

IOWA DEPARTMENT OF NATURAL RESOURCES  
**PROJECT MANUAL**



**EASTER LAKE**  
**CONTRACT 3 – LAKE GRADING, FISH  
HABITAT, SHORELINE RESTORATION**  
**POLK COUNTY, IOWA**

*PREPARED BY*

**SNYDER & ASSOCIATES, INC.**  
**2727 S.W. SNYDER BLVD.**  
**ANKENY, IOWA 50023**

*FOR*

**IOWA DEPARTMENT OF NATURAL RESOURCES**  
**502 E. 9<sup>TH</sup> STREET, WALLACE STATE OFFICE BUILDING**  
**DES MOINES, IOWA 50319-0034**

*IN PARTNERSHIP WITH*

**POLK COUNTY CONSERVATION BOARD**  
**11407 N.W. JESTER PARK DRIVE**  
**GRANGER, IOWA 50109**  
**PROJECT NO. 14-06-77-08**

Obtain complete sets of contract documents including Drawings, Specification, bid documents, bidders' list in electronic format at: [www.beelineandblue.com](http://www.beelineandblue.com)

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## Notice to Bidders - Iowa Department of Natural Resources

Sealed bids will be received by the Iowa Department of Natural Resources, Engineering Bureau, at the Wallace State Office Building, 502 East 9<sup>th</sup> Street, Des Moines, Iowa 50319-0034 until **11:00 A.M., November 16, 2017** for the public improvement projects listed below, at which time they will be opened publicly. No bids shall be accepted by FAX. After the bid opening, information concerning bid results may be obtained by visiting the Department's website at [www.iowadnr.gov](http://www.iowadnr.gov).

**Note:** The United States Postal Service (USPS) does not deliver mail or packages directly to the address provided above but rather to the Capitol Complex Mail Room. Extra time should be allotted for proposals sent by the USPS. The Iowa Department of Natural Resources shall not consider bids if they are not received by the Department of Natural Resources, either at its mail room or at its Fourth Floor Reception Desk, by the time and date described in this Notice to Bidders, regardless of whether the bid was mailed prior to that time and date or whether the bid was received at the Capitol Complex Mail Room or other state government location prior to that time and date.

Project documents, including drawings, specifications, proposal forms and addenda items for the project are available at Beeline and Blue, at 2507 Ingersoll Ave., Des Moines, Iowa 50312. Please visit [www.beelineandblue.com](http://www.beelineandblue.com) or contact (515) 244-1611 for more information. Alternatively, Bid Documents can be viewed or printed online at <https://programs.iowadnr.gov/engreal/projectlist.asp>

The Department shall comply with all public improvement procurement laws, as outlined in the plans and specifications and including but not limited to: Iowa Code chapter 26 related to public construction bidding; Iowa Code chapter 73 related to preferences; Iowa Code chapter 573 related to labor and materials on public improvements; rules promulgated by the Department of Administrative Services – General Services Enterprise as they may apply; rules promulgated by the Department of Natural Resources and the Natural Resources Commission, as they may apply; and any federal statutes, rules and/or executive orders that may be associated depending on funding sources. Bidders shall comply with these laws to be considered and are encouraged to be familiar with public improvement procurement requirements and the bidding documents before submitting a bid.

Each bidder shall accompany the bid with a bid security as defined in Iowa code section 26.8. The bid security must be in an amount set forth in the bidding documents and made payable to the Iowa Department of Natural Resources. Failure to execute a contract for the proposed work and file an acceptable Performance Bond in an amount equal to 100% of the contract price and a certificate of liability insurance within thirty (30) days of the date of the award of the contract will be just and sufficient cause for the rescinding of the award and the forfeiture of the bid security.

## **SPECIAL NOTICE TO CONTRACTORS**

**CONTRACTOR IS RESPONSIBLE FOR CONTACTING STATE STORMWATER PROGRAM COORDINATOR (515/725-8417) FOR INFORMATION RELATING TO STORM WATER PERMIT THAT IS NECESSARY IF CONSTRUCTION ACTIVITIES DISTURB ONE ACRE OR MORE.**

**Project Cost Estimate: \$4,100,000.00**

**Direct questions concerning the Project Design, Drawings and Specifications to:**

Wes Farrand, P. E.  
Project Manager  
2727 SW Snyder Blvd  
Ph: (515) 964-2020

**Direct questions concerning Site Review and Project Inspection to:**

Jason Kruse, P.E.  
District Engineer  
Ph: (515) 250-3707

**Direct questions concerning Bidding and Contract Procedures to:**

Kim Bohlen, DNR Procurement  
Wallace State Office Building  
Des Moines, Iowa 50319-0034  
Telephone: 515/725-0733

