within the Meisel Pond watershed.

Most of the Meisel Pond watershed consists of shale and sandstone of the Brunswick Formation, and much of the area is a glacial "outwash plain" covered to varying depths with sand, silt, gravel, and cobbles in well-defined layers or beds deposited by water from melting glaciers.

2.4.3 Soils

The majority of the soils in Union County belong to the major Gray-Brown Podzolic soil grouping indigenous to the northeastern United States. These soils developed beneath the hardwood forest are common along the eastern coast. Soils derived from soft red shale and sandstone (Brunswick Formation) make up most of Union County. The major soil series in the watershed is the Boonton soils series. The soils within the Meisel Pond watershed are moderately erosive.

2.4.4 Land Use

Land uses in the Meisel Pond watershed are presented in Table 2.2. Land use data were determined from topographic maps by planimetry. Field investigations were used to verify existing land uses delineated from topographic maps.

Land Use Category	Area (acres)	Percent (%)
Open Space (parkland / golf course)	141.2	43.7
Forest	36.7	11.3
Residential	144.2	44.6
Meisel Pond	0.9	0.4
Total (Including Pond)	323	100

2.5 Population and Socio-Economic Structure

Meisel Pond, along with lands within the park, provide a variety of recreational opportunities for the residents of Union County and other nearby counties. The park is located within the New York City Metropolitan Region, and is part of a significant green space corridor for a very densely populated area.

Union County is one of twenty-one counties in the State of New Jersey. Union County comprises an area of 103.4 square miles which makes it the smallest county in the state. The county consists of 21 municipalities: 5 cities, 8 townships, 7 boroughs and 1 town.

Population data for Union County are presented in Table 2.3. The population of Union County was 504,094 in 1980, 493,819 residents in 1990, and 522,541 in 2000. The population reduction from 1980 to 1990 is attributed to the lack of available vacant land for development and a decline in birth rate. The greatest growth rate in Union County occurred in the decades following World War I and II. The population increased by 5.8% from 1990 to 2000.

Table 2.3 Population Data for Union County, New Jersey			
County	Population		
	1980	1990	2000
Union County	504,094	493,819	522,541

Source: Union County Data Book, 1991, U.S. Census, 2000.

The population density of Union County was 5,073 persons per square mile in 2000, making it the third most densely populated county in the state (New Jersey Department of Labor). The distribution of people by race in 2000 in Union County was 65.5 percent white, 20.8 percent black, and 10.4 percent for other minorities. People of Hispanic origin comprised 19.7 percent of the county's population in 2000.

Union County ranks as one of the more affluent counties in the State of New Jersey. According to the 1980 census, the median family income was \$25,266 compared to \$22,907 for the state. In 2000, the median family income in Union County was \$50,254. Based on 2000 census data, only 9.3 percent of the county reported incomes below the poverty level as compared to 9.3 percent for the state.

3.0 Monitoring Program

3.1 Primer on Lake Ecology

[Refer to Appendix A for a comprehensive list of Lake and Watershed Management Terms]

Lake water quality is a direct reflection of the water quality of the watershed area. The term "watershed area" is defined as all lands that eventually drain or flow into a lake (... "all waters that are shed to a lake"). Potential sources of water to lakes are streams (tributaries), surface runoff (overland flow from lakeside properties), groundwater (interflow), and precipitation. The water quality of these sources are greatly influenced by watershed characteristics including soils, geology, vegetation, topography, climate, and land use. Typical land uses encountered in watershed areas are wetlands, forests, agriculture, residential, commercial, and industrial. With regards to water quantity, larger watershed areas contribute larger volumes of water to lakes and vice versa.

Nutrients (nitrogen and phosphorus) and suspended solids enter a lake from upstream tributaries, direct overland flow (runoff from adjacent lands) and storm drains that collect runoff from the roadside areas adjacent to the lake. Nutrients can also enter a lake as shallow groundwater flow and direct precipitation. As surface waters enter a lake, water velocity decreases and allows for suspended solids to settle to the bottom of the lake (i.e. "sedimentation"). Very small sediment particles, such as clays, resist sedimentation and may pass through the lake without settling. Suspended solids generally contain attached phosphorus which is commonly referred to as "particulate phosphorus". Consequently, lakes provide an excellent environment for the sedimentation of suspended solids along with attached forms of phosphorus.

Within a lake, water quality is largely affected by a complex system of chemical, physical and biological interactions. Phytoplankton (suspended microscopic algae) and macrophytes (aquatic plants) adsorb available nutrients and convert them into plant material. The most readily-available form of phosphorus is dissolved orthophosphate, analytically determined as dissolved reactive phosphorus (DRP). DRP can include other forms of phosphorus such as hydrolyzable particulate and organic phosphorus, but these concentrations are generally considered negligible in lakes. The inorganic forms of nitrogen, ammonia ($\text{NH}_3\text{-N}$) and nitrate ($\text{NO}_3\text{-N}$), are the forms most available to support the growth of aquatic life. Macrophytes and algae can also affect concentrations of other chemicals in the water. For example, in the photosynthetic process, carbon dioxide, a weak acid, is removed from the water and oxygen is produced. This process results in increased pH and dissolved oxygen levels.

Interactions among biological communities (the food web) greatly affect levels and cycling of nutrients such as phosphorus, nitrogen and carbon in lakes. Energy from the sun is captured and converted via photosynthesis to chemical energy by aquatic plants, which form the base of the food web as shown in Figure 3.1. Energy and nutrients, now tied up in organic molecules, travel through the different levels of the food web. Small aquatic animals (zooplankton and invertebrates) graze upon algae and plants. Larger invertebrates and fish then consume the grazers. Energy at upper levels of the food web is derived from the breakdown of organic molecules in the process known as respiration. Respiration and decomposition processes consume oxygen in the water column and in lake sediments.

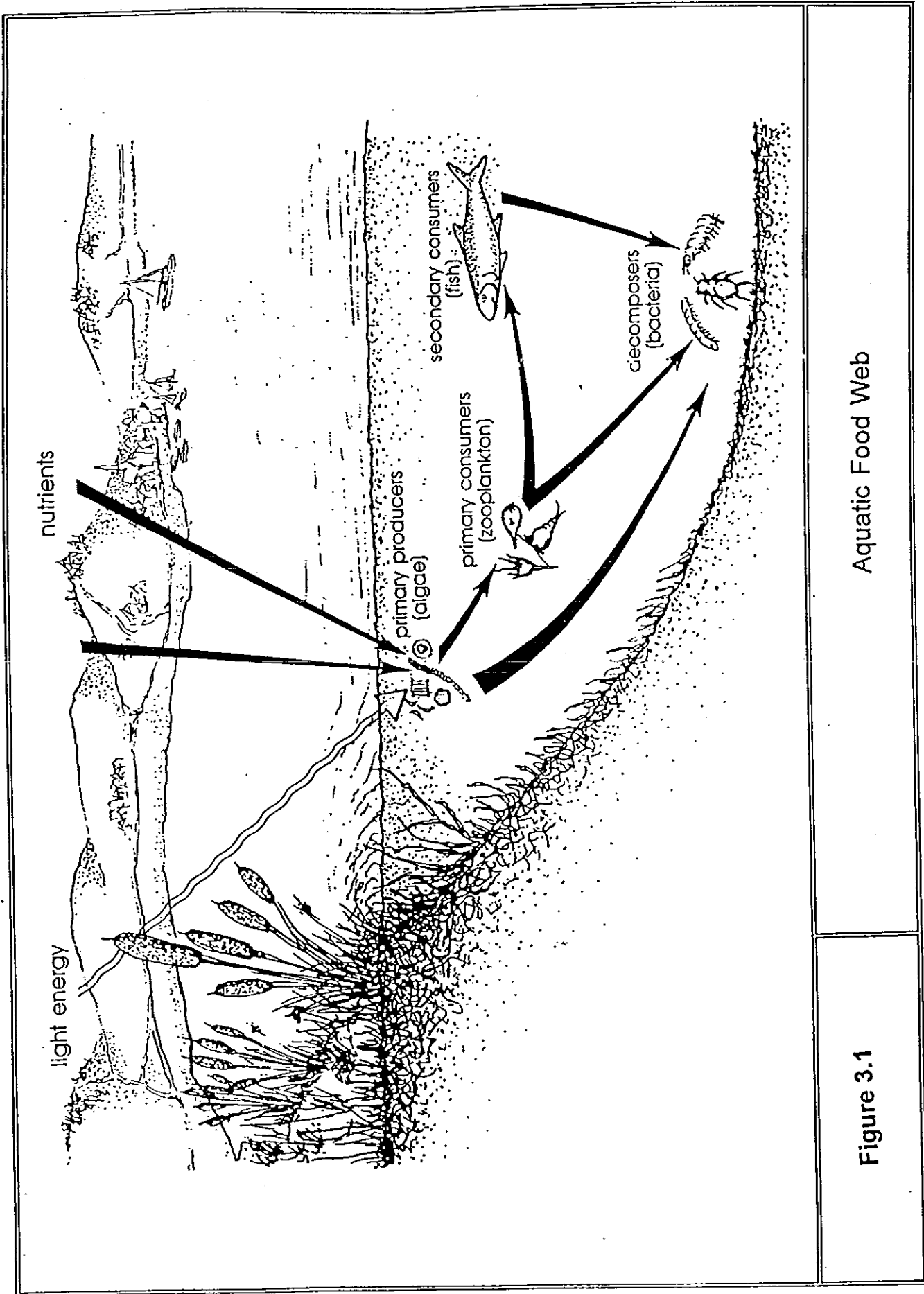
The organic waste products of these aquatic organisms along with their remains after death are called "detritus". Detritus settles to the bottom of the lake and becomes part of the sediment. Bacteria and fungi (decomposers) use the energy in the detritus thereby converting organic materials into inorganic nutrients which are once again available for use by plants and algae. Unused organic material accumulates in the sediments. Energy can become blocked in lower levels of the food web instead of flowing smoothly through it, because many of the algae and aquatic plants found in highly eutrophic lakes are also the ones least favored by grazers.

3.2 Study Design and Data Acquisition

Pond water quality samples were collected monthly from May through August 1996 in order to assess the ecological health of the study lakes. The growing season is typically the critical period for most lake systems. During the summer months, lake usage by the public sharply increases and lake problems (if any) are most prevalent (algae blooms, floating mats of algae, dense plant growth, noxious odors, and fish kills). Influent streams are generally monitored during lake studies; however, there are no influent streams to Meisel Pond. The pond is fed by surface runoff and a piped inlet tributary.

Sediment samples were collected from the study lakes for physical and chemical analysis. Bathymetric and macrophytic surveys of all eleven study lakes were performed as discussed in Section 2.3 and 3.10 of this report.

The results of the water quality monitoring program for Meisel Pond are summarized below. For more detailed information about these monitoring programs, refer to the "Union County Eleven Lakes Quality Assurance/Quality Control Work Plan" that was prepared by F. X. Browne, Inc. (1996).



Aquatic Food Web

Figure 3.1

Water Quality Monitoring

One water quality monitoring station was established at the deepest portion of the pond. On each study date, pond water samples were collected using a vertical Kemmerer sampler (Model 1290, Wildlife Supply Company) at depths of 0.5 meters below the pond's surface and 0.5 meters above the pond's bottom. The top and bottom discrete pond water samples were subsequently composited together and analyzed for nutrients (total phosphorus, dissolved reactive phosphorus, total Kjeldahl nitrogen, nitrate plus nitrite nitrogen, and ammonia nitrogen), and total suspended solids. The pH of the composited sample was measured in the field using a portable pH meter (Model pHep3, Hanna Instruments).

Kemmerer Sampler



On each study date, temperature and dissolved oxygen profiles were measured every 0.5 meters using a dissolved oxygen and temperature meter. The Secchi disk transparency was also measured using an 8-inch diameter black and white Secchi disk.

Additional pond samples were collected monthly for chlorophyll *a* analysis and for phytoplankton and zooplankton identification and enumeration (to genus). A minimum of two discrete pond water samples were collected from the photic zone using a vertical Kemmerer water sampler. The photic zone was defined in this study as a water depth equal to two times the Secchi disk depth. Photic zone discrete samples were then composited together and analyzed for chlorophyll *a* and used for phytoplankton identification and enumeration. Zooplankton samples were collected by vertically towing a plankton net (80 μm mesh size with a 8-inch orifice) at least five times through the water column. Both phytoplankton and zooplankton identification and enumeration were performed in the laboratory using a Sedgewick-Rafter counting chamber and a microscope equipped with a Whipple Grid. All phytoplankton and zooplankton cell densities (number per volume) were expressed as biomass based on mean cell size.

Sediment Sampling

Three discrete sediment core samples were collected from the pond using a Ogeechee lake sediment sampler (Model 2427, Wildlife Supply Company) equipped with 20 inch corer tubes. Discrete sediment samples were collected along the center line of the pond near the middle and at both ends. Discrete sediment samples were subsequently composited together in the field and submitted to the laboratory for analysis.

The composited lake sediment sample was analyzed for particle size distribution, solids, total phosphorus, total nitrogen, polychlorinated biphenyls (PCBs), pesticides, heavy metals, organic compounds, chlorides, pH, and reactivity for sulfur and cyanide (total concentrations only).

Bathymetric and Macrophyte Surveys

A bathymetric survey and macrophyte survey of Meisel Pond were conducted in September 1996. The bathymetric survey involved taking measurements of water depth and sediment depth along pre-determined transects in the pond. The macrophyte survey involved collecting, identifying, and delineating aquatic plants in order to show their distribution of within the pond.

Based on the above information, a bathymetric map (Figure 2.2), an unconsolidated sediment depth map (Figure 2.3), and a macrophyte map (Figure 3.2) were prepared.

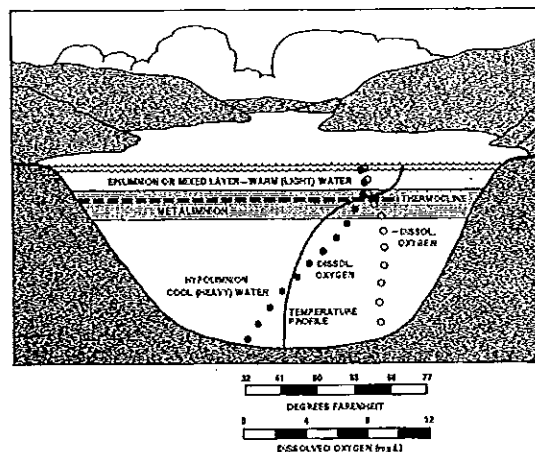
3.3 Pond Water Quality

The results of the water quality analyses are discussed in detail in the following sections of this report and pond water quality data are presented in Appendix B.

3.3.1 Temperature and Dissolved Oxygen

In late spring or the beginning of summer, deep temperate lakes develop stratified layers of water, with warmer water near the lake's surface (epilimnion) and colder waters near the lake's bottom (hypolimnion). As the temperature difference becomes greater between these two water layers, the resistance to mixing increases. Under these circumstances, the epilimnion (top water) is usually oxygen-rich due to photosynthesis and direct inputs from the atmosphere, while the hypolimnion (bottom water) may become depleted of oxygen due to oxygen being consumed by organisms decomposing organic matter at the lake bottom.

Conversely, shallow temperate lakes may never develop stratified layers of water. For these shallow lake systems, wave action caused by the wind may be sufficient to keep the entire lake completely mixed for most of the year. In shallow lakes, low dissolved oxygen levels may occur above the lake sediments even though most of the water in the lake is completely mixed.



Therefore, both shallow and deep temperate lakes can have low dissolved oxygen concentrations near the surface of the lake sediments. If low dissolved oxygen levels occur near the lake bottom, sediments may release significant amounts of nutrients (primarily orthophosphorus and ammonium) back into the lake, thereby allowing for more nutrients for algae and aquatic plant growth.

During the study period, Meisel Pond was well-mixed and was not thermally stratified. The dissolved oxygen and temperature profiles in Meisel Pond in August 1996 are listed in Table 3.1. The maximum depth at the monitoring station was 0.6 meters (m) or 2 feet. The water temperature in August ranged from 23 degrees Celsius (°C) (73.4°F) at a depth of 0.6 meters to 24 °C (75.2 °F) near the surface of the pond. Dissolved oxygen concentrations in August ranged from 3.9 milligrams per liter (mg/L) at a depth of 0.6 meters and 4.6 mg/L near the surface of the lake. Dissolved oxygen and temperature profiles for the May, June, and July sampling events were different than in August. The mean dissolved oxygen concentration was higher in the bottom waters in May, June and July. Low dissolved oxygen concentrations are not a significant problem in Meisel Pond.

Table 3.1 Dissolved Oxygen and Temperature Profile Data Meisel Pond - August 1996		
Depth (meters)	Temperature (Celsius)	Dissolved Oxygen (mg/L)
0.0	24.0 (75.2 °F)	4.6
0.5	23.0 (73.4°F)	4.1
0.6	23.0 (73.4°F)	3.9

In general, the optimal water temperature for trout is 55 to 60 °F (12.8 to 15.6 °C). Trout may withstand water temperatures above 80 °F (26.7 °C) for several hours, but if water temperatures exceed 75 °F (23.9 °C) for extended periods, trout mortality is expected (Pennsylvania State University). A safe minimum dissolved oxygen concentration for trout is 5 mg/L. Warmwater species (i.e. golden shiners, bass, bluegill) which are more typical of New Jersey lakes grow well when water temperatures exceed 80 °F (26.7 °C). For many warm water fish species, 3 mg/L is considered to be a safe minimum dissolved oxygen concentration. Meisel Pond is too warm and the dissolved oxygen concentration is too low for coldwater fish, such as trout; however, the lake can support warmwater fish species.

3.3.2 pH

In lake and pond ecosystems, changes in pH occur when phytoplankton use carbon dioxide during photosynthesis. Dissolved carbon dioxide reacts with water to form carbonic acid (H₂CO₃). When phytoplankton take up the carbon dioxide dissolved in the lake water during photosynthesis, the result is a decrease in the carbonic acid concentration and a consequent increase in pH. For this reason, the pH of surface waters is higher during an algal bloom than the pH of deeper waters where phytoplankton (suspended microscopic plants) numbers are much lower.

Acidic water contains a relatively high concentration of hydrogen ions, and the higher the concentration of hydrogen ions, the lower the pH. Several anionic salts such as bicarbonates, carbonates, phosphates, silicates, and borates, can bind with hydrogen ions, thereby reducing the acidity of water. When these salts bind with the hydrogen ions, the pH increases and the water is said to be "buffered".

The pH values ranged from 7.5 to 8.5 standard units (su) in Meisel Pond with a mean pH value of 7.9 standard units. The water in Meisel Pond is considered basic (0.5 to 1.5 standard units above neutral conditions). Under most circumstances, pH values for lakes in the United States generally range between 6.0 and 9.0 standard units.

3.3.3 Total Suspended Solids

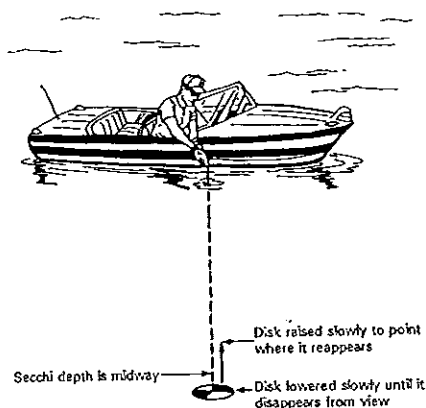
The concentration of total suspended solids in a lake is a measure of the amount of particulate matter in the water column. Suspended solids are comprised of both organic matter (i.e. algae) and inorganic materials (i.e. soils and clay particles).

The mean total suspended solids concentration in Meisel Pond ranged from 15.1 to 36.7 mg/L with a mean concentration of 24.0 mg/L. Mean total suspended solids concentrations greater than 10 mg/L, like those in Meisel Pond, are considered high for most lake and reservoir systems.

3.3.4 Transparency

The transparency, or clarity, of water is most often reported in lakes as the Secchi disk depth. This measurement is taken by lowering a circular white or black-and-white disk, 20 cm (8 inches) in diameter, into the water until it is no longer visible. Observed Secchi disk depths range from a few centimeters in very turbid lakes to over 40 meters in the clearest known lakes (Wetzel, 1975). Although somewhat simplistic and subjective, this testing method probably best represents the conditions which are most readily visible to the common lake user.

Secchi disk transparency is related to the transmission of light in water and depends on both the absorption and scattering of light. The absorption of light in dark-colored waters reduces light transmission. Light scattering is usually a more important factor than absorption in determining Secchi depths. Scattering can be caused by color, by particulate organic matter, including algal cells, and by inorganic materials such as suspended clay particles in water.



In Meisel Pond, the Secchi disk transparency ranged from 0.34 to 0.50 meters (1.11 to 1.64 feet) with a mean transparency of 0.42 meters (1.37 feet). Based on criteria established by the United States Environmental Protection Agency (U.S. EPA 1980),

Secchi disk transparencies that are less than 1.5 meters indicate eutrophic (highly productive) conditions. Meisel Pond is eutrophic based on the EPA criterion for Secchi Disk transparency.

3.3.5 Phosphorus Concentrations

Phosphorus and nitrogen compounds are major nutrients required for the growth of algae and macrophytes in lakes. The dissolved reactive phosphorus, nitrate nitrogen, and ammonia nitrogen are regarded as the dissolved inorganic nutrient forms most readily available to support aquatic growth, while the total nutrient amounts provide an indication of the maximum growth which could be achieved in the lake. In most lake systems, phosphorus is the limiting nutrient and therefore is the nutrient which controls the amount of aquatic plant growth (vascular plants and algae).

Total phosphorus represents the sum of all forms of phosphorus, and includes dissolved and particulate organic phosphates from algae and other organisms, inorganic particulate phosphorus from soil particles and other solids, polyphosphates from detergents, and dissolved orthophosphates. Soluble orthophosphate is the phosphorus form that is most readily available for algal uptake and is usually reported as dissolved reactive phosphorus, because the analysis takes place under acid conditions which can result in some hydrolysis of other phosphorus forms. Total phosphorus levels are strongly affected by the daily phosphorus loads that enter the lake. Soluble orthophosphate levels, however, are affected by algal consumption during the growing season.

The total phosphorus concentrations in Meisel Pond ranged from 0.183 to 0.278 mg/L as phosphorus (P) with a mean of 0.229 mg/L as P. The dissolved reactive phosphorus concentrations ranged from 0.008 to 0.025 mg/L as P, with a mean concentration of 0.016 mg/L as P, as shown in Table 3.2.

Table 3.2 Mean Phosphorus Concentrations in Meisel Pond	
Total Phosphorus (mg/L as P)	Dissolved Reactive Phosphorus (mg/L as P)
0.229 [0.183-0.278]	0.016 [0.008-0.025]

Note: Range of concentrations present inside of brackets [].