**In accordance with House File 2622 implemented by Iowa Code Sections 442.42 (15) & (16) and 422.47.47(5), Contractors may purchase qualifying items for work on this contract exempt from sales tax. The DEPARTMENT will issue an authorization letter and exemption certificate to the prime contractor and each approved subcontractor." *Complete information on qualifying materials and supplies can be found at [www.state.ia.us/tax](http://www.state.ia.us/tax), the Iowa Department of Revenue and Finance (IDRF) Web site. Links are found in the Business Taxes and Local Government categories. 701 IAC 19.1-20 is found in Tax Research/Tax Research Library.***

**Recorded bid results can be accessed at <https://programs.iowadnr.gov/engreal/projectlist.asp>. Printed bid tabs will not be available for 3 working days after the Letting date.**

Time and Date of Letting **11:00 AM, November 16, 2017**

**PROPOSAL**

Project No. **14-06-77-08**

Project Description and Location

**CONTRACT 3 - LAKE GRADING, FISH HABITAT, SHORELINE  
RESTORATION  
EASTER LAKE  
POLK COUNTY, Iowa**

Proposal of: \_\_\_\_\_  
(Name of Bidder)  
Located at: \_\_\_\_\_ ( ) \_\_\_\_\_  
(Address) (Area) (Telephone)

Amount of Proposal Guarantee	Specified completion date or Number of Working Days	Approx. or Specified Starting Date or Number of Working Days	Liquidated Damages Per Day
\$210,000.00	3/31/2019	1/1/2018	\$1,000.00

The undersigned hereby agrees, if awarded the contract, to execute the proposed contract and to furnish an approved performance bond in a amount not less than 100 percent of the contract award within 30 days after the date of approval of award of the contract, and to provide all labor, materials, and equipment required to complete the project designated above, for the price hereinafter set forth, in strict compliance with the contract documents prepared by the Iowa Department of Natural Resources.

The undersigned agrees, if awarded the contract, to commence the work within a reasonable time after the preconstruction conference or by the specific starting date, if so specified, and to complete the work within the contract period, or to pay liquidated damages in the amount stipulated herein for each calendar day the work remains uncompleted after the expiration of the contract period or any authorized reduction thereof.

A proposal guarantee in the amount stipulated herein is included with this proposal, to be forfeited to the Iowa Department of Natural Resources if the undersigned fails to execute the contract and furnish an approved performance bond, if awarded the contract.

By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the state of Iowa, and also, a resident bidder shall be allowed a preference against a nonresident bidder from a state or foreign country which gives or requires a preference to bidders from that state or foreign country on projects in which there are no federal funds involved.

BY

\_\_\_\_\_  
(Iowa Contractor Registration No.)

\_\_\_\_\_  
(Signed) \_\_\_\_\_  
(Date)

\_\_\_\_\_  
(FID/EIN/SSN)

\_\_\_\_\_  
(Phone Number) \_\_\_\_\_  
(Fax Number)

\_\_\_\_\_  
(Email Address)

By signing and submitting the proposal, the bidder:

1. Gives an unsworn declaration on behalf of each person, firm, association, partnership, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract, and is not under debarment currently by the Federal government for a criminal violation which is reasonably related to bidding and contracting procedures; and
2. Affirms to have examined the plans, specifications, and job site to become acquainted with the adjacent areas, means of approach to the site, conditions of the actual job site, and the facilities for delivering, storing, placing, and handling of materials and equipment.



**SCHEDULE OF PRICES**

Project Description and Location

**CONTRACT 3 - LAKE GRADING, FISH HABITAT, SHORELINE RESTORATION, EASTER LAKE, POLK COUNTY**

Name of Bidder

**THE "UNIT PRICE" AND "AMOUNT" COLUMNS MUST BE FILLED IN FOR THIS PROPOSAL TO BE CONSIDERED COMPLETE. IF THERE IS A DISCREPANCY BETWEEN UNIT BID PRICES, EXTENSIONS, OR TOTAL AMOUNTS OF BID, THE UNIT PRICES SHALL GOVERN.**

Item No.	Description	Estimated Quantity	Unit Price	Amount
1	Clearing and Grubbing	1 LS		
2	Excavation, Class 10	211,000 BCY		
3	Storm Sewer, Trenched, RCP, 18 in	224 LF		
4	Storm Sewer, Trenched, RCP, 24 in	216 LF		
5	Pipe Apron, RCP, 18 in	1 EA		
6	Pipe Apron, RCP, 24 in	1 EA		
7	Manhole Adjustment, Major	3 EA		
8	Overlay, HMA, 2 in	3,550 SY		
9	Removal of Shared Use Path	120 SY		
10	Shared Use Path, PCC, 6 in	120 SY		
11	Full Depth Patches	150 SY		
12	Seeding, Native Mix	3.0 AC		
13	Seeding, Erosion Control Mix	23.0 AC		
14	Seeding, Offsite	7.0 AC		
15	Relocate Tree	3 EA		
16	SWPPP Management	1 LS		
17	Filter Sock, Install	6,000 LF		
18	Filter Sock, Removal	6,000 LF		
19	Silt Fence, Install	2,000 LF		
20	Silt Fence, Removal	2,000 LF		
21	Temporary RECP, Type 2B	1,800 SY		
22	TRM, Type 2	120 SF		
23	Check Dam, Rock	90 TON		

24	Rip Rap, Class D	430 TON		
25	Rip Rap, Class E	55 TON		
26	Rip Rap, Recycled Concrete	50 TON		
27	Shoreline Treatment, Type 1, Rip Rap	10,230 LF		
28	Shoreline Treatment, Type 2, Flexamat	6,765 LF		
29	Shoreline Treatment, Type 3, Fiber Log	7,130 LF		
30	Repurposed Granite Stone Feature	8 EA		
31	Repurposed Sandstone Feature	25 EA		
32	Stabilized Construction Entrance	140 TON		
33	Stabilized Construction Entrance, Removal	4 EA		
34	Crushed Rock, Access Road	350 TON		
35	Access Road Removal	1 LS		
36	Mobilization	1 LS		
37	Type A Fish Habitat	2 EA		
38	Type B Fish Habitat	19 EA		
39	Type C Fish Habitat	17 EA		
40	Type E Fish Habitat	30 EA		
41	Type F Fish Habitat	9 EA		
42	Type G Fish Habitat	19 EA		
43	Type H Fish Habitat	14 EA		
44	Type J Fish Habitat	4 EA		
45	Impoundment Discharge	1 LS		
46	Offsite Waste Disposal	375 TON		
		<b>TOTAL</b>		

Bidder Acknowledges Receipt of Any Issued Addenda Below (Number and Date)

**PROPOSAL GUARANTEE BOND**

STATE OF IOWA  
DEPARTMENT OF NATURAL RESOURCES

KNOW ALL MEN BY THESE PRESENTS:

That we, \_\_\_\_\_

of \_\_\_\_\_ as PRINCIPAL,

and \_\_\_\_\_

of \_\_\_\_\_ as SURETY(S),

are hereby held and firmly bound unto the state of Iowa in the penal sum of:

\_\_\_\_\_ Dollars \$ \_\_\_\_\_

for the payment, whereof, the said PRINCIPAL and SURETY(S) bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

The conditions of this obligation are such that whereas the PRINCIPAL is herewith submitting to the state of Iowa, acting by and through the Iowa Department of Natural Resources, hereinafter called the DEPARTMENT, its sealed proposal for a contract for the \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

at \_\_\_\_\_ in \_\_\_\_\_ County, Iowa.

NOW THEREFORE,

the conditions of this obligation are such that, if said proposal is rejected by the DEPARTMENT, or if said proposal is accepted by the DEPARTMENT and the PRINCIPAL shall enter into a contract in the form specified by the DEPARTMENT in accordance with the terms of the proposal and shall furnish a bond for the faithful performance of said contract in the form specified by the DEPARTMENT, this obligation shall be null and void. Otherwise it shall remain in full force and effect.

In the event that the said proposal is accepted by the DEPARTMENT and the PRINCIPAL shall fail to enter into the contract as defined herein or shall fail to furnish the performance bond as noted above within thirty (30) days of the approval of the award, the PRINCIPAL and SURETY(S) agree to forfeit to the DEPARTMENT the penal sum herein mentioned, it being understood that the liability of the SURETY(S) shall in no event exceed the penal sum of this obligation.

IN WITNESS WHEREOF,

the above bounden parties have executed this instrument under their several seals this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_, the name and corporate seal of each party being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

PRINCIPAL:

SURETY::

By \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

By \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If a partnership all partners must sign.