The dissolved reactive phosphorus is considered to be the phosphorus that is readily available for algae and macrophytes to use. In many lake systems during the summer months, dissolved reactive phosphorus concentrations are very low (less than 0.001 mg/L) since it is readily used by plants and algae as soon as it becomes available. In Meisel Pond, both dissolved reactive phosphorus and total phosphorus were high. The mean total phosphorus concentration in the lake of 0.229 mg/L is typical of eutrophic lake conditions. Based on criteria set forth by the U.S. EPA, a lake system is classified as eutrophic when total phosphorus concentrations exceed 0.03 mg/L as P.

3.3.6 Nitrogen

Nitrogen compounds are also important for algae and aquatic macrophyte growth. The common inorganic forms of nitrogen in water are nitrate (NO_3^-), nitrite (NO_2^-), and ammonia (NH_3). The form of inorganic nitrogen present depends largely on dissolved oxygen concentrations. Nitrate is the form usually found in surface waters, while ammonia is only stable under anaerobic (low oxygen) conditions. Nitrite is an intermediate form of nitrogen which is unstable in surface waters. Nitrate and nitrite (total oxidized nitrogen) are often analyzed together and reported as $\text{NO}_3 + \text{NO}_2\text{-N}$, although nitrite concentrations are usually insignificant. Total Kjeldahl nitrogen (TKN) concentrations include ammonia and organic nitrogen (both soluble and particulate forms). Organic nitrogen is easily determined by subtracting ammonia nitrogen from total Kjeldahl nitrogen. Total nitrogen is easily calculated by summing the nitrate-nitrite, ammonia, and organic nitrogen fractions together.

The mean total nitrogen, organic nitrogen, nitrate plus nitrite nitrogen, and ammonia nitrogen concentrations, along with ranges of concentrations in Meisel Pond, are presented in Table 3.3.

Table 3.3 Mean Nitrogen Concentrations in Meisel Pond			
Total Nitrogen (mg/L as N)	Organic Nitrogen (mg/L as N)	Nitrate/Nitrite (mg/L as N)	Ammonia (mg/L as N)
1.94 [1.42-2.66]	1.73 [1.25-2.35]	0.11 [0.01 - 0.21]	0.11 [0.10-0.12]

Note: Range of concentrations present inside of brackets [].

The total nitrogen concentration in Meisel pond is 1.94 mg/L. Of this total nitrogen concentration, most of nitrogen occurs in the organic form. Nitrate/nitrite plus ammonia concentrations (inorganic nitrogen compounds) in the lake are 0.22 mg/L, which indicate high uptake rates by aquatic plants and algae for growth and reproduction.

3.3.7 Limiting Nutrient

Algal growth depends on a variety of nutrients including macronutrients such as phosphorus, nitrogen, and carbon, and trace nutrients such as iron, manganese, and other minerals. According to Liebig's Law of the Minimum, biological growth is limited by the substance that is present in the minimum quantity with respect to the needs of the organism. Nitrogen and phosphorus are usually the nutrients limiting algal growth in most natural waters.

Depending on the species, algae require approximately 15 to 26 atoms of nitrogen for every atom of phosphorus. This ratio converts to 7 to 12 mg of nitrogen per 1 mg of phosphorus on a mass basis. A ratio of total nitrogen to total phosphorus of 15:1 is generally regarded as the dividing point between nitrogen and phosphorus limitation (U.S. EPA, 1980). Identification of the limiting nutrient becomes more certain as the total nitrogen to total phosphorus ratio moves farther away from the dividing point, with ratios of 10:1 or less providing a strong indication of nitrogen limitation and ratios of 20:1 or more strongly indicating phosphorus limitation.

Inorganic nutrient concentrations may provide a better indication of the limiting nutrient because the inorganic nutrients are the forms directly available for algal growth. Ratios of total inorganic nitrogen (TIN = ammonia, nitrate, and nitrite) to dissolved reactive phosphorus (DRP) greater than 12 are indicative of phosphorus limitation, ratios of TIN:DRP less than 8 are indicative of nitrogen limitation, and TIN:DRP ratios between 8 and 12 indicate either nutrient can be limiting (Weiss, 1976).

The total inorganic nitrogen to dissolved reactive phosphorus ratio (TIN:DRP) in Meisel Pond was 14.6:1. Based on this nutrient ratio, the limiting nutrient in the lake appears to be phosphorus.

3.3.8 Chlorophyll a

Chlorophyll a is a pigment which gives plants their green color. Its function is to convert sunlight to chemical energy in the process of photosynthesis. Because chlorophyll a constitutes about 1 to 2 percent of the dry weight of planktonic algae, the amount of chlorophyll a in a water sample is an indicator of phytoplankton biomass.

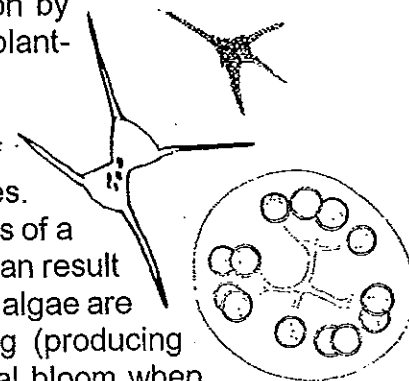
The chlorophyll a concentration in Meisel Pond ranged from 38.0 to 95.1 micrograms per liter ($\mu\text{g/L}$) with a mean concentration of 63.3 $\mu\text{g/L}$. Based on USEPA criteria, a lake is classified as eutrophic when chlorophyll a concentrations exceed 6.0 to 10.0 $\mu\text{g/L}$. Therefore, Meisel Pond is highly eutrophic based on chlorophyll a concentrations.

Meisel Pond was treated for algae and duckweed during the study period; therefore, chlorophyll a concentrations measured during the study period were lower than would be expected.

3.3.9 Phytoplankton

Phytoplankton are microscopic algae that have little or no resistance to currents and live free floating and suspended in open water. Their forms may be unicellular, colonial, or filamentous. As photosynthetic organisms (primary producers), phytoplankton form the foundation of the aquatic food web and are grazed upon by zooplankton (microscopic animals) and herbivorous fish (plant-eating fish).

A healthy lake should support a diverse assemblage of phytoplankton represented by a variety of algal species. Excessive phytoplanktonic growth, which typically consists of a few dominant species, is undesirable. Excessive growth can result in severe oxygen depletion in the water at night, when the algae are respiring (using up oxygen) and not photosynthesizing (producing oxygen). Oxygen depletion can also occur after an algal bloom when bacteria grow and multiply using dead algal cells as a food source. Excessive growths of some species of algae, particularly members of the blue-green group, may cause taste and odor problems, release toxic substances to the water, or give the water an unattractive green soupy or scummy appearance.



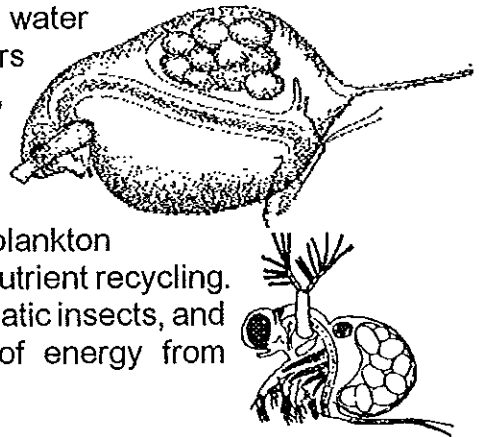
Planktonic productivity is commonly expressed by enumeration and biomass. Enumeration of phytoplankton is expressed as cells per milliliter (cells/mL). Biomass is expressed on a mass per volume basis as micrograms per liter (mg/L). Of the two, biomass provides a better estimate of the actual standing crop of phytoplankton in lakes.

Meisel Pond was treated for algae and duckweed during the study period; therefore, phytoplankton measured during the study period are lower than would be expected. During the months of May through August 1996, seven taxa (groups) of phytoplankton were identified in Meisel Pond including Bacillariophyta (diatoms), Chlorophyta (green algae), Chrysophyta (golden brown algae), Cryptophyta (cryptomonads), Cyanophyta (blue-green algae), Euglenophyta (euglenids), and Pyrrophyta (dinoflagellates). The phytoplanktonic total biomass ranged from 2,345 to 14,296 micrograms per liter (ug/L), with a mean biomass of 7,654 ug/L. These numbers are relatively low, most likely due to the application of an algicide; however, there are no generally accepted standards for phytoplankton biomass. The lowest total biomass levels were observed in July and the highest in June.

Another indication of eutrophication is the dominance of blue-green algae (Cyanophyta) in lakes; however, since algicides were applied to Meisel Pond, minimal numbers of blue-green algae were observed during the sampling period. If algicides were not applied to the pond, it is likely that blue-green algae would be present in large numbers.

3.3.10 Zooplankton

Zooplankton are microscopic animals whose movements in a lake are primarily dependent upon water currents. Zooplankton remain suspended in open water. Major groups of zooplankton include protozoa, rotifers and crustaceans. Crustaceans are further divided into copepods and cladocerans (i.e. water fleas). Zooplankters are generally smaller than 2 millimeters (one-tenth of an inch) in size and primarily feed on algae, other zooplankton, and plant and animal particles. Zooplankton grazing can have a significant impact on phytoplankton species composition and productivity (i.e. biomass) through selective grazing (e.g. size of zooplankton influences what size phytoplankton are consumed) and nutrient recycling. Zooplankton, in turn, are consumed by fish, waterfowl, aquatic insects, and others, thereby playing a vital role in the transfer of energy from phytoplankton to higher trophic levels.



In Meisel Pond, the zooplankton biomass ranged from 140 to 893 $\mu\text{g/L}$ with a mean biomass of 440 $\mu\text{g/L}$. The lowest zooplankton biomass levels were observed in August and the highest in May. In general, the zooplankton biomass order of dominance in Meisel Pond was rotifera followed by copepods, and cladocera. The pond did not contain any protozoa indicating that the pond is low in zooplankton biodiversity. This is most likely due to the algicides used to control the algae in the pond.

Zooplankton data are often used in conjunction with fishery surveys to assess a lake's fishery. In particular, the mean length of crustacean zooplankters collected during the spring and mid-summer is compared to one another and the results can be used to assess a lake's fishery (Mills and Green, 1987). In Meisel Pond, the mean length of crustacean zooplankton ranged from 0.44 millimeters (mm) in July to 0.47 mm in May and June.

These mean zooplankton lengths are quite small and are typical of lakes with low predator to prey ratios. Under such circumstances, a lake's fishery can consist of many undersized planktivorous fish (i.e. blue gill, white perch, yellow perch, pumpkinseed). With too many undersized planktivorous fish and too few piscivorous fish (i.e. bass, pickerel) to control them, overgrazing of large-bodied zooplankters is inevitable. If the zooplankton population is low, the algae population is high because there are not enough zooplankton to eat and control the algae population.

3.3.11 Trophic State Index

Eutrophication is a natural process where sediments and nutrients from the watershed accumulate in the lake. The eutrophication process is often accelerated by the activities of people. Contrary to popular opinion, a eutrophic lake is not dead; it is actually suffering from an over-abundance of living organisms. The organisms in a eutrophic lake are excessive in number, but usually represent relatively few species. In contrast, an oligotrophic lake contains relatively small numbers of organisms representing many

species. Mesotrophic lakes have intermediate conditions between eutrophic and oligotrophic lakes.

The Trophic State Index (TSI) developed by Carlson (1977) is among the most commonly used indicators of lake trophic state. The Carlson TSI is actually composed of three separate indices based on total phosphorus concentrations, chlorophyll a concentrations, and Secchi disk depths for a variety of lakes. Total phosphorus is an important parameter because phosphorus is often the limiting nutrient for algal growth in lakes. Chlorophyll a is a plant pigment present in all algae and is used to express indirectly of the biomass of algae in a lake. Secchi disk depth, as discussed previously, is a common measure of the transparency of the water in a lake.

Summer average values for total phosphorus, chlorophyll a, and Secchi depth are logarithmically converted to a scale of relative trophic state ranging from 1 to 100. Increasing values for the Trophic State Index are indicative of increasing trophic state in a lake. In general, index values less than 40 are indicative of oligotrophic conditions, while index values greater than 50 are indicative of eutrophic lake conditions.

The mean Carlson Trophic State Index (TSI) values in Meisel Pond are 83 for total phosphorus, 71 for chlorophyll a, and 73 for Secchi disk transparency. Based on the mean TSI values for total phosphorus, chlorophyll a, and transparency, Meisel Pond is classified as a highly productive or hyper-eutrophic pond.

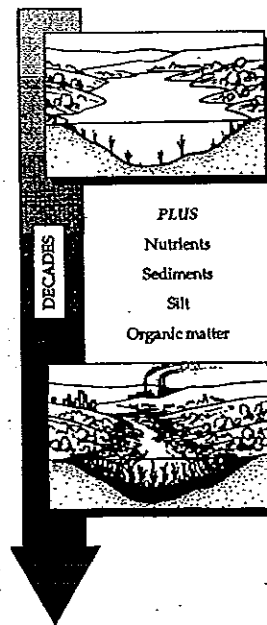
3.4 Macrophytes

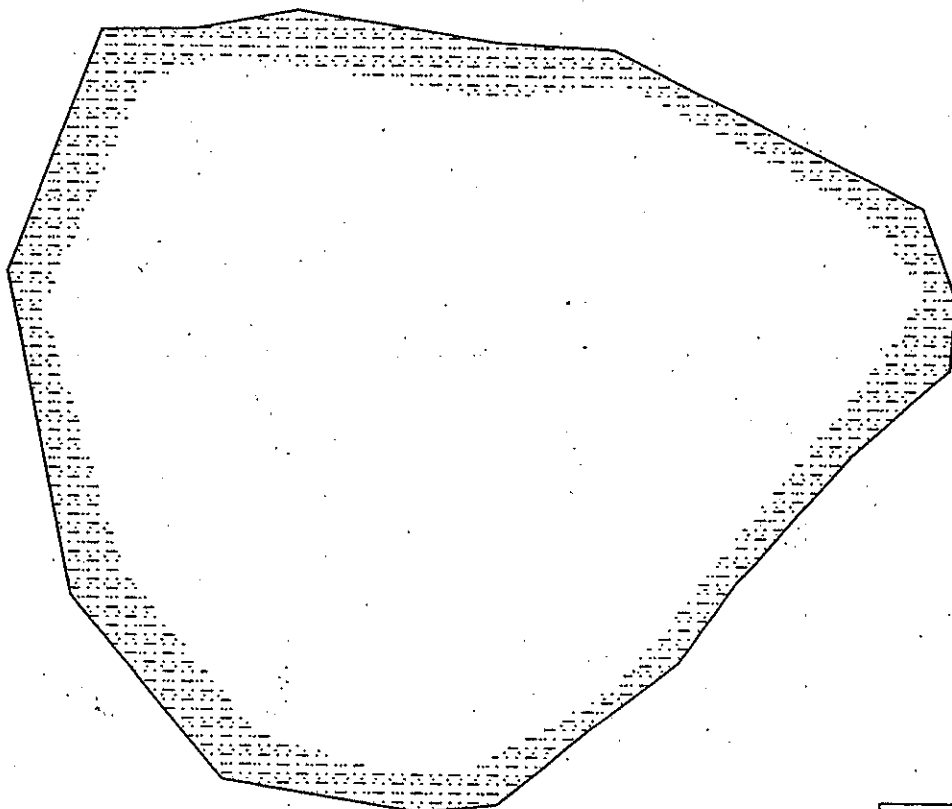
Aquatic vegetation ranges from tiny microscopic algae or phytoplankton to large vascular aquatic plants which are called macrophytes. Macrophytes can be found rooted to the lake bottom or floating on the lake's surface. Based on growth and habitat characteristics, macrophytes generally can be classified in one of three categories: submerged aquatic vegetation, floating aquatic vegetation, and emergent aquatic vegetation. Submerged aquatic plants live and grow completely underwater or just up to the surface of the water. A few submerged species protrude just above the water surface when in flower. Floating aquatic plants are those plants whose leaves float on the surface of the water. These plants may or may not be anchored to the bottom of the lake via stems or roots. Emergent aquatic plants have their upper stems and leaves protruding above the surface of the water. These plants are always attached directly to the lake bottom via root systems.

A macrophyte survey of Meisel Pond was conducted in September 1996. Plants were collected, identified to genus, and mapped in order to show the distribution within the lake. The distribution of macrophytes in Meisel Pond is illustrated in Figure 3.2.


Aquatic plants are generally located along the entire perimeter of the pond. An excessive amount of filamentous algae and Burr Marigold (*Bidens cernua*) were found in Meisel Pond. In general, the density of macrophytes in Meisel Pond are considered excessive and have negatively impacted pond use.

Accelerated Eutrophication





LEGEND

 FILAMENTOUS ALGAE AND
BURR MARIGOLD (*Bidens cernua*)

GRAPHIC SCALE



(IN FEET)
1 inch = 31.25ft.



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FIGURE 3.2
MACROPHYTE DISTRIBUTION MAP OF
MEISEL POND

3.5 Comparison of Union County Lakes Water Quality

Water quality comparisons of the eleven study lakes were based on a trophic state ranking system as shown in Table 3.4. This ranking system assigned point values to the Carlson's Trophic State Index (TSI) values for total phosphorus, chlorophyll a, and Secchi disk transparency for each study lake. Next, the point values for the three parameters were added together for each lake and these total point values provided the basis for lake water quality data comparisons as described below.

For all three parameters (total phosphorus, chlorophyll a, and Secchi disk transparency), lake TSI values received scores ranging from 1 to 11 points. For example, the lake with the highest TSI value for phosphorus (worst water quality) received 1 point, while the lake with the lowest TSI value for phosphorus (best water quality) received 11 points as shown in Table 3.4. This scoring procedure was also performed for both chlorophyll a and Secchi disk transparency TSI values. Next, for each study lake, the "Individual TSI Ranked Scores" for all three parameters were summed, thereby resulting in a "Total TSI Ranked Score". Based on this scoring procedure, the "Total TSI Ranked Scores" could theoretically range from 3 to 33 points. Using the "Total TSI Scores", the eleven study lakes were subsequently ranked relative to one another (Relative Ranking) from lowest (worst water quality) to highest (best water quality) as shown in Table 3.4.

In Table 3.4, the Total TSI Ranked Scores for the eleven study lakes ranged from 7 to 33 points. Of these County lakes, Warinanco Park Lake and Seeley's Pond recorded the poorest and best lake water quality, respectively. It should be noted that the majority of the study lakes were treated with algicides throughout the study period, therefore the TSI values for Secchi disk transparency and chlorophyll a data and subsequently their Total TSI Ranked Scores are likely "artificially" lower than expected. Of the study lakes, only Briant Park Pond and Seeley's Pond were not chemically treated with algicides during the study period.

Based on the data presented in Table 3.4, Meisel Pond was ranked the seventh worst in water quality based on a trophic state ranking system. As stated above, Meisel Pond was treated with algicides during the study period, therefore its ranking may be higher than expected.

**Table 3.4
Lake Water Quality Data Comparisons Using Carlson's Trophic State Index Values**

Lake Name	TSI Values			Algaecides Used	Total TSI Ranked Score	Relative Ranking
	Total P	Secchi Disk	Chlorophyll a			
Warinanco Park Lake (WPL)	91 [2]	76 [2]	75 [3]	Yes	7	1
Cedar Brook Park Lake (CBPL)	80 [7]	76 [1]	77 [2]	Yes	10	2
Briant Park Pond (BPP)	82 [6]	73 [4]	81 [1]	No	11	3
Green Brook Park Lagoon (GBPL)	97 [1]	74 [3]	66 [9]	Yes	13	4
Nomahegan Park Lake (NPL)	87 [4]	71 [6]	74 [6]	Yes	16	5
Lower Echo Lake (LEL)	90 [3]	61 [10]	75 [4]	Yes	17	6
Meisel Pond (MP)	83 [5]	73 [5]	71 [8]	Yes	18	7
Rahway River Park Lake (RRPL)	76 [10]	69 [7]	74 [5]	Yes	22	8
Upper Echo Lake (UEL)	77 [9]	66 [8]	73 [7]	Yes	24	9
Milton Lake (ML)	79 [8]	62 [9]	63 [10]	Yes	27	10
Seeley's Pond (SP)	61 [11]	59 [11]	49 [11]	No	33	11

Note: Values in brackets [] are the "Individual TSI Ranked Scores" for total phosphorus, Secchi disk transparency, and chlorophyll a for each lake.

3.6 Lake Water Quality Summary

The limiting nutrient in Meisel Pond appears to be phosphorus. In general, the density of macrophytes was considered excessive. Phytoplankton numbers were relatively low, most likely due to the application of an algicide. The dissolved oxygen was below 4 mg/L at the bottom of the pond. Based upon the results of the pond monitoring program and the U.S. EPA trophic state criteria, including total phosphorus, chlorophyll *a*, Secchi disk transparency, and Carlson's Trophic State Index, Meisel Pond is classified as a well-mixed, eutrophic pond system.

3.7 Lake Sediment Analyses

As part of a lake study, lake sediments are often collected and analyzed for nutrients, texture, and accumulated pollutants, such as pesticides, herbicides, and metals. Sediment test results are used to assess the potential impacts of any accumulated pollutants on the aquatic community, investigate the internal release of nutrients by in-lake sediments, and determine how to properly dispose of lake sediments during a lake dredging project.

In September 1996, one composited pond sediment sample was collected and analyzed for particle size distribution, solids (total, volatile and percent composition), nutrients (total phosphorus, total nitrogen), heavy metals, pesticides, polychlorinated biphenyl compounds, herbicides, volatile organic compounds, and semi-volatile compounds. With the exception of particle size and solids data, the above data were analyzed as total (bulk) concentrations and are presented on a dry weight basis.

The physical characteristics of the sediments in Meisel Pond are presented in Table 3.5. Based on weight, the sediments in Meisel Pond contain 47.4 percent water and 52.6 percent solids. Of these solids, the lake sediments are primarily composed of inorganic materials. Based on particle size, most of the solids are classified as silt as shown in Table 3.5.

Table 3.5 Physical Characteristics of Sediments in Meisel Pond	
Parameters	Results
Composition:	
Percent Solids	52.6
Particle Size Distribution:	
Percent Gravel	3
Percent Sand	42
Percent Silt	46
Percent Clay	9
Total	100

With regard to sediment disposal and sediment reuse, the sediment analyses should meet the Soil Cleanup Criteria proposed by the New Jersey Department of Environmental Protection (NJDEP). Sediment reuse, such as fill material, is obviously the least expensive manner in which to dispose of dredged lake sediments. Under the Soil Cleanup Criteria, one set of criteria applies to the disposal of sediments at residential type lands, while the second set of criteria applies to the disposal of sediments at non-residential type lands. Of the two sets of criteria, the residential criteria are more stringent.

Both sets of criteria list a variety of pollutants along with their corresponding proposed state regulatory levels. These pollutants are classified as heavy metals, polychlorinated biphenyl compounds (PCBs), pesticides, herbicides, volatile organic compounds (VOCs), and semi-volatile organic compounds (SOVs). The regulatory levels are based on total concentrations and are expressed on a dry weight basis.