PGB-1

**EASTER LAKE  
CONTRACT 3 – LAKE GRADING, FISH HABITAT, SHORELINE RESTORATION  
PROJECT NO. 14-06-77-08  
POLK COUNTY, IOWA**

**THIS AGREEMENT**, made this \_\_\_\_\_ day of, \_\_\_\_\_ 20\_\_\_\_ by and between the state of Iowa acting through the Department of Natural Resources hereinafter called the **DEPARTMENT** and:

located at

hereinafter called the **CONTRACTOR**

**WITNESSETH:** That the **DEPARTMENT** agrees to pay the **CONTRACTOR** the contract price provided herein for the fulfillment of the work and the performance of the covenants set forth herein, and the **CONTRACTOR** agrees with the **DEPARTMENT** to commence and complete the project described as follows:

This project consists of the mechanical removal of sediment, shoreline armoring, and fish habitat construction.

For the Sum of:

**Dollars (\$)**

and all extra work in connection therewith, all in accordance with the terms and conditions herein contained: and to furnish at the **CONTRACTOR'S** own proper cost and expense, all material, equipment, labor, insurance, and other accessories and services necessary to construct and complete, in a workmanlike manner, ready for continuous operation, the above mentioned project. The work shall be performed in accordance with the requirements and provisions of the following documents, all of which are made a part hereof and collectively evidence and constitute the contract:

1. Notice to Bidders.
2. Instructions to bidders.
3. IDNR Standard Specifications and Current Supplemental Specifications
4. Project Specifications Including Addenda Number \_\_\_\_\_ Through \_\_\_\_\_
5. Drawings, Sheet Number \_\_\_\_\_ A . 01 \_\_\_\_\_ Through \_\_\_\_\_ F . 11 Inclusive
6. Contractor's Proposal.
7. Proposal Guarantee Bond.
8. Performance Bond.
9. This Instrument.
10. Modifications or Change Orders pursuant to IDNR Standard Specifications
11. Resident Bidder Preference Certification on Non-Federal-Aid Projects

The parties to this contract understand that time of completion of the work under this contract is the essence to the contract. The **CONTRACTOR** hereby agrees to commence work under this contract in accordance with Section 1108 of the IDNR Standard Specifications and to complete all the work by

3/31/2019

The **CONTRACTOR** hereby agrees that liquidated damages in the amount of One Thousand Dollars \$ 1,000.00

shall be retained or assessed against the **CONTRACTOR** for each day and every day the completion of the work is delayed beyond the time specified herein, not as a penalty, but as a mutually agreed to, predetermined amount to reimburse the **DEPARTMENT** for salaries of engineers and reviewers, clerk hire, interest charged during the period for delays and loss of use.

It is understood that the **CONTRACTOR** consents to the jurisdiction of the courts of Iowa, to hear, determine and render judgment as to any controversy arising hereunder, and that this contract shall be governed by, and construed according to, the laws of the state of Iowa.

**IN WITNESS WHEREOF**, the parties hereto have executed this Agreement, in the day and year first above mentioned.

**FOR THE DEPARTMENT:**

\_\_\_\_\_  
Deputy Director

This contract was approved by the **NATURAL RESOURCES COMMISSION** at its meeting held on

\_\_\_\_\_  
(Date)

**FOR THE CONTRACTOR:**

\_\_\_\_\_  
(Signature and Title)

\_\_\_\_\_  
(Firm)

\_\_\_\_\_  
(Address and Zip Code)

Seal if by a Corporation:

Identification Number \_\_\_\_\_

Soc. Sec. No. \_\_\_\_\_

Or Fed. I. D. No. \_\_\_\_\_

**PERFORMANCE BOND**

STATE OF IOWA  
DEPARTMENT OF NATURAL RESOURCES

KNOW ALL MEN BY THESE PRESENTS:

That we, \_\_\_\_\_  
of \_\_\_\_\_ as PRINCIPAL,  
and \_\_\_\_\_  
of \_\_\_\_\_ as SURETY(S),  
are hereby held and firmly bound unto the state of Iowa in the penal sum of:

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
for the payment, whereof, the said PRINCIPAL and SURETY(S) bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

The conditions of this obligation are such that whereas the PRINCIPAL entered a certain contract, hereto attached, and made part hereof to the state of Iowa, acting by and through the Iowa Department of Natural Resources, hereinafter called the DEPARTMENT, dated \_\_\_\_\_ for the \_\_\_\_\_ at \_\_\_\_\_ in \_\_\_\_\_ County, Iowa.

NOW THEREFORE,  
the conditions of this obligation are such that, if the PRINCIPAL shall faithfully perform the contract in accordance with the plans, specifications and contract documents, and shall fully indemnify and save harmless the state of Iowa from all cost and damage which the state of Iowa may suffer by reason of the PRINCIPAL's default or failure to do so and shall fully reimburse and repay the state of Iowa all outlay and expenses which the state of Iowa may incur in making good any such default, then this obligation shall be null and void, otherwise it shall remain in force and effect.

In the event that the PRINCIPAL is in default under this contract as defined herein, the DEPARTMENT shall by written notice inform the PRINCIPAL that this contract is in default; and may, at its option, without process or action at law:

- 1. Take over all or any portion of the work and complete it either by day labor or reletting the work. The DEPARTMENT may retain all material, equipment and tools on the work, at a rental which it considers reasonable, until the work has been completed.
- 2. Allow the surety to take over the work within fifteen (15) days and assume completion of said contract and become entitled to the balance of the contract price.
- 3. Allow the PRINCIPAL to complete the contract.

As required by Chapter 573 of the Code of Iowa.

- 1. The PRINCIPAL SURETY(S) on this bond hereby agree to pay all persons, firms or corporations having contracts directly with the PRINCIPAL or with subcontractors, all just claims due them for labor performed or material furnished, in the performance of the contract on account of which this bond is given, when the same are not satisfied out of the portion of the contract price shall have been established as provided by law.
- 2. Every Surety on this bond shall be deemed and held, any contract to the contrary notwithstanding, to consent without notices:
  - a. To any extension of time to the contractor in which to perform the contract.
  - b. To any change in the plans, specifications, or contract, when such changes does not involve an increase of more than 20 percent of the total contract price, and then only as to such excess increase.
  - c. That no provision of this bond or any other contract shall be valid which limits less than one year from the time of the acceptance of the work, the right to sue on this bond for defect in workmanship or material not discovered or known to the DEPARTMENT at the time such work was accepted.

No provision of this bond or any other contract shall be valid which limits to less than five years after the acceptance of the work, the right to sue on this bond for defects in workmanship or material in connection with paving or concrete work.

IN WITNESS WHEREOF,

the above bounden parties have executed this instrument under their several seals this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_, the name and corporate seal of each party being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

**PRINCIPAL:**

**SURETY:**

By \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

By \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If a partnership all partners must sign.

This bond approved by the Iowa Department of Natural Resources this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_

By \_\_\_\_\_  
Director

**IOWA DEPARTMENT OF NATURAL RESOURCES  
GENERAL COVENANTS AND PROVISIONS  
SECTION NO. 00700  
JANUARY 1993 (Revised 7/25/2017)**

This section consists of the general provisions applying to all types of construction and maintenance as set forth in the following sections

- Part 1100. Definitions
- Part 1101. Instructions to Bidders
- Part 1102. Bidder Qualifications
- Part 1103. Award and Execution of Contract
- Part 1104. Scope of Work
- Part 1105. Control of Work
- Part 1106. Control of Materials
- Part 1107. Legal Relations and Responsibilities to the Public
- Part 1108. Prosecution and Progress
- Part 1109. Measurement and Payment

**PART 1100. DEFINITIONS**

**1100.01 GENERAL**

- A. Whenever in these specifications or in other contract documents, the following definitions, or terms or both, or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:
- B. In order to avoid cumbersome and confusing repetition of expressions in these specifications, it is provided that whenever anything is, or is to be done, if, as, or, when, or where "contemplated, required, determined, directed, specified, authorized, ordered, given, designated, indicated, considered necessary, deemed necessary, permitted, reserved, suspended, established, approval, approved, disapproved, acceptable, unacceptable, suitable, accepted, satisfactory, unsatisfactory, sufficient, insufficient, rejected, or condemned," it shall be understood as if the expression were followed by the words "by the Engineer" or "to the Engineer."
- C. The titles or headings of the sections and articles herein, or referred to on the plans, are intended for convenience of reference and shall not be considered as having any bearing on their interpretation.
- D. Working titles and pronouns used for any person referred to in these specifications may be used with a masculine gender for the sake of brevity and are intended to refer to persons of either sex.

**1100.02 DEFINITIONS OF ABBREVIATIONS**

- A. Whenever the following abbreviations are used in these specifications or on the plans, they are to be construed the same as the respective expressions represented.