The hazardous constituents in the composited sediment sample collected from Meisel Pond were compared to the NJDEP proposed Soil Cleanup Criteria for both residential and non-residential land classifications. The total concentrations of the above parameters that exceeded the residential or both the residential and non-residential Soil Cleanup Criteria are presented in Table 3.6. All sediment quality data is presented in Appendix C.

Table 3.6 Total Concentrations of Various Constituents Exceeding the Proposed NJDEP Soil Cleanup Criteria			
Parameter	Measured Concentration (mg/Kg)	Residential Criteria (mg/Kg)	Non-Residential Criteria (mg/Kg)
Metals			
Lead	267	100	600
Semi-volatile Compounds			
Benzo(a)anthracene	1.5	0.9	4
Benzo(a)pyrene	1.3	0.66	0.66
Indeno(1,2,3-cd)pyrene	0.97	0.9	4

In Meisel Pond, lead and three semi-volatile compounds exceeded the Soil Cleanup Criteria proposed by the NJDEP as shown in Table 3.6. Lead, benzo(a)anthracene, benzo(a)pyrene, and indeno(1,2,3-cd)pyrene exceed the residential criteria, while benzo(a)pyrene exceeded both the residential and non-residential criteria. Disposal of these sediments will be more difficult and costly than uncontaminated sediment. The contaminated sediment can either be capped with clean soil or the sediment can be transported to a hazardous waste landfill.

All proposed lake dredging projects are reviewed by the NJDEP on a case-by-case basis. As stated previously, the NJDEP Soil Cleanup Criteria are informal guidelines that have not been promulgated by the State of New Jersey as formal regulatory levels.

4.0 Pollutant Budgets

4.1 Overview

Pollutants can enter a waterbody from both point and nonpoint sources. Point sources are defined as all wastewater effluent discharges within a watershed. All other pollutant sources within a watershed are classified as nonpoint sources. Nonpoint sources can contribute pollutants to a waterbody through inflow from tributaries, direct runoff, direct precipitation on the lake surface, or through internal loading via lake sediments and groundwater inputs. Both natural events, such as precipitation and runoff, and human activities, including agriculture, silviculture, septic systems, and construction, can contribute pollutants to the lake system. Nonpoint sources can be difficult to quantify but are important because they often constitute the major source of pollutants to waterbodies.

Nonpoint source pollutant loadings for waterbodies can be assessed using lake and stream monitoring program data by the Unit Areal Loading (UAL) approach (U.S. EPA, 1980), or by desktop models such as the Simple Method (Schueler, 1987). The monitoring approach requires the acquisition of both streamflow and water quality data for inlet (inflowing) streams during dry and wet weather periods. The UAL approach is based on the fact that different land use types contribute different quantities of pollutants through runoff.

The Simple Method is an empirical method for estimating pollutant loads from urban development sites, which utilizes the extensive database obtained from the Nationwide Urban Runoff Program. The Simple Method is versatile because it predicts pollutant loadings under a variety of planning conditions. It is primarily intended for use in developed sites that are less than one square mile in size, but is considered precise enough to make reasonable and reliable nonpoint source pollution management decisions. The Simple Method was used in this study to develop pollutant loadings for total phosphorus, total nitrogen, and total suspended solids for Meisel Pond.

4.2 Nutrient and Sediment Loading Estimates Using the Simple Method

The pollutant budget to Meisel Pond was calculated based on the Simple Method.

The Simple Method consists of the following empirical formula:

$$L = [(P) (P_j) (R_v)/12] (C) (A) (2.72)$$

where:

- L = the pollutant load in pounds,
- P = the rainfall depth in inches over the desired time period,
- P_j = a correction factor for P for storms that produce no runoff,

- Rv= the runoff coefficient which expresses the fraction of rainfall that is converted to runoff,
- C = the flow-weighted mean concentration of the pollutant (mg/L), and
- A = the area of the site (acres).

Based on NOAA rainfall data, the average yearly rainfall for the Newark, New Jersey station is 43 inches per year. Therefore, P equals 43. Pj is 0.9 based on Schueler, 1987. Rv equals $0.05+0.009(I)$, where I is the percent impervious area in the watershed. The estimated percent impervious area in the Meisel Pond watershed is 35 percent. Therefore, Rv equals 0.365. The area of the watershed is approximately 323 acres. The flow-weighted mean concentration is 0.229 mg/L for total phosphorus and 1.94 mg/L for total nitrogen. The mean concentration for total suspended solids is 120.0 mg/L based on graphs presented in *Controlling Urban Runoff: A Practical Manual for Planning and Designing BMPs* (Schueler, 1987).

By incorporating these numbers into the Simple Method empirical formula, the following annual pollutant loads are generated for Meisel Pond:

<u>Pollutant</u>	<u>Annual Pollutant Load (lb/yr)</u>
Total Phosphorus	236
Total Nitrogen	2,006
Total Suspended Solids	124,100

4.3 Phosphorus Loading Estimate by Using Empirical Models

In addition to the Simple Method, the annual total phosphorus loading to Meisel Pond was determined by using empirical models. Based on the pond water quality data collected during this study, phosphorus was identified as the "limiting" nutrient in Meisel Pond. Therefore, it is phosphorus that will likely control the overall degree or level of eutrophication in the lake. If phosphorus concentrations were to decrease, the overall water quality in Meisel Pond would be expected to improve and vice versa.

Simply stated, the amount of phosphorus in the lake is a function of the following: (1) the amount of phosphorus flowing into the lake, (2) the amount of phosphorus flowing out of the lake, and (3) the amount of phosphorus settling to the bottom of the lake. This simple input-output principle has been used to develop a large number of models to predict the lake phosphorus concentrations if phosphorus inputs (phosphorus loadings) and watershed hydrologic characteristics are determined. The major difference between these models is

in their method of calculating their sedimentation term. Since it is not practical to measure phosphorus sedimentation directly, it must be estimated empirically based on a lake's morphometric and hydrologic characteristics.

All lake phosphorus models are based on two assumptions. The first assumption is that the lake behaves as a continuously stirred reactor. In other words, the phosphorus concentrations in the lake are uniform throughout the entire lake. Since this is seldom true in actual lake systems, it is necessary to sample a number of locations and different strata to estimate the true phosphorus content in the lake. The second assumption is that the lake is in a steady state condition, meaning concentrations do not change over time. In order to incorporate this assumption, it is important to sample a lake at different times of the year to account for seasonal variations in total phosphorus concentrations.

These models are most commonly used in lake management to predict the response of an existing lake to a change in its phosphorus load. In these cases, lake managers have the advantage of being able to compare the actual lake phosphorus concentration to the predicted concentration during the model evaluation process. The model selected is then used to predict the impact of changing the phosphorus load.

In this report, the mean total phosphorus concentration in Meisel Pond, along with the physical characteristics of the pond were used to select the most appropriate phosphorus loading model. Next, the selected model was rearranged in order to determine the phosphorus loading. Finally, the model was used to determine the phosphorus loading reduction that was necessary to allow the lake to be classified as mesotrophic. Based on empirical modeling, the phosphorus loading to Meisel Pond is approximately 254 lb/year. In order to reduce the average total phosphorus concentration to 0.02 mg/L (mesotrophic level), the phosphorus load would need to be decreased to approximately 10 lb/yr.

5.0 Identification of Problem Areas

As part of the Meisel Pond study, a watershed evaluation was performed to identify nonpoint source pollution problem areas within the Meisel Pond watershed. Several types of nonpoint source pollution problems were observed in the watershed including shoreline erosion and urban stormwater management problems. In addition, based on the results of the bathymetric survey and on observations during the watershed evaluation, excessive sedimentation has occurred in Meisel Pond resulting in inordinate amounts of sediment in the pond.

Based on design information, Van Wenkel's Brook feeds the pond with water. This brook is now piped directly into the pond carrying baseflow and stormflow (during rain events). Water leaves the pond via a spill box that was not visible during the site evaluation. Based on field observations, it appears that the river bottom has eroded resulting in a lowering of the groundwater/baseflow level of Van Wenkel's Brook. This may be one reason for the dilution and flushing problems in Meisel Pond since the baseflow elevation now appears to be lower than the invert of the inlet pipe to Meisel Pond.

5.1 Shoreline Erosion

Approximately 90 percent of the shoreline of Meisel Pond is experiencing erosion problems. In general, the banks of the pond are low, and all eroding areas can be stabilized using vegetative measures. The area surrounding the major inlet culvert should be stabilized with riprap to prevent scouring.

5.2 Waterfowl

Although waterfowl were not observed during the field visit, there was evidence of waterfowl in the area. Waterfowl can create major water quality problems for lakes and ponds. Large numbers of waterfowl, mainly Canada geese and gulls, aggravate shoreline erosion problems by walking up and down the lake banks. Waterfowl droppings are also a problem and are a direct source of phosphorus, nitrogen, and bacteria to the lake.

5.3 Urban Stormwater Management

Based on our field investigations, it is apparent that stormwater runoff from impervious areas, such as parking lots and roads, enters the storm sewers untreated. This untreated urban stormwater is piped directly to Meisel Pond and is a significant source of nutrients and sediments to the pond.

5.4 Golf Course Management

The Baltusrol Golf Course is a significant portion of the watershed. Golf courses can be a significant source of nutrients if they are not managed properly, and therefore, the golf course is a potential problem area within the watershed.

6.0 Recommended Management Plan

In developing a recommended management plan for Meisel Pond, both in-lake management alternatives and watershed management alternatives were evaluated. The first priority in all management programs is to determine whether watershed management practices can be implemented to reduce the pollutants entering the pond. Because nonpoint source pollutants account for a 100 percent of the nutrient and sediment loadings to Meisel Pond, it is critical that lake restoration focuses on watershed controls in addition to in-lake restoration techniques.

Recommended in-lake restoration alternatives for Meisel Pond include dredging, addition of Aquashade, batch alum treatment, and reconstruction of the pond outlet structure. Watershed management practices that are recommended for Meisel Pond include watershed investigations, shoreline stabilization, waterfowl control, urban stormwater management, and homeowner practices. In addition, a public education program, water quality monitoring program, fish stocking, and institutional approaches are recommended.

During the development of the watershed management plan, the following criteria were used to evaluate the potential management alternatives:

Effectiveness:	how well a specific management practice meets its goal
Longevity:	reflects the duration of treatment effectiveness
Confidence:	refers to the number and quality of reports and studies supporting the effectiveness rating given to a specific treatment
Applicability:	refers to whether or not the treatment directly affects the cause of the problem and whether it is suitable for the region in which it is considered for application
Potential for Negative Impacts:	an evaluation should be made to ensure that a proposed management practice does not cause a negative impact on the lake ecosystem
Capital Costs:	standard approaches should be used to evaluate the cost-effectiveness of various alternatives
Operation and Maintenance Costs:	these costs should be evaluated to help determine the cost-effectiveness of each management alternative

The recommended management plan for Meisel Pond is based upon the following: (1) lake water quality data, (2) watershed investigations, (3) estimated pollutant budgets, and (4) the goals as established by the Union County Waterways Team.

6.1 In-Lake Treatment

6.1.1 Dredging

The physical removal of accumulated sediments can be used to achieve one or more objectives and is often referred to as the "ultimate face-lift." Overall, the costs for dredging are high, but the benefits are long-term, as long as control measures are implemented to minimize the amount of sediment entering the lake. Meisel Pond was created in 1958 and dredged once in 1970. Since Meisel Pond essentially acts as a sedimentation basin, routine maintenance is essential to ensure that stormwater entering Meisel Pond is treated effectively before it is discharged into Van Wenkel's Brook, a tributary of Rahway River. Dredging the pond will not only increase the efficiency of the pond to act as a settling basin and improve downstream water quality, but it will also help to improve the water quality of the pond itself.

Meisel Pond contains approximately 1920 cubic yards of unconsolidated sediment that should be removed by dredging. Meisel Pond should be mechanically dredged, and sediments should be disposed of.

Potential disposal areas for contaminated sediments include hazardous waste landfills and available non-residential land. County owned parkland may be acceptable for sediment disposal, but site remediation techniques such as capping the sediments may be required. The DEP has indicated that they will consider disposal sites for contaminated sediments on a case by case basis. Currently, DEP has no specific guidelines for the disposal of contaminated sediments.

Meisel Pond Park is relatively small; however, if the sediment is dewatered using mechanical dewatering equipment, some (if not all) of the sediment may be used in the park as a top dressing. The dewatered sediment could be graded into the existing landscape, compacted, and seeded and mulched. Another alternative disposal area may be at the Baltusrol Golf Course. The golf course is close by and may need fill material as part of their maintenance of the golf course.

A dredging feasibility study should be performed before detailed dredging design and permitting begins. The main work elements of the dredging feasibility study should include the following:

1. Attend a pre-application meeting with the DEP to discuss the project, to determine what permits will be required for this specific project, and to discuss potential disposal areas. A pre-application meeting is required by the DEP for dredging projects.

2. Identify a suitable disposal area for the contaminated sediments. Suitable areas may include non-residential properties, including County property such as Meisel Park or hazardous waste landfills.
3. Prepare a dredging feasibility report for submission to Union County. Based on information provided in this report, Union County can determine if dredging Meisel Pond is feasible.

The dredging feasibility study should also include an evaluation of beneficial soil reuse and reclamation of the contaminated sediments.

6.1.2 Water Colorant

Since Meisel Pond is so small, it is an excellent candidate for a water colorant such as Aquashade. Aquashade is an EPA-registered non-toxic organic water dye for algae and weed control that filters sunlight to reduce the growth of aquatic weeds and algae. It is also useful for coloring controlled waterways an attractive blue to enhance their aesthetic quality. The typical application rate of Aquashade is one gallon per 1,000,000 gallons of pond water. Applications should begin in the spring before aquatic plants begin to grow. One application lasts for approximately 6 weeks. A one gallon jug of Aquashade costs approximately \$45. Approximately ½ gallon would be required for Meisel Pond for each application period. If application begins in April and continues through the end of September, approximately five applications would be required per year. Therefore, the total cost of Aquashade per year for Meisel Pond would be \$135.

6.1.3 Pond Aeration

Aeration has been widely used as a restoration measure for lakes and ponds where summer hypolimnetic oxygen depletion and/or winter-kill are of major concern. Aeration can be divided into two categories: those methods which destratify the pond water column and circulate the entire pond, and those methods which aerate the hypolimnion (deep water layer) without destratifying the pond. Both methods are based on the principle that if the dissolved oxygen concentration in a pond is increased, it will provide additional habitat for fish while decreasing the release of phosphorus from the sediments that can occur under anoxic (low dissolved oxygen) conditions.

Meisel Pond has low dissolved oxygen concentrations in both the bottom and surface waters of the pond. A destratification aeration system would keep all the water aerated and cause the water column to circulate. However, aeration should only be considered for Meisel Pond after dredging occurs. After dredging is completed, aeration should be reevaluated. If the water column of the lake continues to be well oxygenated after dredging, aeration may not be necessary, unless it is desired for aesthetic purposes.

6.1.4 Dilution/Flushing

Dilution and flushing can improve water quality in eutrophic lakes by diluting the amount of phosphorus in the lake while increasing the flushing of algae from the lake. This technique works best in small eutrophic lakes that have low flushing rates and is most cost effective when a large quantity of low-nutrient water is available. In most cases, the water supply for dilution and flushing is obtained by diversion of water from a nearby river, although wells may also be used.

In the past, water from Van Wenkel's Brook was diverted into Meisel Pond, and water was flushed back out into the stream. However, because the stream bottom has eroded, the stream's mean water level has fallen, resulting in the inflow pipe being lower than the baseflow. The old inflow pipe from the stream should be evaluated for use in an improved dilution system. As part of the design of the dilution system, the existing outlet structure should also be evaluated to determine if it should be modified to accommodate the new water supply to the pond.

Dilution and flushing options should only be considered after dredging has been completed. Dredging may open up springs that would naturally help flush the pond.

6.1.5 Alum Treatment

Batch alum treatment involves adding aluminum sulfate (alum) to the water column. This process is also referred to as phosphorus precipitation. Batch alum treatment is most applicable to shallow or otherwise unstratified lakes, such as Meisel Pond. The advantage to alum treatment is that dissolved and particulate phosphorus (including algal cells) are removed via settling from the lake, resulting in an immediate and dramatic improvement in lake trophic parameters. The disadvantage to alum treatment is that much of the phosphorus-binding capacity of the aluminum may be used up prior to its reaching the sediments. Redistribution of the aluminum floc by wind and water currents may occur prior to settling, resulting in an incomplete bottom coverage. For these reasons, long-term control of sediment release can be greatly diminished.

Prior to recommending the use of alum treatment for Meisel Pond, special jar testing of the pond water is required to determine dosages and to evaluate the impact of the alum on the pH of the pond water. The cost for the additional testing and evaluation would be approximately \$5,000. Implementation cost would be dependent upon dosage, but would be relatively inexpensive due to the size of the pond.

6.1.6 Chemical Treatment

Chemical treatment is often used as a band-aid approach to control undesirable algae and macrophyte growth in lakes and ponds. Chemical algicides are costly, must be continuously added to the lake, and can cause a buildup of undesirable chemical compounds in the lake. Alternative long-term methods of improving water quality (i.e. dredging, nonpoint source pollution BMPs, shoreline stabilization) are environmentally responsible ways to avoid or reduce the use of potentially harmful chemicals.

6.2 Watershed Controls

6.2.1 Establish Existing Conditions - Watershed Investigations

As part of this study, limited watershed investigations were conducted to identify nonpoint source pollution problem areas. General types of problems in the watershed were identified as well as streambank and shoreline erosion problem areas. A more detailed watershed inventory is necessary to identify specific problem areas throughout the Meisel Pond watershed.

Since much of the watershed is already developed and since it was developed without the benefit of a comprehensive management plan, there are probably many existing areas that contribute to excessive stormwater runoff and soil erosion. These problem areas should be identified and prioritized so that retrofit efforts can be applied to correct the problems.

Areas to be investigated include, but should not be limited to, streambanks, culverts, roadways, roadway stream crossings, storm drainage pipes, and parking lots. Areas of excessive stormwater runoff and soil erosion should be investigated for all existing land uses including agriculture, commercial, industrial, public, residential, and institutional.

Once these nonpoint source problem areas have been identified, they should be prioritized and analyzed for possible retrofit opportunities. Examples of potential retrofit opportunities include (Schueler, 1995):

1. Retrofit existing older stormwater management facilities.
2. Construct new stormwater controls at upstream end of road culverts.
3. Construct new stormwater controls at storm drainage pipe outfalls.
4. Construct small in-stream practices in open channels.
4. Construct on-site measures at the edges of large parking areas.
5. Construct new stormwater controls within highway rights-of-way.

Retrofit controls, or best management practices (BMPs) can include a large variety of measures including small detention areas, wet ponds, constructed wetlands, small pocket wetlands, sand filters, peat filters and bioretention systems. In some cases, retrofitting can consist of simple measures such as erosion control, soil stabilization, or stormwater diversion. Some nonpoint source problems can be eliminated by changing existing maintenance and operational procedures. For example, fertilization of lawns and golf courses could be modified to reduce nutrient runoff. Mowing of public areas could be modified to develop denser, taller, more natural vegetation, resulting in better control of stormwater runoff and increased removal of nutrients.

According to Thomas Schueler, Director of the Center for Watershed Protection (1995), elements to consider in stormwater retrofitting include the following:

- Ensure that retrofit site has adequate construction and maintenance access and sufficient construction staging area
- Verify existing utility locations, assess likelihood for conflicts, avoidance or relocation potential
- Identify existing natural resources and estimate sensitivity, avoid and minimize impacts where possible, assess likelihood for conflicts and permit acquisition complications
- Identify adjacent land uses; select BMPs which will be compatible with nearby properties
- Look for opportunities to combine projects, such as combining stream stabilization and habitat restoration with retrofitting in a complementary manner
- Assess the difficulty of obtaining permits and identify necessary agencies to contact.
- Define project purposes (i.e., is the retrofit intended to help stabilize the hydrologic regime in terms of quantity controls or is the retrofit more directed at pollutant removal in terms of quality controls?)

The watershed investigations should be coordinated by Union County. Initial investigations can be performed by volunteers under the direction of a professional. The prioritization of nonpoint source problem areas and the evaluation of retrofit opportunities, however, should be performed by professionals.

6.2.2 Shoreline Stabilization

Soil erosion occurring along steep slopes, streambanks, and lake shoreline areas can contribute large quantities of nutrient-laden sediments to lakes. Land areas exhibiting high levels of soil erosion are commonly referred to as critical areas. Generally, soil erosion from critical areas will continue to occur at accelerated rates until these areas are properly stabilized. Excessive loadings of nutrient-laden sediments to lakes will result in increased levels of lake eutrophication.

Critical areas in a watershed may be stabilized using conventional methods, bioengineering methods, or a combination of both. Conventional methods such as rip-rap and gabions are very effective in controlling soil erosion, but they can be expensive to implement and do not always fit into the natural environment. Bioengineering methods consist of planted vegetation used separately or in conjunction with conventional methods to control soil erosion. Some highly effective bioengineering methods are live stakes, live fascine, brush

layering, branchpacking, live gully repair, live cribwalls, vegetated rock gabions, vegetated rock walls, and vegetated rip-rap.

Approximately 90 percent of the shoreline of Meisel Pond is experiencing erosion problems. All eroding shoreline areas of Meisel Pond can be stabilized with vegetation, including coir fiber bundles and vegetative matting. Once the vegetation is established a one to two foot unmowed buffer strip should be left uncut in areas directly adjacent to the lake to enhance natural habitat and to maximize erosion control protection. The vegetation in this area can consist of desirable and aesthetically pleasing vegetation such as blue flag iris, cardinal flower, and rushes immediately along the water's edge. Farther away from the water (one to three feet from the water's edge) wildflowers can be planted. This type of vegetation will provide the required erosion protection and will attract wildlife such as hummingbirds and butterflies. The key element in this type of stabilization is that an unmowed area along the lake is necessary. This work can be completed under a New Jersey General Permit.

6.2.3 Waterfowl Control

Although waterfowl populations were not observed during the field investigations, evidence of waterfowl was observed around the pond. Geese droppings are a significant and direct source of phosphorus, nitrogen and bacteria to waterbodies. If necessary, geese populations should be controlled by landscaping, egg inactivation, chemical deterrents, and scare tactics. Park visitors should be discouraged from feeding the geese and other waterfowl. Signs should be posted at strategic locations in the park to inform people about not feeding the waterfowl. An ordinance prohibiting feeding and subsequent enforcement is recommended.

A few facts that are important to note regarding the resident Canada geese population at the park include:

- 1) Their life expectancy is very long in comparison to most bird species.
- 2) The move-in rate by new members of the population is not well documented; however, it is believed to be quite high.
- 3) There are few natural predatory species for the geese, and the populations of the predatory species which do exist have been virtually eliminated in many areas due to intense urban development.
- 4) Hunting is nearly impossible due to intense urban development, and so it no longer serves as a population check for the geese.

There are two basic solutions to the problem: on-site management techniques and removal of the geese from the site. These two solutions may be integrated to form a more effective geese control management plan.

Removal is a guaranteed option for eliminating the geese population. However, this is the most costly method and requires substantial permitting which takes a great deal of time and added expense. Also, there is no guarantee that permit application (and all included terms) will be approved by the regulatory agencies. Removal is most easily conducted during molting when the geese are unable to fly and may be driven to a specified fenced-in area for capture. A major problem in removal and relocation of geese is that there are very few areas left to take the geese, since their presence is so undesirable. Presently, any geese captured under permit in Union County are destroyed and their edible parts are donated to local food banks. This procedure is very costly and in most cases is only implemented in the most serious situations.

On-site management of the geese is the other basic option for controlling the populations of resident Canada geese at a given location. Several on-site management techniques have been developed, tested, and found successful by the USDA, and are described below.

Controlled Landscaping Practices

Controlled landscaping practices and physical barriers will help deter the geese from residing in many areas. Studies have found that the geese do not feed in areas where the grass has been allowed to grow naturally. Also, preventing easy access to and from bodies of water greatly reduces the number of escape routes for the geese and therefore significantly decreases their level of security. This may be accomplished by allowing emergent wetland plants and shoreline vegetation such as shrubs and grasses to grow, or by erecting physical barriers such as snow fences. It is important to note that the use of controlled landscaping practices and physical barriers may not be acceptable for certain land uses where open space and access to waterbodies is essential or desirable.

Egg Inactivation

Egg inactivation has been found successful in preventing the addition of new, young Canada geese into the local population. Geese are capable of laying eggs for an approximated 28 days. However, the gestation period is greater than 28 days. Therefore, by the time that the female realizes that the eggs will never hatch, she is no longer capable of producing another clutch during that season. The eggs may be inactivated by several methods, including shaking, puncturing, replacing the eggs with plastic substitutes, or coating the eggs with oil. The eggs must appear to be intact so that the female will not realize their impotency and lay more eggs.

Visual Deterrents

Visual deterrents such as special filaments, balloons, and scarecrows may be useful in many areas where the geese like to congregate. The disadvantage of visual deterrents is that in many cases they are unsightly to humans, they are not acceptable in every land use, and they may lose their effectiveness as the geese become conditioned to their presence.

Chemical Deterrents

Chemical deterrents have also been developed by certain companies. These chemicals are applied directly to the vegetation in the areas where the geese feed and congregate, causing the geese to feel either discomfort or nausea. The use of certain visual deterrents (i.e. paint) in conjunction with the chemical deterrents may condition the geese to associate the visual deterrent with the discomfort or nausea. Therefore, over time, only the visual deterrent may be necessary to control the geese and the use of chemical deterrents may either be reduced or eliminated. The disadvantages of this method are that they need to be applied many times during the season, and they are expensive.

Scare Tactics

Scare tactics such as trained dogs manually chasing geese from areas of congregation, and explosive charges and other loud devices. Such methods may be effective in driving the geese from a given area, but may not be appropriate or safe, depending on the surrounding land use. And in many cases, the geese may become conditioned to and very tolerant of these scare tactics.

6.2.4 Urban Stormwater Management

Over the past ten years, a number of stormwater best management practices have been developed to reduce the adverse water quality impacts associated with urbanization. Overall, stormwater control measures serve two distinct functions: (1) to reproduce pre-development hydrologic conditions, and (2) to provide pollutant removal capabilities. Historically, stormwater management has focused on reducing the frequency and severity of downstream flooding by reducing the peak discharge from post-developed sites. More recently, stormwater management has been redefined to include for the removal of pollutants, thereby improving and protecting the quality of downstream waters.

Below is a list of stormwater management practices that were evaluated for urban areas in the Meisel Pond watershed area. In developed areas, stormwater management should primarily focus on urban stormwater controls such as sand filters, water quality inlets, and infiltration structures. These stormwater controls do not require vast areas of land, and therefore can be integrated into existing urban settings.

Urban Stormwater Controls

1. Sand Filters
2. Water Quality Inlets
3. Infiltration Trenches
4. Bioretention Systems
5. Buffer Strips (Filter Strips)

In areas of future development or redevelopment, stormwater management controls such as infiltration basins, extended detention basins, constructed wetlands, and buffer strips

should be constructed or implemented. These stormwater control measures typically require larger tracts of land and therefore should be incorporated or designed as part of the land development planning process.

Other options for improving the water quality of stormwater runoff include:

1. Union County and local municipalities should evaluate street sweeping schedules. Increased street sweeping is recommended, especially in the spring and summer months.
2. Stormwater catch basins should be cleaned after major storm events or at least once every three months. Cooperation between Union County and the local municipalities is recommended for this task.
3. Although a large portion of the watershed is developed, every opportunity to improve stormwater quality should be taken. For example, if a commercial establishment changes ownership, and the new owner needs approvals from the local municipality, local ordinances should be in place to require improving stormwater runoff quality from the site before approvals are granted. Possible stormwater quality treatment systems that could be installed on a developed property include sand filters, peat filters, or bioretention systems. The purpose of these systems is to treat the first 0.5 inches of stormwater runoff from parking lots and roads, which is commonly called the "first flush."
4. Existing homeowners and business owners should be encouraged to direct roof runoff to dry pits or rain barrels to reduce the amount of stormwater that enters the storm sewer system. Using a rain barrel or cistern gives the homeowner the advantage of water use reduction by storing rain water for watering gardens or lawns during dry periods.

6.2.5 Homeowner Practices

Homeowner practices are important since most of the nutrients and sediments that enter Meisel Pond originate from residential land within the watershed. Several homeowner practices are listed below. These practices can be implemented as part of a public education program.

1. Lawn fertilizer can be a significant source of nutrients to lakes and ponds, especially in suburban areas where nice green lawns are desirable. A fact sheet on the importance of limiting lawn fertilization should be prepared and distributed to homeowners in the watershed. This task could be facilitated through the public education program

described below or by an "extra" in the local newspaper. Fact sheets could be posted at the park and possibly at local businesses.

2. Leaf management is also important for reducing nonpoint source pollution in a developed watershed. The existing leaf management program should be evaluated to determine if there are ways to improve the program so that leaves do not end up in the street for a long period of time. If leaves are left in the street too long, nutrients leach from the leaves and are carried into the storm sewers and eventually into the pond with stormwater runoff. Encouraging or requiring homeowners to bag leaves in biodegradable bags is one possibility for improving the leaf management program.
3. Homeowners should be informed that if they dump household chemicals and other substances into storm sewers, these substances will end up in the pond. Stenciling should be painted on storm inlets to educate homeowners that anything that goes down the storm sewer eventually drains directly into the pond.
4. Homeowners should be encouraged to wash cars and trucks on grassy areas, if possible, or use commercial car washes. This practice will reduce the amount of phosphorus and detergent that runs down the driveway into a nearby storm sewer, and eventually into Meisel Pond.

6.2.6 Golf Course Management

Golf courses can be a significant source of nutrients and pesticides if they are not managed properly. Union County should meet with the Baltusrol Golf Course to discuss the topic of nutrient management and to determine what nutrient management techniques are currently being used at the golf course.

6.3 Other Lake and Watershed Management Recommendations

Other recommendations to help improve the water quality of Meisel Pond include a public education program, a water quality monitoring program, and institutional approaches.

6.3.1 Public Education Program

The U.S. Environmental Protection Agency (EPA) actively encourages the development of environmental education programs by providing helpful literature, suggestions and funding sources. The U.S. EPA has funded education programs, such as the program developed for Lake Wallenpaupack (F. X. Browne, Inc., 1994), through its 314 Clean Lakes Program, its 319 Nonpoint Source Program and its Environmental Education Program.

Union County is currently developing an environmental education program throughout the County. The County's environmental education program should be integrated into the Meisel Pond Watershed. The environmental education program for Meisel Pond should include the following elements:

1. Develop and distribute nonpoint source brochure,
2. Develop a watershed management curriculum for presentation to local schools,
3. Develop and install a kiosk at Meisel Pond,
4. Develop fact sheets on watershed management for distribution at the kiosk and at park events, and
5. Include staffing to conduct watershed management education programs at the satellite operation of Trailside Nature and Science Center being developed by the County in Warinanco Park.

6.3.2 Water Quality Monitoring Program

A limited water quality monitoring program should be implemented after dredging has been completed to document water quality improvements. Yearly monitoring of selected parameters (i.e. dissolved oxygen, total phosphorus, chlorophyll *a*, and Secchi disk transparency) should be conducted to document water quality changes in the pond. Sample collection could be tied into the Trailside curriculum mentioned above.

6.3.3 Institutional Practices

Union County Waterways Team

The Union County Waterways Team should work closely with Municipal officials to improve the water quality in Meisel Pond. Recommended tasks that should be performed by the Waterways Team with the assistance of Municipal officials are as follows:

1. To evaluate existing subdivision ordinances, erosion and sedimentation control ordinances, and other ordinances for their applicability to the Meisel Pond watershed.
2. To determine if any of the above ordinances require revisions to further protect stream and pond water quality.
3. To assist in the coordination of all pond and watershed management activities.

4. To establish a "Watershed Watch" program to ensure that erosion and sedimentation controls are properly installed and maintained during and after construction activities and to watch for bank and stream erosion.
5. To communicate watershed problems including the lack of compliance with County-wide and municipal ordinances to the proper authorities.
6. To assist in obtaining funds for the implementation of pond and watershed management best management practices.

Ordinances

The Union County Waterways Team, with the assistance of municipal officials, should evaluate the existing erosion and sedimentation control and stormwater control ordinances to ensure that these documents are effectively protecting the water quality in County streams and lakes.

The Waterways Team, with the assistance of municipal officials, should also evaluate the applicability of lawn fertilization and waterfowl feeding ordinances for the Meisel Pond Watershed.

6.4 Implementation Costs

The proposed budget for the various elements of the Meisel Pond Restoration Project is shown in Table 6.1 These costs include engineering design, permitting, construction and construction observation costs. The cost for dredging Meisel Pond is a rough estimate since the sediments are contaminated. However, assuming that park land, or other non-residential land, can be used for sediment disposal, the cost provided in Table 6.1 should be a good estimate for planning purposes. The cost for dredging will increase if the sediment must be trucked to an alternate site or to a hazardous waste landfill.

6.5 Funding Sources

There are many state and federal programs that provide funding for lake and watershed management projects. The two primary funding sources for implementing the recommended management plan are the New Jersey Clean Lakes Program and the EPA's 319 Nonpoint Source Program. The Clean Lakes Program provides 50% funding to implement best management practices and public education programs. The 319 Nonpoint Source program provides funds for watershed management projects and public education programs. Union County has already received and is implementing a 319 grant to install streambank and shoreline stabilization measures and enhance their environmental education program.

**Table 6.1
Budget Summary for the Proposed
Meisel Pond Restoration Project**

Task	Description	Estimated Costs*
1	Dredging Feasibility Study	\$18,000
2	Dredging	\$140,000**
3	Watershed Investigations	\$8,000
4	Shoreline Stabilization	\$11,000
5	Water Colorant	\$150
6	Diversion/Flushing	\$5,000***
7	Waterfowl Control	\$11,000
8	Homeowner Practices	\$5,000 ^{††}
9	Urban Stormwater BMPs	\$5,000
10	Environmental Education	\$13,000
11	Water Quality Monitoring	\$4,000
12	Project Administration	\$5,000
13	Project Documentation and Final Report	\$9,000
Total		\$234,150

* These costs are in 2000 dollars and are subject to change based on when and to what extent the management program is implemented.

** This cost is based on using area in Meisel Park for sediment disposal. If the sediment must be trucked to a different disposal area or a hazardous waste landfill, the cost will increase.

*** This cost only includes engineering fees to evaluate the feasibility of diverting water from Van Wenkel's Brook to the Pond.

^{††} This cost includes consulting fees to prepare information and County administration fees to disseminate information.

6.6 Meisel Pond Restoration Project Schedule

The recommended management plan for Meisel Pond should be implemented in stages. In particular, watershed best management practices should be first implemented in the most critical areas. The dredging feasibility study can begin immediately so that a suitable sediment disposal area can be found as soon as possible. After watershed practices are installed and after the dredging feasibility study is complete, dredging design, permitting and construction can begin.

7.0 Environmental Evaluation

Since socio-economic and environmental impacts are part of the cost-effectiveness analysis for the restoration of Meisel Pond, many of these impacts were addressed during the evaluation of restoration alternatives. However, the impacts and their mitigative measures are formally documented below using the environmental evaluation checklist in the Clean Lakes Program Guidance Manual (U.S. EPA, 1980).

1. Will the project displace people?

No.

2. Will the project deface existing residences or residential areas?

No. Residential areas are not affected by the proposed plan.

3. Will the project be likely to lead to changes in established land use pattern or an increase in development pressure?

No.

4. Will the project adversely affect prime agricultural land or activities?

No.

5. Will the project adversely affect parkland, public land or scenic land?

Temporarily. During the lake sediment removal and shoreline stabilization portions of this project, portions of the parkland will be disturbed. Upon completion of lake dredging, the parkland will be regraded and revegetated to its original appearance.

6. Will the project adversely affect lands or structures of historic, architectural, archeological or cultural value?

No.

7. Will the project lead to a significant long-range increase in energy demands?

No.

8. Will the project adversely affect short-term or long-term ambient air quality?

No. The lake sediments are well oxygenated throughout the year and contain low levels of organic materials.

9. Will the project adversely affect short-term or long-term noise levels?

No.

10. If the project involves the use of in-lake chemical treatment, will it cause any short-term or long-term effects?

No chemical treatments are proposed for Meisel Pond as outlined in the Lake and Watershed Management Plan Section of this report. Aquashade, a non-toxic water colorant, is recommended.

11. Will the project be located in a floodplain?

Yes. Sediment removal activities will be temporarily employed in Meisel Pond.

12. Will structures be constructed in the floodplain?

Yes. If the outlet structure is modified, it will be located between the pond and Van Wenkel's Brook.

13. If the project involves physically modifying the lake shore, its bed, or its watershed, will the project cause any short or long-term adverse effects?

Yes. A portion of lake shoreline will be regraded and revegetated to reduce further soil erosion; however no long-term adverse effects are expected.

14. Will the project have a significant adverse effect on fish and wildlife, wetlands or other wildlife habitat?

Yes. Sediment removal will have short-term adverse impacts on the aquatic biota. However, within six months after dredging is complete, the benthic community is expected to return to normal.

15. Have all feasible alternatives to the project been considered in terms of environmental impacts, resource commitment, public interest and cost?

Yes.

16. Are there other measures not previously discussed which are necessary to mitigate adverse impacts resulting from the project?

There are no possible mitigation measures known at the present time which have not been discussed.

8.0 Literature Cited

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APPENDIX A

**GLOSSARY OF
LAKE AND WATERSHED MANAGEMENT TERMS**

Appendix A

GLOSSARY OF LAKE AND WATERSHED MANAGEMENT TERMS

Aeration: A process in which water is treated with air or other gases, usually oxygen. In lake restoration, aeration is used to prevent anaerobic condition or to provide artificial destratification.

Algal bloom: A high concentration of a specific algal species in a water body, usually caused by nutrient enrichment.

Algicide: A chemical highly toxic to algae.

Alkalinity: A quantitative measure of water's capacity to neutralize acids. Alkalinity results from the presence of bicarbonates, carbonates, hydroxides, salts, and occasionally of borates, silicates, and phosphates. Numerically, it is expressed as the concentration of calcium carbonate that has an equivalent capacity to neutralize strong acids.

Allochthonous: Describes organic matter produced outside of a specific stream or lake system.

Alluvial: Pertaining to sediments gradually deposited by moving water.

Artificial destratification: The process of inducing water currents in a lake to produce partial or total vertical circulation.

Artificial recharge: The addition of water to the groundwater reservoir by activities of man, such as irrigation or induced infiltration.

Assimilation: The absorption and conversion of nutritive elements into protoplasm.

Autochthon: Any organic matter indigenous to a specific stream or lake.

Autotrophic: The ability to synthesize organic matter from inorganic substances.

Background loading of concentration: The concentration of a chemical constituent arising from natural sources.

Base flow: Stream discharge due to groundwater flow.

Benthic oxygen demand: Oxygen demand exerted from the bottom of a stream or lake, usually by biochemical oxidation of organic material in the sediments.

Benthos: Organisms living on or in the bottom of a body of water.

Best management practices: Practices, either structural or non-structural, which are used to control nonpoint source pollution.

Bioassay: The use of living organisms to determine the biological effect of some substance, factor, or condition.

Biochemical oxidation: The process by which bacteria and other microorganisms break down organic material and remove organic matter from solution.

Biochemical oxygen demand (BOD), biological oxygen demand: The amount of oxygen used by aerobic organisms to decompose organic material. Provides an indirect measure of the concentration of biologically degradable material present in water or wastewater.

Biological control: A method of controlling pest organisms by introduced or naturally occurring predatory organisms, sterilization, inhibiting hormones, or other nonmechanical or nonchemical means.

Biological magnification, biomagnification: An increase in concentration of a substance along succeeding steps in a food chain.

Biomass: The total mass of living organisms in a particular volume or area.

Biota: All living matter in a particular region.

Blue-green algae: The phylum Cyanophyta, characterized by the presence of blue pigment in addition to green chlorophyll.

Catch basin: A collection chamber usually built at the curb line of a street, designed to admit surface water to a sewer or subdrain and to retain matter that would block the sewer.

Catchment: Surface drainage area.

Chemical control: A method of controlling pest organisms through exposure to specific toxic chemicals.

Chlorophyll: Green pigment in plants and algae necessary for photosynthesis.

Circulation period: The interval of time in which the thermal stratification of a lake is destroyed, resulting in the mixing of the entire water body.

Coagulation: The aggregation of colloidal particles, often induced by chemicals such as lime or alum.

Coliform bacteria: Nonpathogenic organisms considered a good indicator of pathogenic bacterial pollution.

Colorimetry: The technique used to infer the concentration of a dissolved substance in solution by comparison of its color intensity with that of a solution of known concentration.

Combined sewer: A sewer receiving both stormwater runoff and sewage.

Compensation point: The depth of water at which oxygen production by photosynthesis and respiration by plants and animals are at equilibrium due to light intensity.

Cover crop: A close-growing crop grown primarily for the purpose of protecting and improving soil between periods of permanent vegetation.

Crustacea: Aquatic animals with a rigid outer covering, jointed appendages, and gills.

Culture: A growth of microorganisms in an artificial medium.

Denitrification: Reduction of nitrates to nitrites or to elemental nitrogen by bacterial action.

Depression storage: Water retained in surface depressions when precipitation intensity is greater than infiltration capacity.

Design storm: A rainfall pattern of specified amount, intensity, duration, and frequency that is used as a basis for design.

Detention: Managing stormwater runoff or sewer flows through temporary holding and controlled release.

Detritus: Finely divided material of organic or inorganic origin.

Diatoms: Organisms belonging to the group Bacillariophyceae, characterized by the presence of silica in its cell walls.

Dilution: A lake restorative measure aimed at reducing nutrient levels within a water body by the replacement of nutrient-rich waters with nutrient-poor waters.

Discharge: A volume of fluid passing a point per unit time, commonly expressed as cubic meters per second.

Dissolved oxygen (DO): The quantity of oxygen present in water in a dissolved state, usually expressed as milligrams per liter of water, or as a percent of saturation at a specific temperature.

Dissolved solids (DS): The total amount of dissolved material, organic and inorganic, contained in water or wastes.

Diversions: A channel or berm constructed across or at the bottom of a slope for the purpose of intercepting surface runoff.

Drainage basin, watershed, drainage area: A geographical area where surface runoff from streams and other natural watercourses is carried by a single drainage system to a common outlet.

Dry weather flow: The combination of sanitary sewage and industrial and commercial wastes normally found in the sanitary sewers during the dry weather season of the year; or, flow in streams during dry seasons.

Dystrophic lakes: Brown-water lakes with a low lime content and a high humus content, often severely lacking nutrients.

Enrichment: The addition to or accumulation of plant nutrients in water.

Epilimnion: The upper, circulating layer of a thermally stratified lake.

Erosion: The process by which the soils of the earth's crust are worn away and carried from one place to another by weathering, corrosion, solution, and transportation.

Eutrophication: A natural enrichment process of a lake, which may be accelerated by man's activities. Usually manifested by one or more of the following characteristics: (a) excessive biomass accumulations of primary producers; (b) rapid organic and/or inorganic sedimentation and shallowing; or (c) seasonal and/or diurnal dissolved oxygen deficiencies.

Fecal streptococcus: A group of bacteria normally present in large numbers in the intestinal tracts of humans and other warm-blooded animals.

First flush: The first, and generally most polluted, portion of runoff generated by rainfall.

Flocculation: The process by which suspended

particles collide and combine into larger particles or floccules and settle out of solution.

Gabion: A rectangular or cylindrical wire mesh cage (a chicken wire basket) filled with rock and used to protect against erosion.

Gaging station: A selected section of a stream channel equipped with a gage, recorder, and/or other facilities for determining stream discharge.

Grassed waterway: A natural or constructed waterway covered with erosion-resistant grasses, used to conduct surface water from an area at a reduced flow rate.

Green algae: Algae characterized by the presence of photosynthetic pigments similar in color to those of the higher green plants.

Heavy metals: Metals of high specific gravity, including cadmium, chromium, cobalt, copper, lead, mercury. They are toxic to many organisms even in low concentrations.

Hydrograph: A continuous graph showing the properties of stream flow with respect to time.

Hydrologic cycle: The movement of water from the oceans to the atmosphere and back to the sea. Many subcycles exist including precipitation, interception, runoff, infiltration, percolation, storage, evaporation, and transpiration.

Hypolimnion: The lower, non-circulating layer of a thermally stratified lake.

Intermittent stream: A stream or portion of a stream that flows only when replenished by frequent precipitation.

Irrigation return flow: Irrigation water which is not consumed in evaporation or plant growth, and which returns to a surface stream or groundwater reservoir.

Leaching: Removal of the more soluble materials from the soil by percolating waters.

Limiting nutrient: The substance that is limiting to biological growth due to its short supply with respect to other substances necessary for the growth of an organism.

Littoral: The region along the shore of a body of water.

Macrophytes: Large vascular, aquatic plants which are either rooted or floating.

Mesotrophic lake: A trophic condition between an oligotrophic and an eutrophic water body.

Metalimnion: The middle layer of a thermally stratified lake in which temperature rapidly decreases with depth.

Most probable number (MPN): A statistical indication of the number of bacteria present in a given volume (usually 100 ml).

Nannoplankton: Those organisms suspended in open water which because of their small size,

cannot be collected by nets (usually smaller than approximately 25 microns).

Nitrification: The biochemical oxidation process by which ammonia is changed first to nitrates and then to nitrites by bacterial action.

Nitrogen, available: Includes ammonium, nitrate ions, ammonia, and certain simple amines readily available for plant growth.

Nitrogen cycle: The sequence of biochemical changes in which atmospheric nitrogen is "fixed," then used by a living organism, liberated upon the death and decomposition of the organism, and reduced to its original state.

Nitrogen fixation: The biological process of removing elemental nitrogen from the atmosphere and incorporating it into organic compounds.

Nitrogen, organic: Nitrogen components of biological origin such as amino acids, proteins, and peptides.

Nonpoint source: Nonpoint source pollutants are not traceable to a discrete origin, but generally result from land runoff, precipitation, drainage, or seepage.

Nutrient, available: That portion of an element or compound that can be readily absorbed and assimilated by growing plants.

Nutrient budget: An analysis of the nutrients entering a lake, discharging from the lake, and accumulating in the lake (e.g., input minus output = accumulation).

Nutrient inactivation: The process of rendering nutrients inactive by one of three methods: (1) Changing the form of a nutrient to make it unavailable to plants, (2) removing the nutrient from the photic zone, or (3) preventing the release or recycling of potentially available nutrients within a lake.

Oligotrophic lake: A lake with a small supply of nutrients, and consequently a low level of primary production. Oligotrophic lakes are often characterized by a high level of species diversification.

Orthophosphate: See phosphorus, available.

Outfall: The point where wastewater or drainage discharges from a sewer to a receiving body of water.

Overturn, turnovers: The complete mixing of a previously thermally stratified lake. This occurs in the spring and fall when water temperatures in the lake are uniform.

Oxygen deficit: The difference between observed oxygen concentrations and the amount that would be present at 100 percent saturation at a specific temperature.

Peak discharge: The maximum instantaneous flow from a given storm condition at a specific location.

Percolation test: A test used to determine the rate of percolation or seepage of water through natural soils. The percolation rate is expressed as time in minutes for a 1-inch fall of water in a test hold and is used to determine the acceptability of a site for treatment of domestic wastes by a septic system.

Perennial stream: A stream that maintains water in its channel throughout the year.

Periphyton: Microorganisms that are attached to or growing on submerged surfaces in a waterway.

Phosphorus, available: Phosphorus which is readily available for plant growth. Usually in the form of soluble orthophosphates.

Phosphorus, total (TP): All of the phosphorus present in a sample regardless of form. Usually measured by the persulfate digestion procedure.

Photic zone: The upper layer in a lake where sufficient light is available for photosynthesis.

Photosynthesis: The process occurring in green plants in which light energy is used to convert inorganic compounds to carbohydrates. In this process, carbon dioxide is consumed and oxygen is released.

Phytoplankton: Plant microorganisms, such as algae, living unattached in the water.

Plankton: Unattached aquatic microorganisms which drift passively through water.

Point source: A discreet pollutant discharge such as a pipe, ditch, channel, or concentrated animal feeding operation.

Population equivalent: An expression of the amount of a given waste load in terms of the size of human population that would contribute the same amount of biochemical oxygen demand (BOD) per day. A common base is 0.17 pounds (7.72 grams) of 5-day BOD per capita per day.

Primary production: The production of organic matter from light energy and inorganic materials, by autotrophic organisms.

Protozoa: Unicellular animals, including the ciliates and nonchlorophyllous flagellates.

Rainfall intensity: The rate at which rain falls, usually expressed in centimeters per hour.

Rational method: A means of computing peak storm drainage runoff (Q) by use of the formula $Q = CIA$, where C is a coefficient describing the physical drainage area, I is the average rainfall intensity, and A is the size of the drainage area.

Raw water: A water supply which is available for use but which has not yet been treated or purified.

Recurrence interval: The anticipated period in years that will elapse, based on average probability of storms in the design region, before a storm of a given intensity and/or total volume

will recur; thus, a 10-year storm can be expected to occur on the average once every 10 years. Sewers are generally designed for a specific design storm frequency.

Riprap: Broken rock, cobbles, or boulders placed on earth surfaces, such as the face of a dam or the bank of a stream, for protection against the action of water (waves).

Saprophytic: Pertaining to those organisms that live on dead or decaying organic matter.

Scouring: The clearing and digging action of flowing water, especially the downward erosion caused by stream water in sweeping away mud and silt, usually during a flood.

Secchi depth: A measure of optical water clarity as determined by lowering a weighted Secchi disk into a water body to the point where it is no longer visible.

Sediment basin: A structure designed to slow the velocity of runoff water and facilitate the settling and retention of sediment and debris.

Sediment delivery ratio: The fraction of soil eroded from upland sources that reaches a continuous stream channel or storage reservoir.

Sediment discharge: The quantity of sediment, expressed as a dry weight or volume, transported through a stream cross-section in a given time. Sediment discharge consists of both suspended load and bedload.

Septic: A putrefactive condition produced by anaerobic decomposition of organic wastes, usually accompanied by production of malodorous gases.

Standing crop: The biomass present in a body of water at a particular time.

Sub-basin: A physical division of a larger basin, associated with one reach of the storm drainage system.

Substrate: The substance or base upon which an organism grows.

Suspended solids: Refers to the particulate matter in a sample, including the material that settles readily as well as the material that remains dispersed.

Swale: An elongated depression in the land surface that is at least seasonally wet, is usually heavily vegetated, and is normally without flowing water. Swales conduct stormwater into primary drainage channels and provide some groundwater recharge.

Terrace: An embankment or combination of an embankment and channel built across a slope to control erosion by diverting or storing surface runoff instead of permitting it to flow uninterrupted down the slope.

Thermal stratification: The layering of water bodies due to temperature-induced density differences.

Thermocline: See metalimnion.

Tile drainage: Land drainage by means of a series of tile lines laid at a specified depth and grade.

Total solids: The solids in water, sewage, or other liquids, including the dissolved, filterable, and nonfilterable solids. The residue left when a sample is evaporated and dried at a specified temperature.

Trace elements: Those elements which are needed in low concentrations for the growth of an organism.

Trophic condition: A relative description of a lake's biological productivity. The range of trophic conditions is characterized by the terms oligotrophic for the least biologically productive, to eutrophic for the most biologically productive.

Turbidity: A measure of the cloudiness of a liquid. Turbidity provides an indirect measure of the suspended solids concentration in water.

Urban runoff: Surface runoff from an urban drainage area.

Volatile solids: The quantity of solids in water, sewage, or other liquid, which is lost upon ignition at 600° C.

Waste load allocation: The assignment of target pollutant loads to point sources so as to achieve water quality standards in a stream segment in the most effective manner.

Water quality: A term used to describe the chemical, physical, and biological characteristics of water, usually with respect to its suitability for a particular purpose.

Water quality standards: State-enforced standards describing the required physical and chemical properties of water according to its designated uses.

Watershed: See drainage basin.

Weir: Device for measuring or regulating the flow of water.

Zooplankton: Protozoa and other animal microorganisms living unattached in water.

APPENDIX B

**MEISEL POND
WATER QUALITY DATA**

UNION COUNTY: ELEVEN LAKES PHASE I STUDY
 MEISEL POND WATER QUALITY DATA
 FILE NO. NJ1289-03

Date	Station	Type	pH (su)	NO3/NO2 (mg/L)	NH3 (mg/L)	TKN (mg/L)	TP (mg/L)	DRP (mg/L)	TN* (mg/L)	TN/TP Ratio*	TIN/DRP Ratio*	TSS (mg/L)
05/22/96	MP	composite	8.5	< 0.01	< 0.10	1.47	0.183	0.011	1.48	8.1	10.0	15.1
06/17/96	MP	composite	7.9	0.21	< 0.10	2.45	0.278	0.019	2.66	9.6	16.3	36.7
07/22/96	MP	composite	7.5	0.15	0.12	2.06	0.216	0.025	2.21	10.2	10.8	19.5
08/12/96	MP	composite	7.8	0.07	< 0.10	1.35	0.240	0.008	1.42	5.9	21.3	24.7
MP	Min		7.5	0.01	0.10	1.35	0.183	0.008	1.42	5.9	10.0	15.1
	Max		8.5	0.21	0.12	2.45	0.278	0.025	2.66	10.2	21.3	36.7
	Mean		7.9	0.11	0.11	1.83	0.229	0.016	1.94	8.5	14.6	24.0
	Med		7.9	0.11	0.10	1.77	0.228	0.015	1.85	8.8	13.6	22.1
	Stds		0.4	0.1	0.0	0.5	0.0	0.0	0.6	1.9	5.3	9.3
	Std		0.4	0.1	0.0	0.4	0.0	0.0	0.5	1.7	4.5	8.1
	Count		4	4	4	4	4	4	4	4	4	4

UNION COUNTY: ELEVEN LAKES PHASE I STUDY
 MEISEL POND WATER QUALITY DATA
 FILE NO. NJ1289-03

Date	Station	Type	SD (meters)	CHL a (ug/L)	PHEO (ug/L)
05/22/96	MP	photic	0.34	80.2	19.4
06/17/96	MP	photic	0.50	95.1	30.2
07/22/96	MP	photic	0.47	38.0	17.0
08/12/96	MP	photic	0.35	40.1	20.3
MP	Min		0.34	38.0	17.0
	Max		0.50	95.1	30.2
	Mean		0.42	63.3	21.7
	Med		0.41	60.1	19.9
	Stds		0.08	28.7	5.8
	Std		0.07	24.9	5.0
	Count		4	4	4

APPENDIX C

**MEISEL POND
SEDIMENT RESULTS**

Union County Eleven Lakes Phase I Study
 Sediment Results
 File No. NJ1289-03

Parameters (1)	Concentration (2)											No. of Times NJDEP Criteria (4)		
	WPL	RRPL	ML	CBPL	GBPL	SP	BPP	MP	UEL	LEL	NPL	Detected	Res	Non-Res
pH	7.12	6.69	6.54	6.35	6.36	6.44	6.52	6.82	6.75	6.82	6.74	11	n/a	n/a
Reactivity cyanide												0	n/a	n/a
Reactivity sulfide												0	n/a	n/a
Nutrients ammonia	140	290	90	220	220	410	280	190	330	190	230	11	n/a	n/a
Nutrients nitrate	0.92	0.84	0.94	0.75	1		0.97	1.2	0.7	0.89	1.2	10	n/a	n/a
TKN												11	n/a	n/a
Total N (3)												11	n/a	n/a
Total P	610	600	440	460	690	1100	830	610	850	870	810	11	n/a	n/a
Moisture	55.7	39.8	41.5	52.4	57.2	55.3	50.7	47.4	47.5	59.4	59	11	n/a	n/a
Chloride	180	57	30	17	18		450	25	69	92	30	10	n/a	n/a
Metals Antimony (Sb)	8.6	3.6										2	14	340
Metals Arsenic (As)	95.2	11.3	3.5	32.4	67.2	10.6	7.8	10.8	6	11.1	11.7	11	20	20
Metals Beryllium (Be)	0.71	0.64	0.54	0.89	0.99	1.1	0.61	0.55	0.85	1.18	0.59	11	1	1
Metals Cadmium (Cd)				5.8								1	1	100
Metals Chromium (Cr)	21.4	25.1	15.5	39	46.8	87.5	38.2	29.8	24.3	34	23.1	11	n/a	n/a
Metals Copper (Cu)	196	154	35.9	190	191	236	109	97.1	92.8	226	194	11	600	600
Metals Lead (Pb)	242	170	36	200	213	166	308	267	162	156	125	11	100	600
Metals Mercury (Hg)	0.26	0.46	0.19	0.25	0.72	0.3	0.27	0.43	0.149	0.178	0.197	11	14	270
Metals Nickel (Ni)	24	16.7	10.5	25	24	27	23.2	21	18.2	25	16	11	250	2400
Metals Selenium (Se)	0.64	0.77		0.88	0.74		0.54	0.58		0.62	0.76	8	63	3100
Metals Silver (Ag)						1.9						1	110	4100
Metals Zinc (Zn)	229	233	78	200	200	188	270	202	167	181	178	11	1500	1500
VOCs 2-butanone		28			47	40	84			56		5	1000	1000
VOCs Acetone	160	160	51	56	240	240	300	140	86	270	53	11	1000	1000
VOCs chlorobenzene					26							1	37	680
VOCs methylene chloride		7							4			2	49	210
VOCs toluene									4			1	1000	1000
Pest/ DDD	0.03			0.04	0.11	0.15	0.23	0.63	0.14	0.21	0.04	9	3	12
PCBs DDE	0.09	0.014		0.06	0.08	0.06	0.08	0.15	0.04	0.07	0.04	10	2	9
PCBs DDT	0.015			0.02	0.15	0.12	0.04	0.03	0.08	0.16	0.01	9	2	9
PCBs Endrin	0.006					0.012						2	17	310

Union County Eleven Lakes Phase I Study
 Sediment Results
 File No. NJ1289-03

Parameters (1)	Concentration (2)											No. of Times NJDEP Criteria (4)		
	WPL	RRPL	ML	CBPL	GBPL	SP	BPP	MP	UEL	LEL	NPL	Detected	Res	Non-Res
PCB-1254		0.3		0.39								2	0.49	2
chlorodane			0.17			0.6	1.4	1.34	1.1	0.7	1.1	7	n/a	n/a
delta BHC										0.011		1	n/a	n/a
methoxychlor					0.013							1	280	5200
SVOCs 1,2,4-trichlorobenzene	0.19											1	68	1200
1,3-dichlorobenzene	0.089				0.11							2	5100	10000
1,4-dichlorobenzene	0.81	0.1		0.41	0.76				0.077		0.21	6	570	10000
2-methylnaphthalene							0.11					1	n/a	n/a
N-nitrosodiphenylamine							0.19					1	140	600
acenaphthylene				0.16	0.19		0.11					3	n/a	n/a
acenaphthene				0.17	0.63	0.098	0.2	0.15	0.092			6	3400	10000
anthracene	0.14	0.095		0.36	0.68	0.28	0.52	0.29	0.21	0.17	0.09	10	10000	10000
benzo(a)anthracene	1.1	0.61	0.26	2.5	4.1	1.3	2.6	1.5	1.3	1.2	0.64	11	0.9	4
benzo(a)pyrene	1.3	0.68	0.26	3	4.6	1.3	2.6	1.3	1.5	1.4	0.73	11	0.66	0.66
benzo(b)fluoranthene	2	1.1	0.45	4.2	6.1	1.8	3.8	2.1	2.1	2.1	1.2	11	n/a	n/a
benzo(ghi)perylene	0.81	0.44		1.9	3.8	0.76	2.3	0.9	1.2	1.3	0.64	10	n/a	n/a
benzo(k)fluoranthene	0.69	0.31		1.5	2.2	0.55	1.2	0.64	0.74	0.77	0.41	10	0.9	4
bis(2-ethylhexyl)phthalate	0.38	0.58	0.77	1.3	0.62	1.3	5.4	0.78	1.4	0.64	1.8	11	49	210
butyl benzyl phthalate						0.19	0.34				0.19	3	1100	10000
carbazole	0.083			0.15	0.16	0.11	0.21	0.19	0.095	0.11		8	n/a	n/a
chrysene	1.6	0.88	0.36	3.6	5.2	1.7	3.3	2	1.9	1.7	0.95	11	9	40
di-n-butyl phthalate							0.97					1	5700	10000
di-n-octyl phthalate							0.21					2	1100	10000
dibenz(a,h)anthracene	0.25			0.52	1.1	0.16	0.56	0.17		0.18		7	0.66	0.66
dibenzofuran					0.12		0.11	0.073				3	n/a	n/a
flouranthene	2.4	1.3	0.6	5	6.5	1.7	4.9	3.2	2.7	2.3	1.3	11	2300	10000
flourene		0.13		0.27	0.64	0.21	0.28	0.22		0.18		7	2300	10000
indeno(1,2,3-cd)pyrene	0.88	0.45	0.12	2.1	3.9	0.81	2.3	0.97	1.3	1.3	0.64	11	0.9	4
naphthalene					0.094		0.08					2	230	4200
phenanthrene	0.84	0.68	0.26	2.4	3.4	1.8	2.6	1.9	1.5	1.3	0.62	11	n/a	n/a
pyrene	2.3	1.7	0.57	5.7	8.8	3.2	6.4	3.2	3.2	3	1.5	11	1700	10000

Union County Eleven Lakes Phase I Study
 Sediment Results
 File No. NJ1289-03

Parameters (1)	Concentration (2)										No. of Times NJDEP Criteria (4)			
	WPL	RRPL	ML	CBPL	GBPL	SP	BPP	MP	UEL	LEL	NPL	Detected	Res	Non-Res
No. of Parameters Detected per Lake (5)	32	29	19	33	37	33	39	31	30	31	29			

- Note(s):
- (1) Only includes metals, pest/PCBs, VOCs, and SVOCs that were detected at least once in all 11 study lakes
 - (2) Concentrations expressed on a dry weight basis as mg/Kg (ppm) for nutrients, metals, pest/PCBs, VOCs, & SVOCs. Moisture expressed as a percentage and pH expressed as standard units.
 - (3) Total nitrogen determined as TKN plus nitrate
 - (4) NJDEP criteria expressed on a dry weight basis as mg/Kg (ppm)
 NJDEP Soil Cleanup Criteria (Informal Guidelines, last revised 2/3/94)
 - (5) Only for metals, pest/PCBs, VOCs, and SVOCs listed in the above table for each study lake.

Also,

Letter "j" after a concentration indicates estimated value by the contract laboratory

"Blank" values indicate the parameter was not detected by the contract laboratory

One composited sediment sample was analyzed for each of the eleven study lakes.
 Composited sediment sample = 3 discrete sediment cores (0-48 in) from center-line of lake.

Union County Eleven Lakes Phase I Study
 Sediment Results
 File No. NJ1289-03

Parameters (1)	Concentration (2)											No. of Times NJDEP Criteria (4)		
	WPL	RRPL	ML	CBPL	GBPL	SP	BPP	MP	UEL	LEL	NPL	Detected	Res	Non-Res
No. of Parameters Detected per Lake (5)	32	29	19	33	37	33	39	31	30	31	29			

Note(s):

- (1) Only includes metals, pest/PCBs, VOCs, and SVOCs that were detected at least once in all 11 study lakes
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- (4) NJDEP criteria expressed on a dry weight basis as mg/Kg (ppm)
 NJDEP Soil Cleanup Criteria (Informal Guidelines, last revised 2/3/94)
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GOVERNING BODY

CHAIRMAN: BRUCE H. BERGEN
VICE CHAIRMAN: SERGIO GRANADOS
FREEMAN: LINDA CARTER
 ANGELO G. ESTRADA
 CHRISTOPHER HADAK
 MOHAMED S. JALLOH
 BETTE JANE KOWALSKI
 ALEXANDER MIRABELLA
 VERNELL WRIGHT

UTILITIES:

GPU POWER AND LIGHT COMPANY
 8 WHIPPANY STREET
 MORRISTOWN, NJ 07960
 ATTN: ENGINEERING DEPARTMENT
 (973) 455-8200

COMCAST CABLEVISION COMPANY
 800 RAHWAY AVENUE
 UNION, NJ 07083-6691
 (908) 662-7444

PUBLIC SERVICE ELECTRIC & GAS COMPANY
 48 MIDDLE AVENUE
 SUMMIT, NJ 07981

VERIZON
 1000 CELLAR AVENUE
 SCOTCH PLAINS, NJ 07076-3133
 (800) 564-9911

AT&T OSP
 PATRICIA DRIVE
 FLANDERS, NJ 07836
 ATTN: KARL GROSSMANN
 (973) 584-9904

NEW JERSEY AMERICAN WATER COMPANY
 167 J.F.K. PARKWAY
 SHIRT HILLS, NJ 07078

ALSO NOTIFY:
 NJ DEPARTMENT OF TRANSPORTATION
 1035 PARKWAY AVENUE
 CN 600
 TRENTON, NJ 08625

COUNTY OF UNION
 CO PLANNING & DEVELOPMENT
 COUNTY ADMINISTRATION BUILDING, 6TH FLOOR
 ELIZABETHTOWN PLAZA
 ELIZABETH, NJ 07207

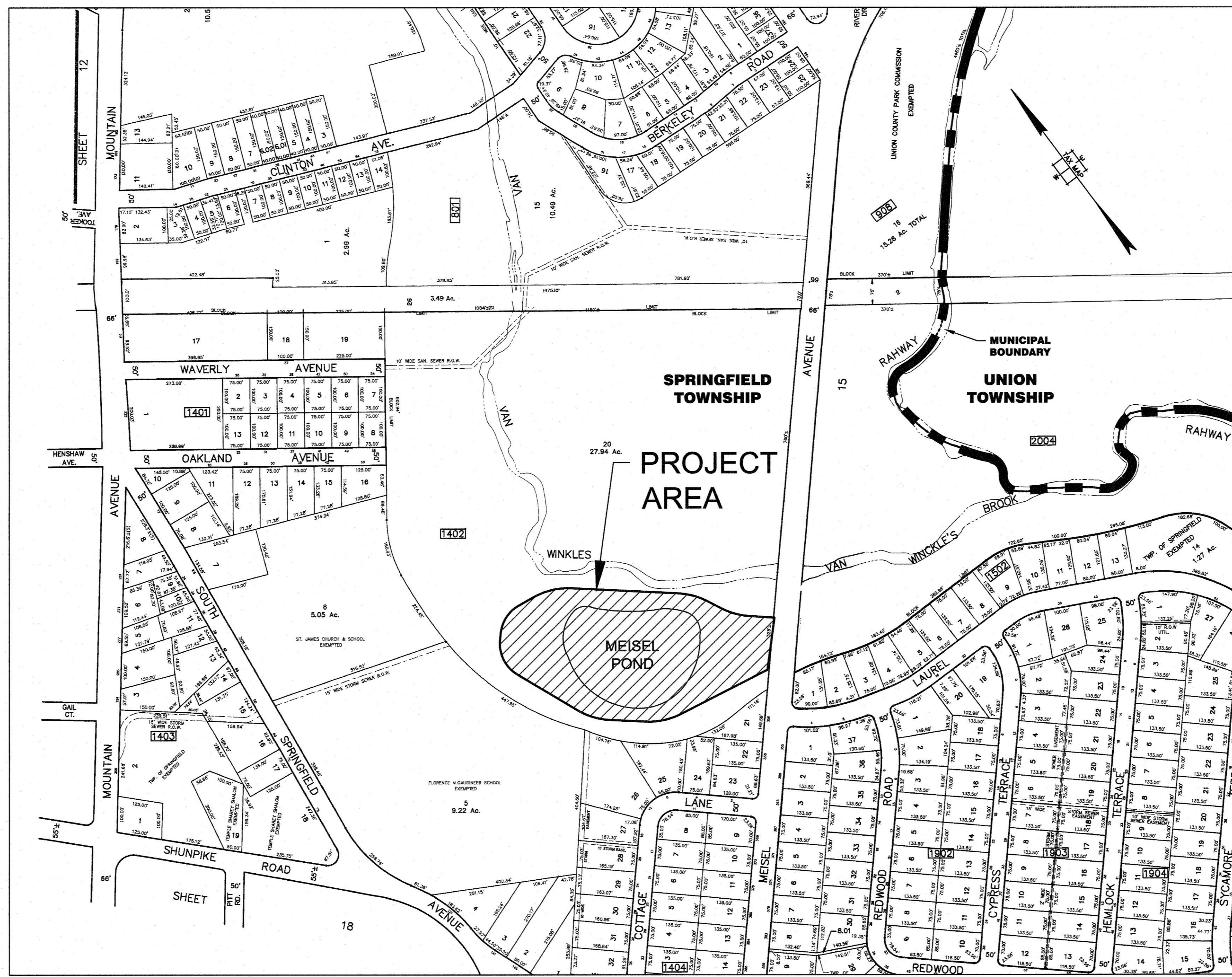
DREDGING OF MEISEL POND

LOT 20, BLOCK 1402

TOWNSHIP OF SPRINGFIELD

UNION COUNTY

NEW JERSEY

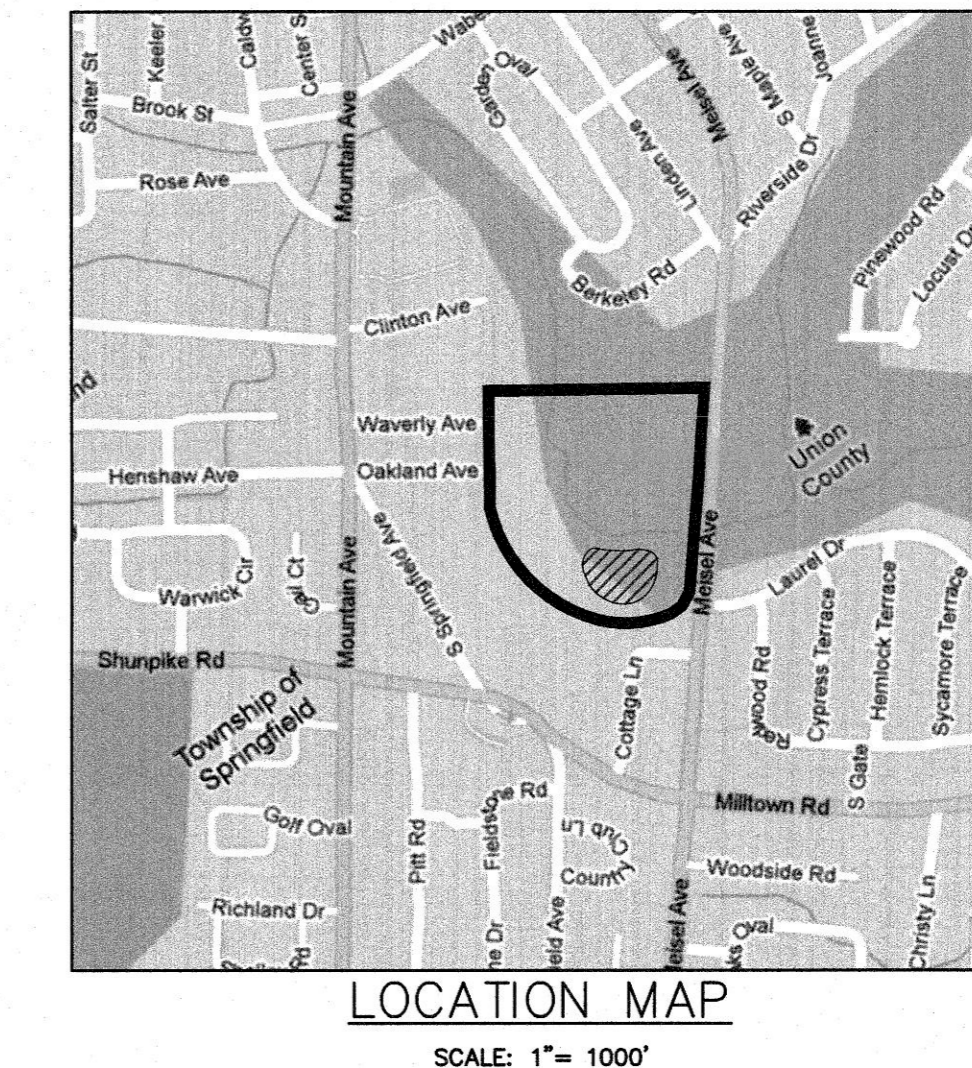


LEGEND
 ■■■■■ MUNICIPAL BOUNDARY LINE
 ▨ PROJECT AREA

PROJECT LOCATION MAP

SCALE: 1" = 200'

GENERAL INFORMATION



GENERAL NOTES

1. THE SUBJECT PROPERTY IS KNOWN AS LOT 20, BLOCK 1402 AS SHOWN ON SHEET 14 OF THE OFFICIAL TAX MAP OF THE TOWNSHIP OF SPRINGFIELD, UNION COUNTY, NEW JERSEY, DATED DECEMBER 31, 1992, REVISED MAY 23, 1994.
2. OWNER/APPLICANT: COUNTY OF UNION
 DEPARTMENT OF PARKS & COMMUNITY RENEWAL
 UNION COUNTY ADMINISTRATION BUILDING
 ELIZABETHTOWN PLAZA
 ELIZABETH, NJ 07207
3. THE SUBJECT PROPERTY IS PRESENTLY A COUNTY PARK POND. THE PROJECT CONSISTS OF DREDGING OPERATIONS, BANK STABILIZATION, AND INSTALLATION OF ABATORS WITHIN THE EXISTING POND.
4. THE BATHYMETRIC AND TOPOGRAPHIC INFORMATION SHOWN HEREON IS TAKEN FROM A PLAN ENTITLED "BATHYMETRIC SURVEY AND PARTIAL TOPOGRAPHIC SURVEY FOR MEISEL POND OF LOT 20, BLOCK 1402 SITUATE IN TOWNSHIP OF SPRINGFIELD, UNION COUNTY, NEW JERSEY, DATED NOVEMBER 4, 2008, LAST REVISED APRIL 12, 2016, PREPARED BY MICHAEL F. BURNS, P.L.S. L.C. NO. 34841 OF NEW JERSEY OF MASER CONSULTING P.A.
5. THE HORIZONTAL DATUM IS RELATIVE TO THE NEW JERSEY STATE PLANE COORDINATE SYSTEM AND ADJUSTED TO NAD 83 AND THE VERTICAL DATUM IS RELATIVE TO NAVD 83.
6. APPROXIMATE BOUNDARY INFORMATION IS TAKEN FROM THE OFFICIAL TAX MAP OF THE TOWNSHIP OF SPRINGFIELD, UNION COUNTY, NEW JERSEY.
7. THIS PLAN HAS BEEN SUPPLEMENTED WITH PLANIMETRIC INFORMATION OUTSIDE THE LIMITS OF SURVEY INCLUDING APPROXIMATE LOCATIONS OF BUILDINGS, DRIVEWAYS, CONCRETE, PARKING LOTS, SIDEWALKS, ETC., OBTAINED FROM NJ 007 AERIAL PHOTOGRAPHY.
8. THE LIMITS OF FRESHWATER WETLANDS ON A PLAN ENTITLED "UNION COUNTY DEPARTMENT OF PARKS AND RECREATION CONSTRUCTION CONTRACT DRAWINGS FOR MEISEL PARK, BLOCK 1402, LOT 20, TOWNSHIP OF SPRINGFIELD, UNION COUNTY, NEW JERSEY, PERMIT PLAN SHEET P-2, DATED MARCH 1, 2005, LAST REVISED JUNE 8, 2005, PREPARED BY PWS GROUP AND VERIFIED BY THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION WITH A LETTER OF INTERPRETATION FOOTPRINT OF DISTURBANCE, DATED JUNE 30, 2005 (FILE NO. 2017-05-0001).
9. 100 YEAR FLOOD PLAINS ARE KNOWN TO EXIST ON THE SITE PER THE FLOOD INSURANCE RATE MAP FOR THE TOWNSHIP OF SPRINGFIELD, UNION COUNTY, NEW JERSEY, DATED SEPTEMBER 20, 2006, PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FIRM NO. 340300010P).
10. FLOODWAY AND FLOOD HAZARD LIMITS ARE SHOWN ON THE N.J.D.E.P. "DELINEATION OF FLOODWAY AND FLOOD HAZARD AREA" MAP SHEET NO. J 07 IN THE FLOOD INSURANCE STUDY OF THE TOWNSHIP OF SPRINGFIELD, UNION COUNTY, NEW JERSEY, PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY. THIS STUDY HAS BEEN ADOPTED BY THE N.J.D.E.P.
11. ALL OR A PORTION OF THIS SITE LIES IN A FLOOD HAZARD AREA. CERTAIN ACTIVITIES IN FLOOD HAZARD AREAS ARE REGULATED BY THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SOME ACTIVITIES MAY BE PROHIBITED ON THIS SITE OR MAY REQUIRE A PERMIT. CONTACT THE DIVISION OF LAND USE REGULATION AT 609-292-0060 FOR MORE INFORMATION PRIOR TO ANY CONSTRUCTION ON SITE.
12. MATERIALS, WORKMANSHIP, AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREON SHALL BE IN ACCORDANCE WITH:
 - A. NEW JERSEY DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," 2005, AS SUPPLEMENTED.
 - B. CURRENT PREVAILING MUNICIPAL, COUNTY, AND/OR STATE AGENCY SPECIFICATIONS, STANDARDS, CONDITIONS, AND REQUIREMENTS.
 - C. CURRENT PREVAILING UTILITY COMPANY/AUTHORITY SPECIFICATIONS, STANDARDS, ASDF AND REQUIREMENTS.
 - D. CURRENT MANUFACTURER SPECIFICATIONS, STANDARDS, AND REQUIREMENTS.
13. UTILITY RELOCATIONS SHOWN HEREON, IF ANY, ARE FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT REPRESENT ALL REQUIRED UTILITY RELOCATIONS. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING AND/OR COORDINATING ALL REQUIRED UTILITY RELOCATIONS IN COOPERATION WITH THE RESPECTIVE UTILITY COMPANY/AUTHORITIES.
14. DO NOT SCALE DRAWINGS AS THEY PERTAIN TO ADJACENT AND SURROUNDING PHYSICAL CONDITIONS, BUILDINGS, STRUCTURES, ETC. THEY ARE SCHEMATIC ONLY, EXCEPT WHERE DIMENSIONS ARE SHOWN THEREON.
15. EXISTING UTILITY INFORMATION SHOWN HEREON HAS BEEN COLLECTED FROM VARIOUS SOURCES AND IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION TO HIS SATISFACTION PRIOR TO EXCAVATION WHERE EXISTING UTILITIES ARE TO BE CROSSED BY PROPOSED CONSTRUCTION. TEST PITS SHALL BE DUG BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ASCERTAIN EXISTING INVERTS, MATERIALS, AND SIZES. TEST PIT INFORMATION SHALL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION TO PERMIT ADJUSTMENTS AS REQUIRED TO AVOID CONFLICTS. THE CONTRACTOR SHALL NOTIFY THE UNDERSIGNED PROFESSIONAL IMMEDIATELY IF ANY FIELD CONDITIONS ENCOUNTERED DIFFER MATERIALLY FROM THOSE REPRESENTED HEREON. SUCH CONDITIONS COULD RENDER THE DESIGNS HEREON INAPPROPRIATE OR INEFFECTIVE.
16. THE CONTRACTOR IS RESPONSIBLE FOR PROJECT SAFETY, INCLUDING PROVISION OF ALL APPROPRIATE SAFETY DEVICES AND TRAINING REQUIRED.
17. CONTAMINATION IS KNOWN TO EXIST ON-SITE BASED ON A REPORT ENTITLED "DIAGNOSTIC-FEASIBILITY STUDY AND WATERSHED MANAGEMENT PLAN FOR MEISEL POND, FINAL REPORT", DATED JUNE 2002, AND PREPARED BY F. X. BROWNE, INC. ANY CONTAMINATED MATERIALS REMOVED FROM THE SITE SHALL BE DIRECTLY TRUCKED OFF-SITE AND DEPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS.
18. THESE GENERAL NOTES APPLY TO ALL SHEETS IN THIS SET.

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811
 PROTECT YOURSELF
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 Know what's below.
 Call before you dig.
 FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT:
 WWW.CALL811.COM

NO.	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY

NO.	DATE	DESCRIPTION	BY

Nicholas R. DeCotis
NICHOLAS R. DECOTIS
 NEW JERSEY PROFESSIONAL ENGINEER - LICENSE NUMBER: GE47859

INDEX OF SHEETS

SHT. No.	DESCRIPTION	LATEST REVISION
1	COVER SHEET	
2	EXISTING CONDITIONS	
3	GRADING, DRAINAGE AND UTILITY PLAN	
4	LANDSCAPE PLAN	
5	LANDSCAPE DETAILS	
6	SOIL EROSION AND SEDIMENT CONTROL PLAN	
7	SOIL EROSION AND SEDIMENT CONTROL DETAILS	
8	CROSS SECTIONS	
9	CONSTRUCTION DETAILS	

DREDGING OF MEISEL POND

LOT 20, BLOCK 1402
 TOWNSHIP OF SPRINGFIELD
 UNION COUNTY
 NEW JERSEY

RED BANK OFFICE
 Corporate Headquarters
 331 Neerum Springs Road
 Suite 203
 Red Bank, NJ 07701
 Phone: 732.383.1950
 Fax: 732.383.1984

SCALE: AS SHOWN	DATE: 7/25/16	DRAWN BY: NRD	CHECKED BY: NRD
PROJECT NUMBER: 08000459E	DRAWING NAME: C-COVER		

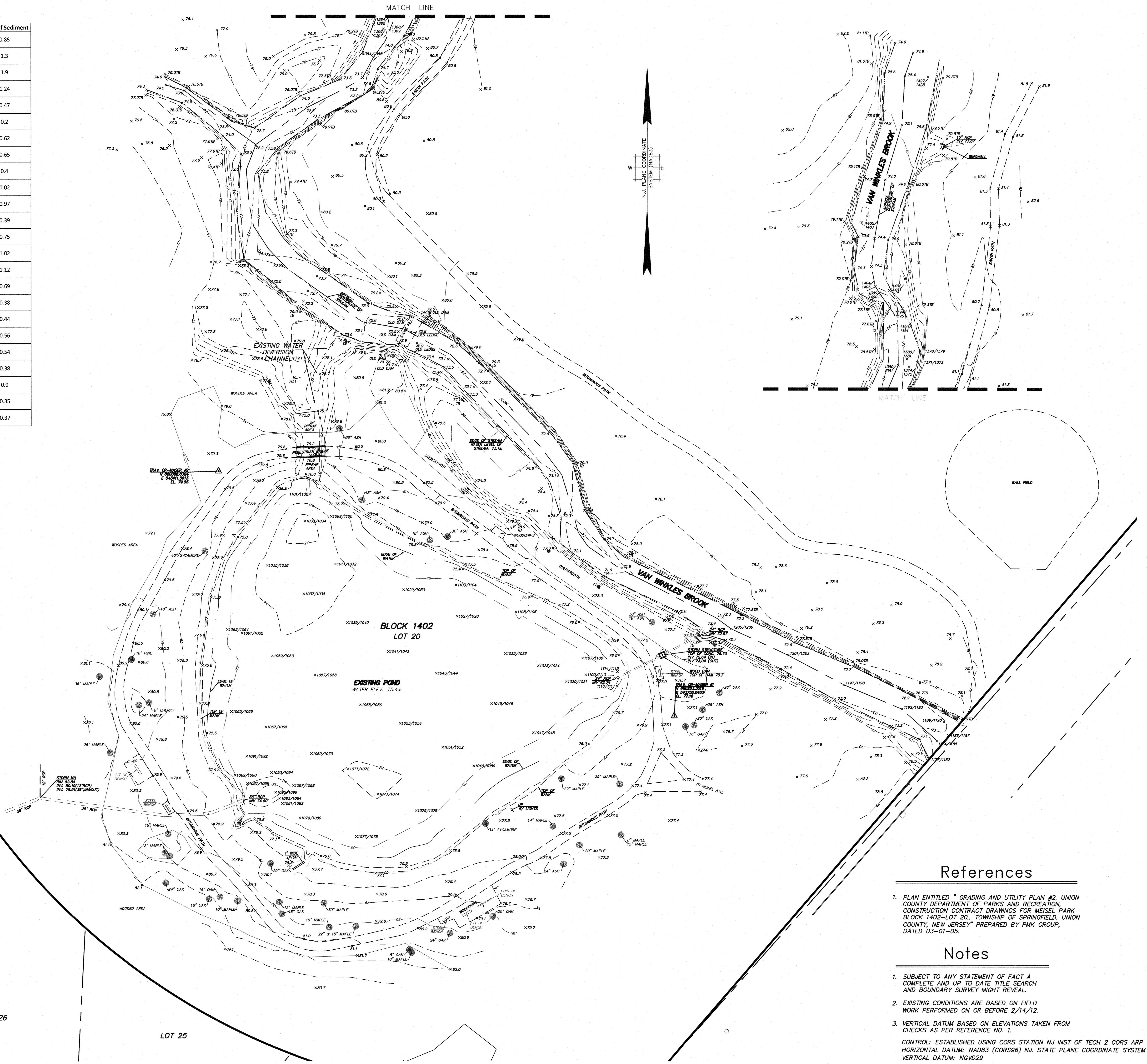
SHEET TITLE: **COVER SHEET**

PROTECT YOURSELF
 ALL STATE REQUIRE NOTIFICATION OF
 ENGINEERING, DESIGNER, OR ANY OTHER
 PREPARED TO OBTAIN THE SERVICE
 SURFACE ANYWHERE IN ANY STATE
 BEFORE YOU DIG.
 CALL BEFORE YOU DIG.
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 WWW.CALLBEFOREYOU.DIG

REV	DATE	DRAWN BY	DESCRIPTION

BATHYMETRIC SURVEY DATA

Number	Elevation	Description	Depth of Sediment	Number	Elevation	Description	Depth of Sediment
1020	74.59	GS	2.94	1177	72.42	GS	0.85
1021	71.65	REFUSAL		1182	71.57	REFUSAL	
1023	74.83	GS	3.17	1184	71.44	GS	1.3
1024	71.66	REFUSAL		1185	70.14	REFUSAL	
1025	74.53	GS	1.96	1186	71.9	GS	1.9
1026	72.57	REFUSAL		1187	70	REFUSAL	
1027	74.45	GS	2.3	1189	72.11	GS	1.24
1028	72.15	REFUSAL		1190	70.87	REFUSAL	
1029	74.7	GS	3.4	1192	72.8	GS	0.47
1030	71.3	REFUSAL		1193	72.33	REFUSAL	
1031	73.72	GS	2.05	1197	72.76	GS	0.2
1032	71.67	REFUSAL		1198	72.56	REFUSAL	
1033	72.44	GS	0.68	1201	72.52	GS	0.62
1034	71.76	REFUSAL		1202	71.9	REFUSAL	
1035	73.6	GS	2.23	1205	72.7	GS	0.65
1036	71.37	REFUSAL		1206	72.05	REFUSAL	
1037	73.56	GS	0.77	1207	74.96	GS	0.4
1038	72.79	REFUSAL		1254	73.82	REFUSAL	
1039	74.33	GS	2.21	1355	73.42	REFUSAL	
1040	72.12	REFUSAL		1364	73.48	GS	0.02
1041	74.49	GS	2.59	1365	73.46	REFUSAL	
1042	71.9	REFUSAL		1366	74.57	GS	0.97
1043	74.42	GS	2.43	1367	73.6	REFUSAL	
1044	71.99	REFUSAL		1368	73.27	REFUSAL	0.39
1045	74.4	GS	2.27	1369	73.66	GS	
1046	72.13	REFUSAL		1371	74.95	GS	0.75
1047	74.79	GS	3.03	1372	74.2	REFUSAL	
1048	71.76	REFUSAL		1374	74.96	GS	
1049	74.86	GS	2.87	1375	73.94	REFUSAL	1.02
1050	71.99	REFUSAL		1376	74.54	GS	
1051	74.11	GS	1.96	1377	73.42	REFUSAL	1.12
1052	72.15	REFUSAL		1378	74.95	GS	
1053	74.23	GS	2.02	1379	74.26	REFUSAL	0.69
1054	72.21	REFUSAL		1380	73.21	GS	0.38
1055	74.7	GS	2.28	1381	72.83	REFUSAL	
1056	72.42	REFUSAL		1390	74.43	GS	0.44
1057	74.7	GS	2.34	1391	73.99	REFUSAL	
1058	72.36	REFUSAL		1394	73.72	GS	
1059	74.23	GS	2.03	1395	73.16	REFUSAL	0.56
1060	72.2	REFUSAL		1399	72.39	GS	0.54
1061	74.54	GS	2.42	1400	71.85	REFUSAL	
1062	72.12	REFUSAL		1402	74.68	GS	0.38
1063	75.07	GS	2.18	1403	74.3	REFUSAL	
1064	72.89	REFUSAL		1404	74.09	GS	0.9
1065	74.87	GS	2.18	1405	73.19	REFUSAL	
1066	72.69	REFUSAL		1414	75.15	GS	0.35
1067	74.82	GS	2.55	1415	74.8	REFUSAL	
1068	72.27	REFUSAL		1427	75.77	GS	0.37
1069	74.62	GS	2.21	1428	75.4	REFUSAL	
1070	72.61	REFUSAL					
1071	73.96	GS	1.84				
1072	72.12	REFUSAL					
1073	73.93	GS	1.92				
1074	72.01	REFUSAL					
1075	74.63	GS	2.32				
1076	72.31	REFUSAL					
1077	74.52	GS	2.44				
1078	72.08	REFUSAL					
1079	74.61	GS	2.17				
1080	72.44	REFUSAL					
1081	74.51	GS	0.12				
1082	74.39	REFUSAL					
1083	74.09	GS	0.3				
1084	73.79	REFUSAL					
1085	71.16	REFUSAL	0.01				
1086	71.15	REFUSAL					
1087	74.07	GS	0.29				
1088	73.78	REFUSAL					
1089	75.12	GS	0.05				
1090	75.07	REFUSAL					
1091	74.38	GS	1.95				
1092	72.23	REFUSAL					
1093	74.52	GS	0.57				
1094	73.95	REFUSAL					
1095	72.04	GS	-0.09				
1096	72.13	REFUSAL					
1097	74.39	GS	0.01				
1098	74.38	REFUSAL					
1099	74.2	GS	0.4				
1100	73.8	REFUSAL					
1101	74.87	GS	0.01				
1102	74.86	REFUSAL					
1103	74.83	GS	1.87				
1104	72.96	REFUSAL					
1105	75.03	GS	2.03				
1106	73	REFUSAL					
1107	74.75	GS	2.68				
1108	72.07	REFUSAL					
1109	74.51	GS	2.37				
1110	72.14	REFUSAL					
1114	75.21	GS	1.24				
1115	73.97	REFUSAL					
1116	75.08	GS					
1117	74.06	REFUSAL	1.02				

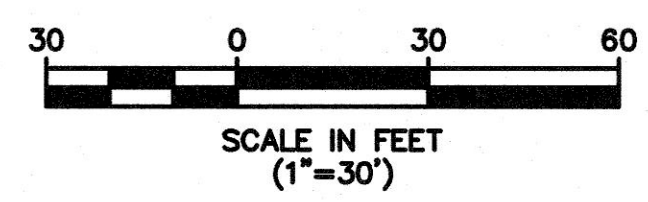


References

1. PLAN ENTITLED "GRADING AND UTILITY PLAN #2, UNION COUNTY DEPARTMENT OF PARKS AND RECREATION, CONSTRUCTION CONTRACT DRAWINGS FOR MEISEL PARK BLOCK 1402-LOT 20, TOWNSHIP OF SPRINGFIELD, UNION COUNTY, NEW JERSEY" PREPARED BY PMK GROUP, DATED 03-01-05.

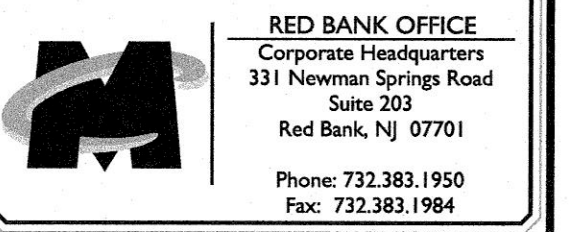
Notes

1. SUBJECT TO ANY STATEMENT OF FACT A COMPLETE AND UP TO DATE TITLE SEARCH AND BOUNDARY SURVEY MIGHT REVEAL.
2. EXISTING CONDITIONS ARE BASED ON FIELD WORK PERFORMED ON OR BEFORE 2/14/12.
3. VERTICAL DATUM BASED ON ELEVATIONS TAKEN FROM CHECKS AS PER REFERENCE NO. 1.
CONTROL: ESTABLISHED USING CORS STATION NJ INST OF TECH 2 CORS ARP HORIZONTAL DATUM: NAD83 (CORS96) N.J. STATE PLANE COORDINATE SYSTEM VERTICAL DATUM: NGVD29
4. ELEVATIONS IDENTIFY WITH DESCRIPTION GS REPRESENTS TOP OF SEDIMENT.
5. CONTOURS SHOWN WITHIN POND/WATER EDGE LIMITS REPRESENT TOP OF SEDIMENT. SEE TABLE.
6. WATER SURFACE ELEVATION SURVEYED ON 10/17/08.



DREDGING OF MEISEL POND

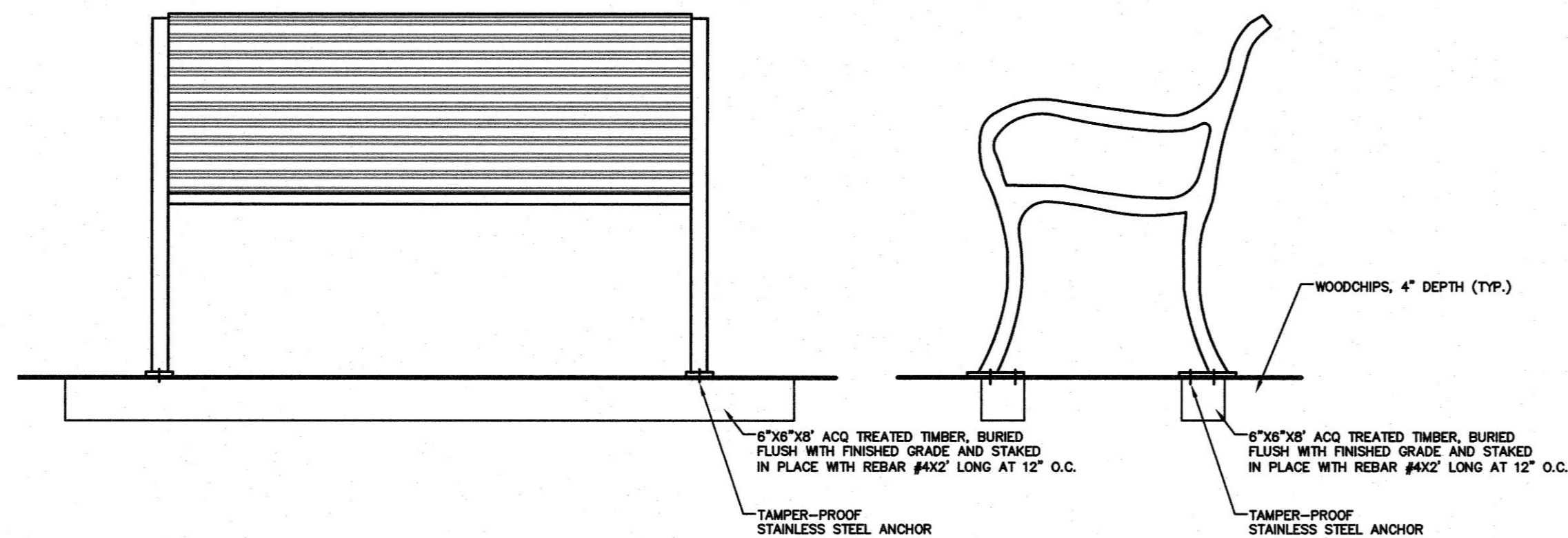
LOT 20, BLOCK 1402
 TOWNSHIP OF
 SPRINGFIELD
 UNION COUNTY
 NEW JERSEY



SCALE	DATE	DRAWN BY	CHECKED BY
AS SHOWN	7/20/11	SWW	NBD
PROJECT NUMBER	DATE		
00004956	C:TOPO		

SHEET TITLE	EXISTING CONDITIONS
SHEET NUMBER	2 of 9

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6' BENCH DETAIL
SCALE: NOT TO SCALE

- NOTES:**
- BENCH SHALL BE PLACED MODEL 57-42PL.
 - BENCH SHALL BE GROUND MOUNTED TO TIMBERS WITH STAINLESS STEEL HARDWARE.

GENERAL PLANTING NOTES

- THIS PLAN SHALL BE USED FOR RESTORATION PLANTING PURPOSES ONLY. EXAMINE ALL ENGINEERING DRAWINGS AND FIELD CONDITIONS FOR SPECIFIC LOCATIONS OF UTILITIES, AND STRUCTURES AND NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES OR LOCATIONS. CONFLICTS PRIOR TO PLANTING INSTALLATION.
- THE CONTRACTOR IS RESPONSIBLE TO LOCATE AND VERIFY LOCATION OF ALL UTILITIES ON SITE PRIOR TO CONSTRUCTION.
- ALL PLANT MATERIAL SHALL CONFORM TO THE STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERYMEN OR THE PLANT MATERIAL WILL BE UNACCEPTABLE. ALL PLANT MATERIAL SHALL BE TRUE TO SPECIES, VARIETY, SIZE AND BE CERTIFIED DISEASE AND INSECT FREE. THE OWNER AND/OR THE LANDSCAPE ARCHITECT OR RESTORATION BIOLOGIST RESERVES THE RIGHT TO APPROVE ALL PLANT MATERIAL ON SITE PRIOR TO INSTALLATION.
- NO PLANT SUBSTITUTIONS SHALL BE PERMITTED WITH REGARD TO SIZE, SPECIES, OR VARIETY WITHOUT WRITTEN PERMISSION OF THE LANDSCAPE ARCHITECT, RESTORATION BIOLOGIST OR RESIDENT ENGINEER. WRITTEN PROOF OF PLANT MATERIAL UNAVAILABILITY MUST BE DOCUMENTED.
- THE LOCATION OF ALL PLANT MATERIAL INDICATED ON THE LANDSCAPE PLANS ARE APPROXIMATE. THE FINAL LOCATION OF ALL PLANT MATERIAL AND PLANTING BED LINES SHALL BE DETERMINED IN THE FIELD UNDER THE DIRECTION OF THE LANDSCAPE ARCHITECT OR RESTORATION BIOLOGIST.
- THE PLANTING PLAN SHALL TAKE PRECEDENCE OVER THE PLANT SCHEDULE SHOULD ANY PLANT QUANTITY DISCREPANCIES OCCUR.
- ALL PLANT MATERIAL SHALL BEAR THE SAME RELATION TO FINISHED GRADE AS IT BORE TO EXISTING GRADE AT NURSERY.
- NEWLY INSTALLED PLANT MATERIAL SHALL BE WATERED AT THE TIME OF INSTALLATION OR AS NEEDED, TO BE DETERMINED BY THE LANDSCAPE ARCHITECT OR RESTORATION BIOLOGIST. REGULAR WATERING SHALL BE PROVIDED TO ENSURE THE ESTABLISHMENT, GROWTH AND SURVIVAL OF ALL PLANTS.
- ALL PLANT MATERIAL SHALL BE GUARANTEED FOR ONE YEAR AFTER THE DATE OF FINAL ACCEPTANCE. ANY PLANT MATERIAL THAT DIES WITHIN THAT TIME PERIOD SHALL BE REMOVED AND REPLACED BY A PLANT OF SIMILAR SIZE AND SPECIES.
- THE LANDSCAPE CONTRACTOR SHALL PROVIDE TOPSOIL IN THE TRANSITION AREA AND WETLAND AREA AS PRESCRIBED BY SOIL ANALYSIS TO DETERMINE THE NEED, BUT IN ANY CASE THE FINAL GRADE SHALL NOT EXCEED THE ELEVATIONS SHOWN ON THE CONCEPTUAL LANDSCAPE RESTORATION PLAN (SHEET 5).
- EXISTING TREES AND SHRUBS TO BE PRESERVED ON SITE SHALL BE PROTECTED AGAINST CONSTRUCTION DAMAGE BY TREE PROTECTION FENCING. ALL FENCING SHALL BE PLACED OUTSIDE THE INDIVIDUAL TREE CANOPY. ALL TREES TO REMAIN SHALL BE IDENTIFIED IN THE FIELD PRIOR TO COMMENCEMENT OF CONSTRUCTION. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION, GRADING OR CLEARING. ALL EXISTING VEGETATION BEING PRESERVED AND LOCATED AT THE EDGE OF THE NEW TREELINE, SHALL BE PRUNED AND TRIMMED TO REMOVE ALL DEAD, DISEASED, OR DAMAGED BRANCHES.
- ALL PLANTING DEBRIS (WIRE, TWINE, RUBBER HOSE, BACKFILL ETC.) SHALL BE REMOVED FROM THE SITE AFTER PLANTING IS COMPLETE. PROPERTY IS TO BE LEFT IN A NEAT ORDERLY CONDITION IN ACCORDANCE WITH ACCEPTED PLANTING PRACTICES.
- PLANTS TO BE SPOTTED IN THE FIELD BY A QUALIFIED RESTORATION BIOLOGIST OR LANDSCAPE ARCHITECT.
- PLANT QUANTITY CALCULATIONS HAVE BEEN DERIVED WITH A FORMULA BASED ON THE PLANTING AREA AND THE PLANT SPACING (AS SHOWN).

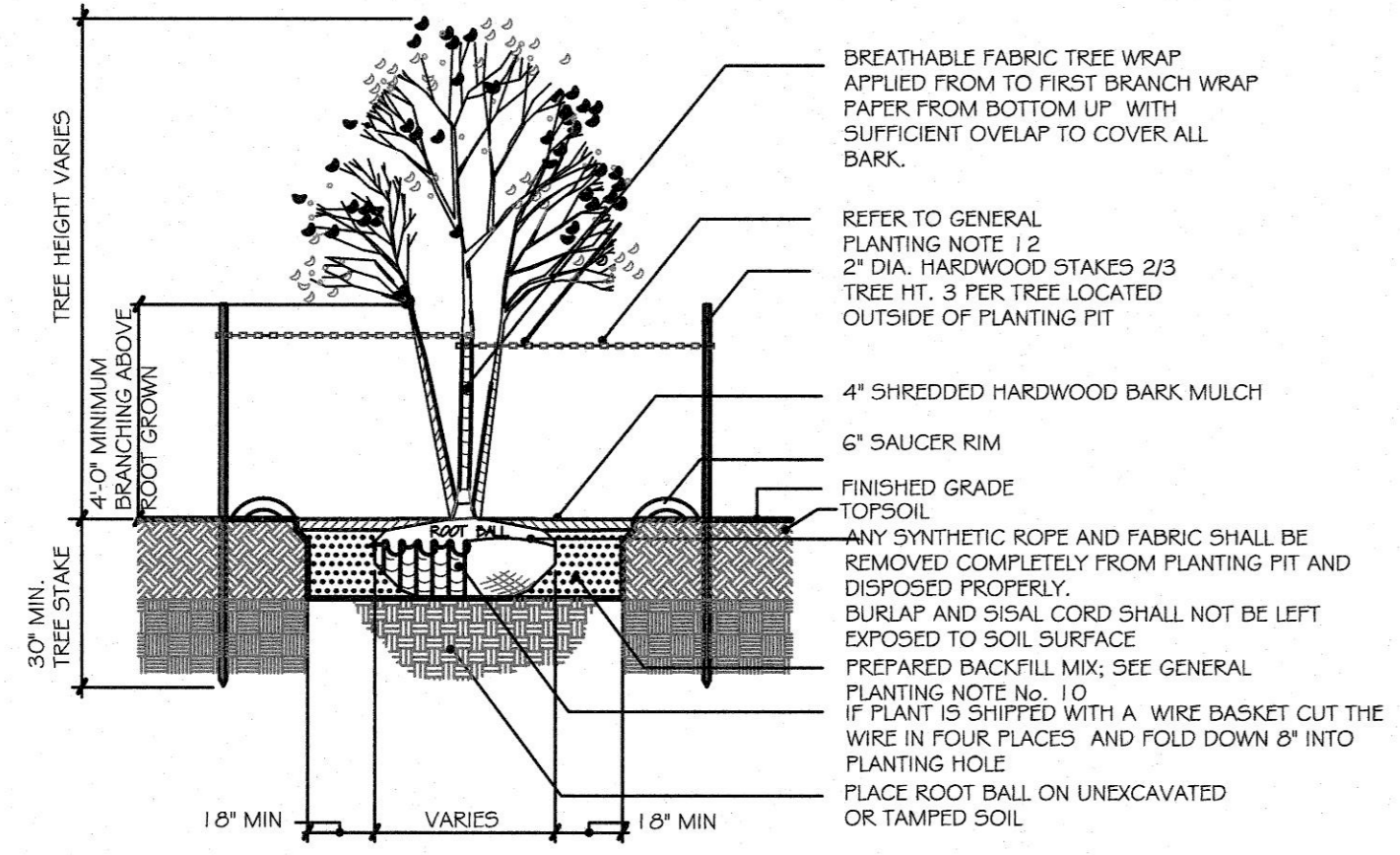
GENERAL ACTIVITY NOTES

- UPLAND/WETLAND TRANSITION**
- CONTRACTOR SHALL HAVE ALL THE PLANTINGS INSTALLED PRIOR TO THE DATE INDICATED IN THE WATER LOWERING PERMIT WHEN THE WATER LEVEL MUST BE RETURNED TO ITS ORIGINAL ELEVATION.
 - PLACE BIOLOGS (300 LF MAX.) AND ROCKS (150 LF MAX.) FOR STABILIZATION (AS SHOWN).
 - REMOVE NON-NATIVE PLANT SPECIES.
 - REMOVE TRASH AND DEBRIS.
 - TRIM EXISTING VEGETATION AND REMOVE DEAD AS NEEDED.
 - PLANT EMERGENT AND SHRUB SPECIES IN TRANSITION AREA AS SHOWN ON SPACING DETAIL.
 - REVEGETATE WITH NATIVE SPECIES (SEE NOTES).

- SLOPE EMERGENT WETLAND**
- PLANT EMERGENT SPECIES ON SLOPE AS SHOWN ON SPACING DETAIL.
 - REVEGETATE USING NATIVE SPECIES (SEE NOTES).

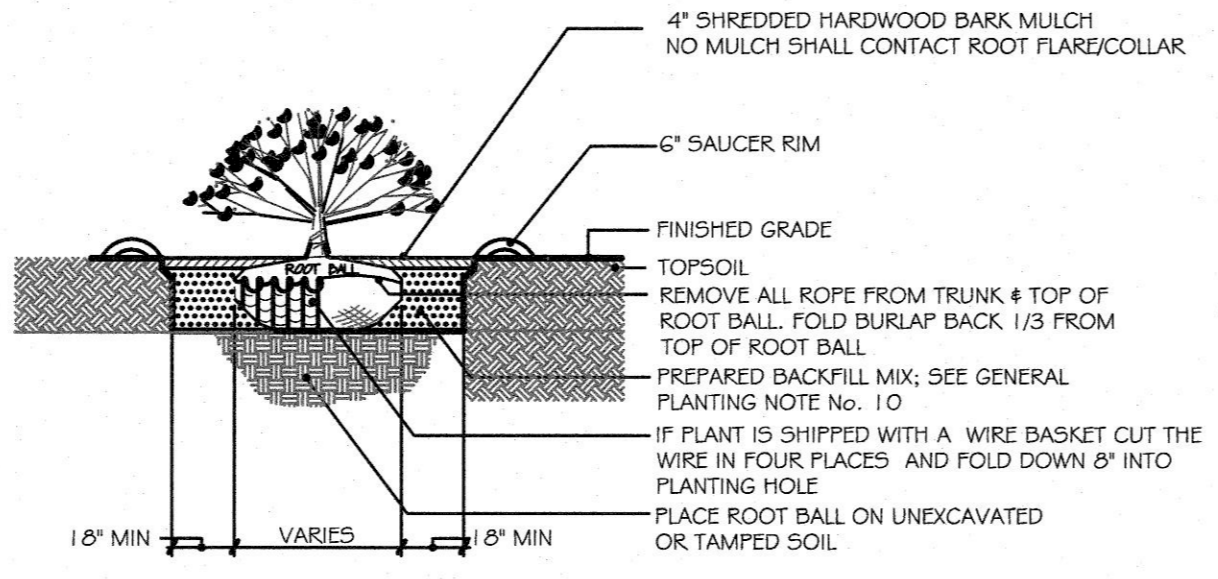
- BENCH EMERGENT WETLAND**
- PLANT EMERGENT SPECIES ON BENCH AS SHOWN ON SPACING DETAIL.
 - REVEGETATE USING NATIVE SPECIES (SEE NOTES).

- GOOSE FENCING**
- INSTALL 4' TALL TERRESTRIAL GOOSE FENCE BETWEEN SILT FENCE AND TRANSITIONAL PLANTING AREA.
 - INSTALL AQUATIC GOOSE FENCE MID-WAY ON BENCH PLANTING AREA BEYOND PROPOSED PLANTINGS. EXTEND GOOSE FENCE 4' ABOVE WATER SURFACE.
 - BIRD NETTING SHALL BE LIGHTWEIGHT 1/2" MESH POLYETHYLENE OR POLYPROPYLENE BIRD CONTROL NETTING. BIRD NETTING SHALL BE ATTACHED TO THE UPPER EDGES OF THE GOOSE FENCING USING CLIPS TO PREVENT GEESE FROM LANDING INSIDE PLANTED AREAS.



MULTI-STEM TREE PLANTING DETAIL
NOT TO SCALE

- NOTES:**
- NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
 - PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.



SHRUB PLANTING DETAIL
NOT TO SCALE

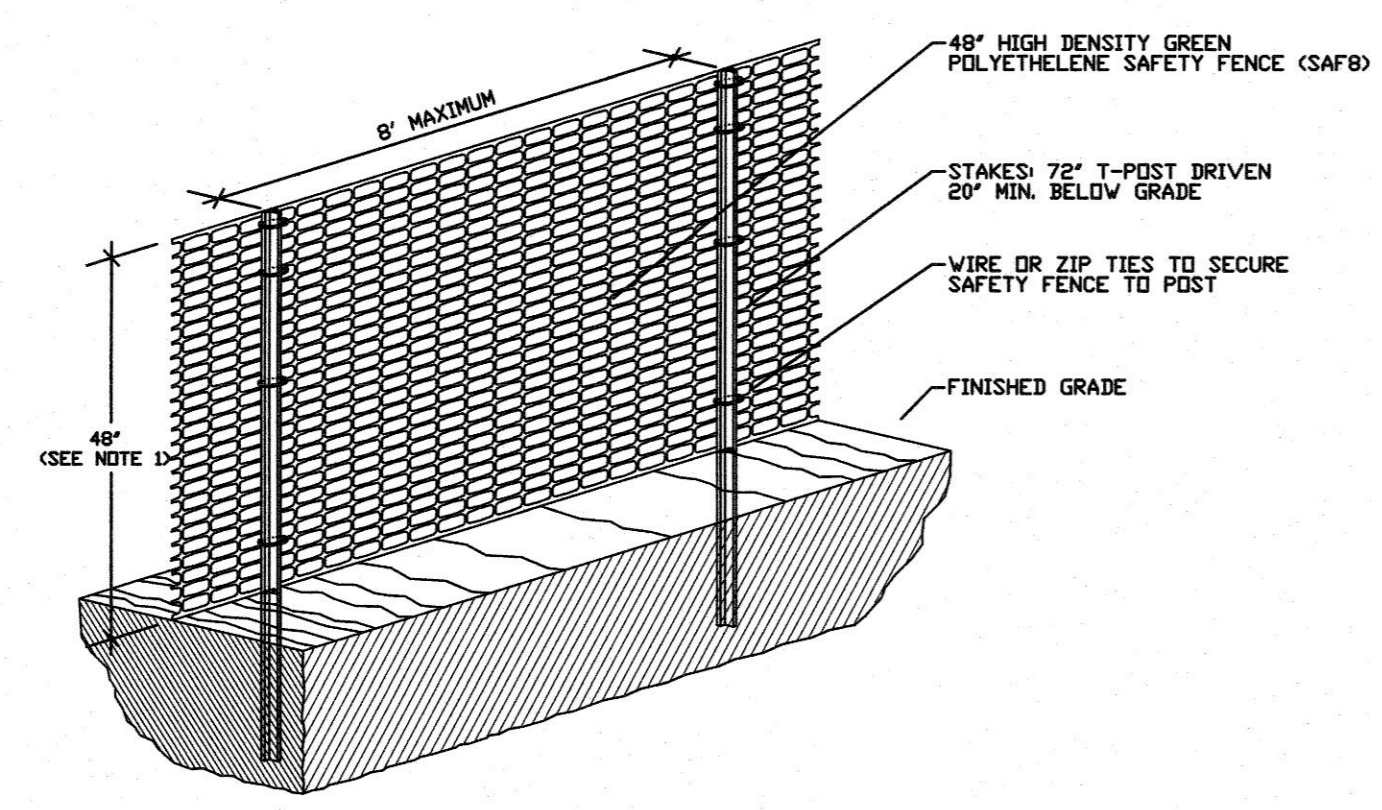
- NOTES:**
- NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT FLARE/COLLAR OF PLANT.
 - PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.

BIOLOG GENERAL NOTES

- BIOLOGS ARE INSTALLED SO THAT THEY REST AGAINST THE SHORELINE AND THE BOTTOM OF THE WATERWAY.
- BIOLOGS ARE ALSO STAKED AWAY FROM THE SHORELINE, THE SPACE BEHIND THE BIOLOGS SERVES AS A WATER POOL, OR THE SPACE IS BACKFILLED. THE NEED TO BACKFILL OR CONTOUR THE SOIL BEHIND THE BIOLOGS WILL DEPEND ON THE SPECIFIC AESTHETIC AND PHYSICAL REQUIREMENTS OF THE PROJECT.
- THE RE-CONTOURED SOIL BEHIND THE BIOLOGS SHOULD BE SEEDED AND COVERED WITH AN EROSION CONTROL BLANKET TO PREVENT SOIL EROSION WHERE REQUIRED.
- PLUG PLANTS SHALL BE PLANTED IN AN ALTERNATING PATTERN ALONG THE TOP OF THE BIOLOG, PLANTING BETWEEN THE COIR FIBER NETTING OR AS DIRECTED BY THE RESTORATION BIOLOGIST.
- PLANT SPACING DEPENDS ON SPECIFIC PLANTS USED (SEE DETAIL BELOW).
- IF WATER LEVELS ARE TOO LOW FOR THE BIOLOG TO BE 1/2 TO 2/3 UNDER WATER, PLUG PLANTS INTO THE SIDE OF THE BIOLOG WHERE THEY WILL RECEIVE ADEQUATE MOISTURE.
- TO INSURE PLANT ROOTS EXTEND INTO THE SOIL, PLUG PLANTS INTO THE SIDES OF THE BIOLOG NEAR THE SOIL, OR IN THE SOIL, OR AS DIRECTED BY THE RESTORATION BIOLOGIST.

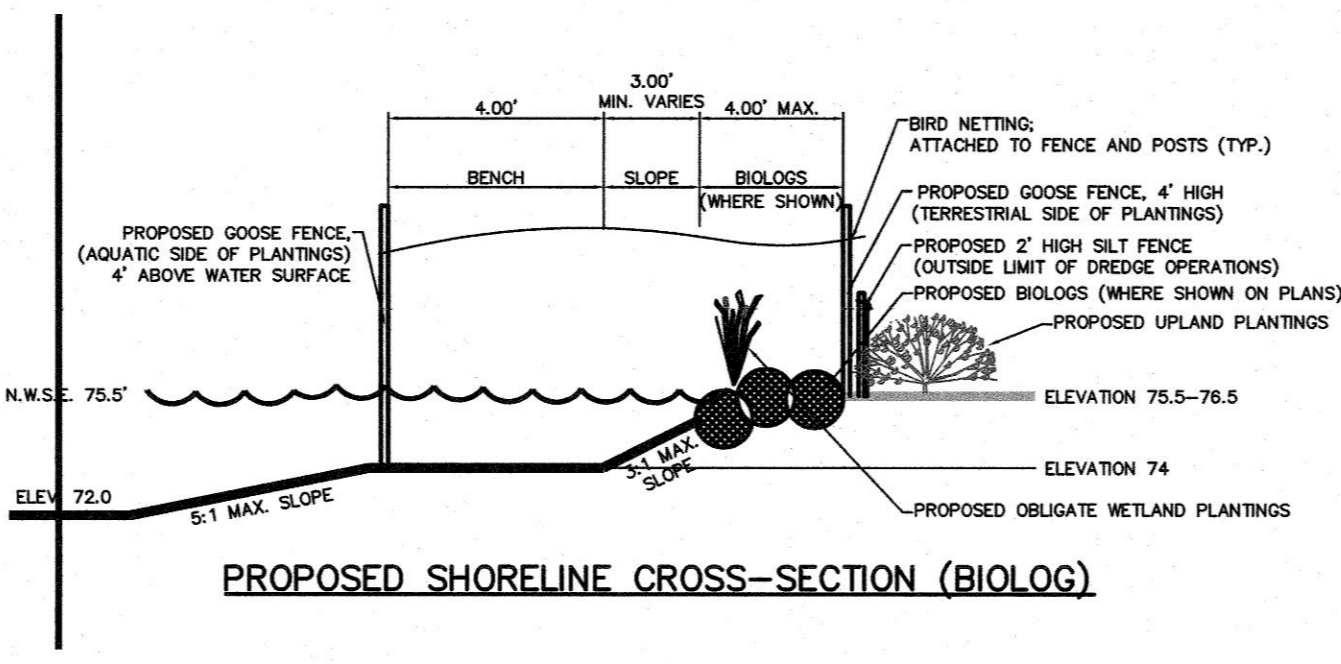
BIOLOG INSTALLATION NOTES

- PLACE THE BIOLOG ALONG THE TOE OF THE BANK AT WATER EDGE.
- SUBMERGE THE BIOLOG AT A CONSTANT DEPTH OF 1/2 TO 2/3 OF THE LOGS HEIGHT. THE PROPER SUBMERSION OF THE BIOLOG IS IMPORTANT FOR THE PLUGGED PLANTS SURVIVAL.
- TIE THE ENDS OF ADJACENT LOGS TOGETHER WITH A STRONG TWINE IN THE END NETTING OF THE ADJACENT BIOLOGS - EFFECTIVELY LACING THE BIOLOGS TOGETHER.
- PUSH WOOD STAKES (3"x3"x36") THROUGH TWO LOOPS OF THE BIOLOG COIR NETTING ON THE WATERSIDE OF THE BIOLOG. SLANT WOOD STAKES TOWARD BIOLOG, IF FEASIBLE (DETAIL 1).
- DRIVE THE STAKES IN AT THE RECOMMENDED SPACING OF 24" x 48" O.C., POUND THE STAKES DOWN SO THE TOP OF THE STAKE IS LEVEL WITH THE TOP OF THE BIOLOG (DETAIL 1) WHERE A BIOLOG DOES NOT ABUT ANOTHER BIOLOG, BEGIN THE LOW MARSH PLANTINGS AND TO PROVIDE A METHOD TO ASSESS THE SUCCESS OF PLANT ESTABLISHMENT WITHIN THE VARIOUS CELLS CREATED BY THE GRID PATTERN.
- PLUG PLANTS INTO THE BIOLOG BY PULLING THE COIR FIBERS APART WITH FINGERS AND GENTLY PUSHING THE PLUG DEEP INTO THE BIOLOG OR AS DIRECTED BY THE RESTORATION BIOLOGIST.
- PLACE FIVE (5) STAKES ON THE WATER SIDE OF EACH BIOLOG WITH 48" SPACING.
- CUT A 3/4" DEEP NOTCH IN EACH STAKE, ABOUT 5' FROM THE TOP THIS IS TO HELP SECURE THE TWINE.
- PULL TWINE TAUT BETWEEN THE STAKES OPPOSITE EACH OTHER. (DETAIL 2) COIR TWINE IS RECOMMENDED FOR ITS LONGEVITY, BUT A STURDY SISAL SHOULD BE SUFFICIENT.
- DRIVE STAKES IN SO THAT THE TWINE IS SECURED AGAINST THE TOP OF THE BIOLOG.
- PLANT THE BIOLOG USING INSTRUCTIONS FOR LOW KINETIC ENERGY INSTALLATIONS AND GENERAL INSTRUCTIONS.
- BIOLOGS ARE INSTALLED IN A PERPENDICULAR PATTERN AND WITH JUTE NETTING COVERING THE SUBSTRATE (SHEET 7) ALONG THE RARITAN RIVER TO HELP SECURE THE LOW MARSH PLANTINGS AND TO PROVIDE A METHOD TO ASSESS THE SUCCESS OF PLANT ESTABLISHMENT WITHIN THE VARIOUS CELLS CREATED BY THE GRID PATTERN.

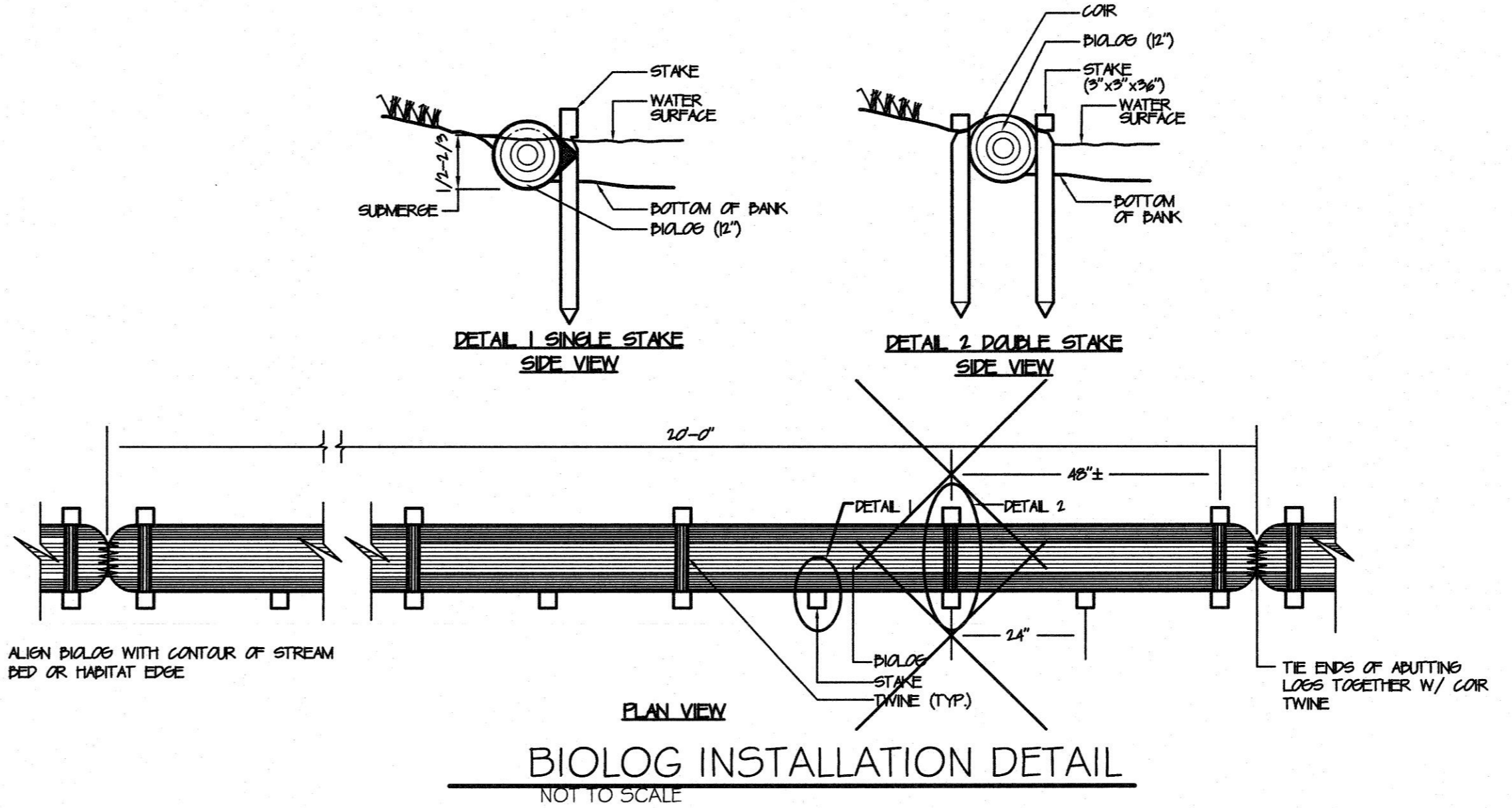
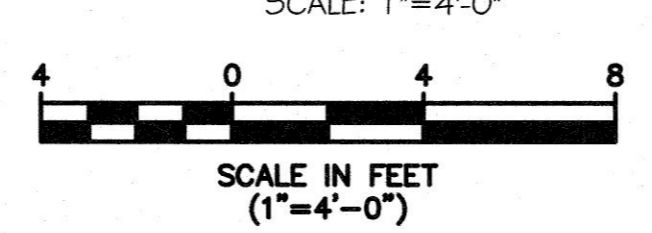


GOOSE FENCE DETAIL
NOT TO SCALE

- NOTES:**
- INSTALL 4' TALL TERRESTRIAL GOOSE FENCE BETWEEN SILT FENCE AND TRANSITIONAL PLANTING AREA.
 - INSTALL AQUATIC GOOSE FENCE MID-WAY ON BENCH PLANTING AREA BEYOND PROPOSED PLANTINGS. EXTEND GOOSE FENCE 4' ABOVE WATER SURFACE.
 - BIRD NETTING SHALL BE LIGHTWEIGHT 1/2" MESH POLYETHYLENE OR POLYPROPYLENE BIRD CONTROL NETTING. BIRD NETTING SHALL BE ATTACHED TO THE UPPER EDGES OF THE GOOSE FENCING USING CLIPS TO PREVENT GEESE FROM LANDING INSIDE PLANTED AREAS.
 - THE FENCING MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION; ANY CHANGE OF THE FENCING MUST BE APPROVED BY LANDSCAPE ARCHITECT.



CROSS SECTIONS
SCALE: 1"=4'-0"



BIOLOG INSTALLATION DETAIL
NOT TO SCALE

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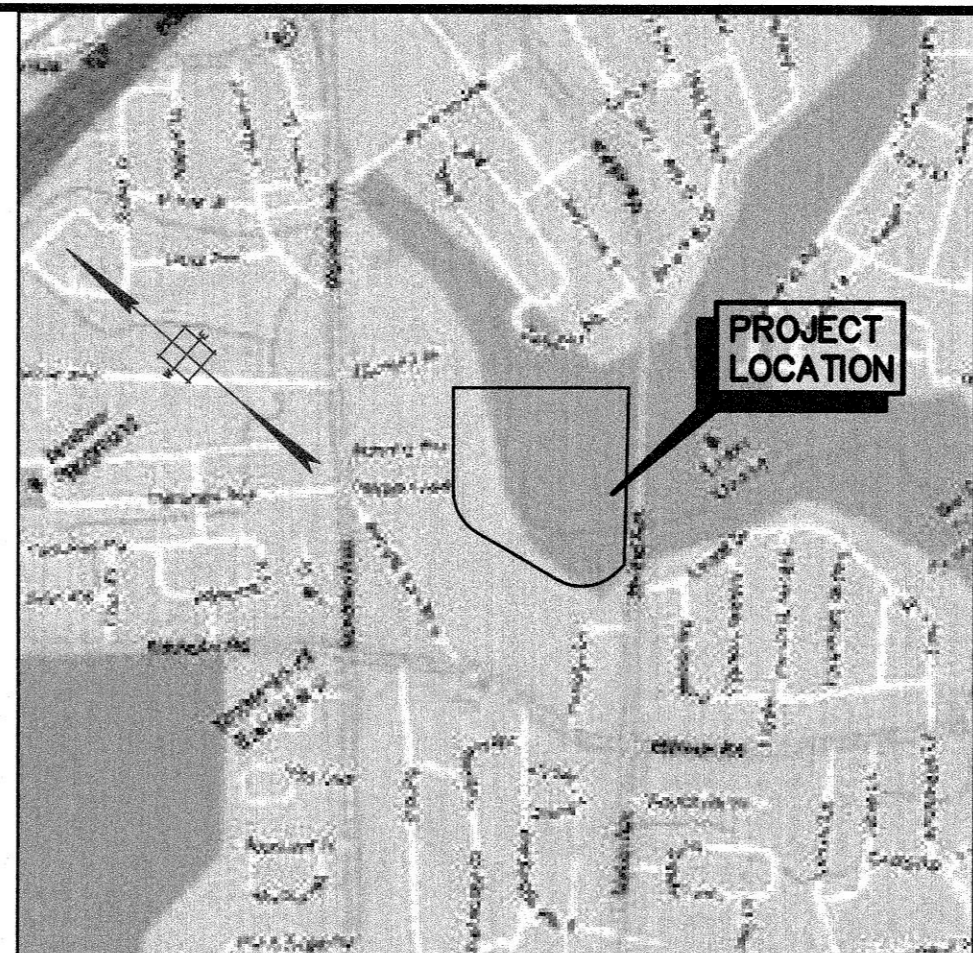
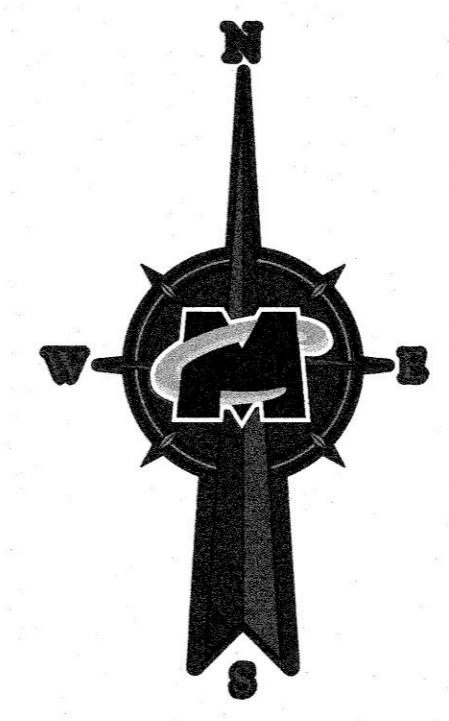
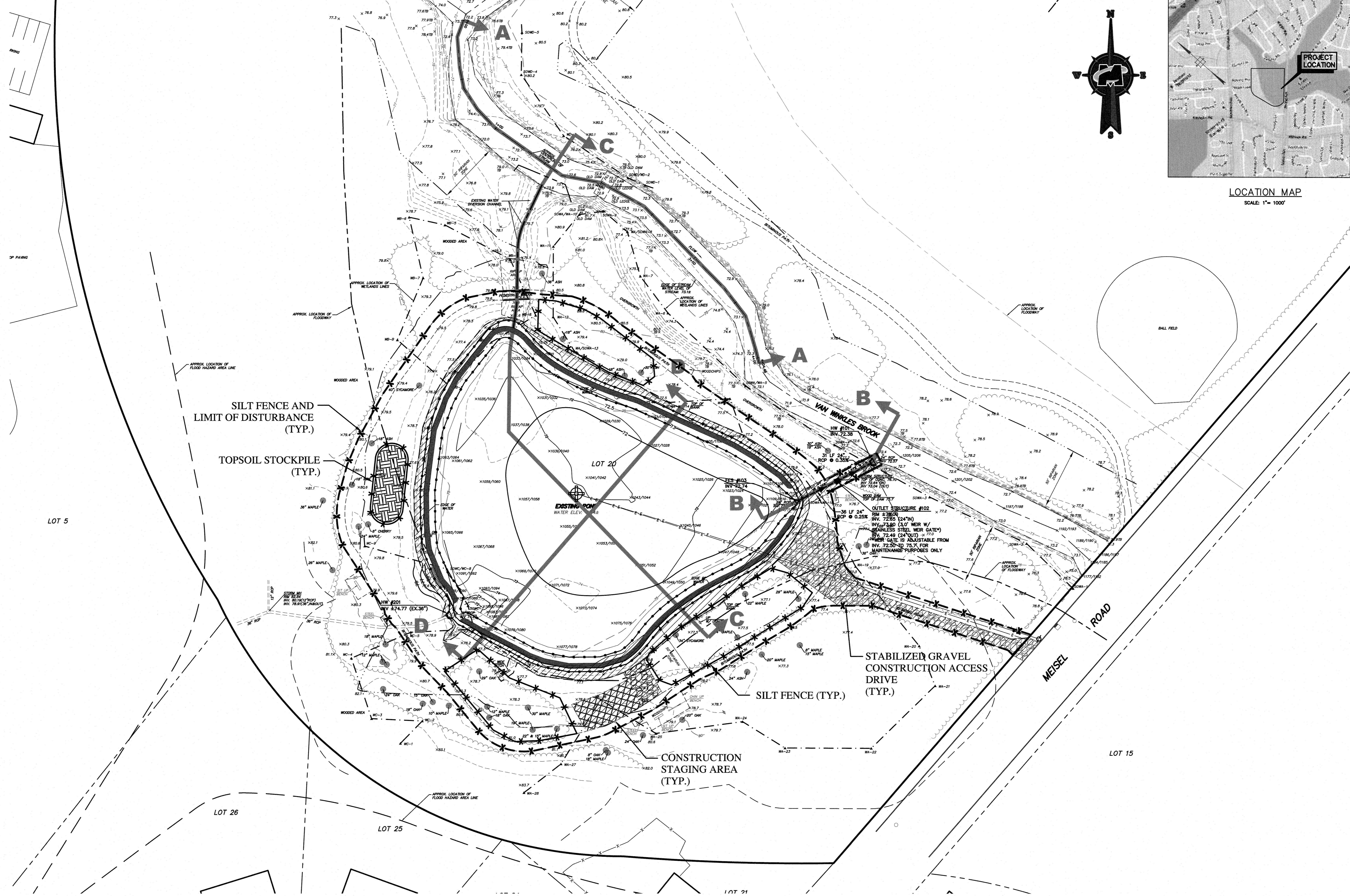
**DREDGING OF
MEISEL POND**

LOT 20, BLOCK 1402
TOWNSHIP OF
SPRINGFIELD
UNION COUNTY
NEW JERSEY

RED BANK OFFICE
Corporate Headquarters
331 Newman Springs Road
Red Bank, NJ 07701
Phone: 732.383.1950
Fax: 732.383.1984

SCALE AS SHOWN	DATE	DESIGNED BY	CHECKED BY
8000/48	7/25/16	C-OTLS	C-OTLS

LANDSCAPE DETAILS



LOCATION MAP
SCALE: 1" = 1000'

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REV	DATE	DRAWN BY	DESCRIPTION

Nicholas R. DeCotiis
NICHOLAS R. DeCOTIIS
 NEW JERSEY PROFESSIONAL
 ENGINEER - LICENSE NUMBER: CE47859

**DREDGING OF
 MEISEL POND**

LOT 20, BLOCK 1402
 TOWNSHIP OF
 SPRINGFIELD
 UNION COUNTY
 NEW JERSEY

MASER CONSULTING P.A.
 Corporate Headquarters
 331 Newman Springs Road
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**SOIL EROSION &
 SEDIMENT CONTROL PLAN**

6 of 9

NOTES:
 1. LOCATION OF SILT FENCE SHOWN HEREON IS FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY. REFER TO THE LANDSCAPE PLAN AND DETAILS, SHEETS 6 AND 7 OF 10, FOR SILT FENCE LOCATIONS FOR LANDSCAPE PURPOSES.

**THIS PLAN IS FOR SOIL EROSION AND
 SEDIMENT CONTROL PURPOSES ONLY.**

LEGEND

- x — x — x — x — SILT FENCE
- - - - - SILT FENCE AND LIMIT OF DISTURBANCE
- LIMIT OF DISTURBANCE
- ▨ CONSTRUCTION ACCESS DRIVE
- ▧ CONSTRUCTION STAGING AREA
- ▩ TOPSOIL STOCKPILE
- ▦ WETLANDS

TOTAL LIMIT OF DISTURBANCE AREA = 3 ACRES

30 0 30 60
 SCALE: 1" = 30'