AAN - American Association of Nurserymen  
AAR - Association of American Railroads  
AASHTO (or AASHO) - American Association of State Highway and Transportation Officials  
ACI - American Concrete Institute  
AIA - American Institute of Architects  
ANSI - American National Standards Institute  
APWA - American Public Works Association  
ARA - American Railway Association  
AREA - American Railway Engineering Association  
ASCE - American Society of Civil Engineers  
ASLA - American Society of Landscape Architects  
ASTM - American Society of Testing and Materials  
AWPA - American Wood Preservers Association  
AWS - American Welding Society



AWWA - American Water Works Association  
CFR - Code of Federal Regulations  
DNR - Iowa Department of Natural Resources  
DOT - Iowa Department of Transportation  
EEI - Edison Electric Institute  
EPA - Environmental Protection Agency  
FHWA - Federal Highway Administration  
FSS - Federal Specifications and Standards  
IEES - Institute of Electrical and Electronics Engineers  
IES - Illuminating Engineering Society  
ICEA (or IPCEA) - Insulated Cable Engineers Association  
MUTCD - Manual on Uniform Traffic Control Devices  
NEC - National Electrical Code  
NECA - National Electrical Contractors Association  
NEMA - National Electrical Manufacturers Association  
NFPA - National Fire Protection Association  
NRC - Natural Resource Commission  
SBC - State Building Code  
UBC - Uniform Building Code  
UL - Underwriters Laboratories, Incorporated  
UMC - Uniform Mechanical Code  
UPC - Uniform Plumbing Code  
US - United States  
USC - United State Code

B. Abbreviations may be used for materials and classes of work:

AC - Asphalt cement  
ACC - Asphalt cement concrete  
ATB - Asphalt treated base  
BSC - Bituminous seal coat  
BTA - Bituminous treated aggregate  
CTG - Cement treated granular  
PCC - Portland cement concrete  
SAS - Soil-aggregate subbase  
SLS - Soil-lime subbase

### 1100.03 DEFINITIONS OF TERMS

1. Acceptable Work - Work in reasonably close conformance with the contract requirements.
2. Addendum or Addenda - Changes, revisions, or clarifications of the specifications of contract documents which have been issued to prospective bidders, prior to the time of receiving bids.
3. Advertisement - The public announcements, publications, or solicitations as required by the Contracting Authority, inviting bids for work to be performed.
4. Approval of Award - The acceptance by the Contracting Authority of a bid.
5. Approximate Starting Date - A calendar day shown on the proposal on which it is anticipated, at the time of the letting, that conditions will be such as to permit the Contractor to commence work.
6. Assignment of Contract - The written agreement whereby the Contractor sells, assigns, or transfers his rights in the contract to any person, firm, or corporation.
7. Award - The execution of the contract.
8. Bidder - An individual, firm, corporation, or joint venture submitting a bid for the advertised work.
9. Calendar Day - Every day shown on the calendar.

10. Change Order - A written order to the Contractor, signed by the Engineer, ordering a change which has been found necessary in the work from that originally shown by the plans and specifications. Change orders duly signed and executed by the Contractor constitute authorized modifications of the contract.
11. Channel - A natural or artificial water course.
12. Chief Engineer - An engineer appointed by the Iowa Department of Natural Resources as the head of the Construction Service Bureau.
13. Classes of Work - The divisions made for the purpose of measuring and paying for labor to be performed or materials to be furnished according to the methods of construction involved, as indicated by the items for which bids have been received for each specific contract.
14. Commencement of Work - Work will be considered commenced when the Contractor's operations are started on items of work covered by the contract documents and which require inspection, or when the Contractor notifies the Engineer, and the Engineer agrees, that the Contractor's equipment and personnel are available at the site, but his operations are prevented by weather or soil conditions.
15. Commission - The state Natural Resources Commission as constituted under the laws of the state of Iowa (which is the party of the first part in the contract, let in behalf of the State, of which these specifications are a part).
16. Commissioner - A member of the state Natural Resources Commission.
17. Contract (Also Contract Document) - The written agreement between the Contracting Authority and the Contractor setting forth the obligations of the parties thereunder, including, but not limited to, the performance of the work, the furnishing of labor and materials, and the basis of payment. The contract includes the notice to bidders, proposal, contract form, and contract bonds specifications, supplemental specifications, special provisions, all items covered on the table of contents, plans, notice to proceed, and any change orders and agreements which are required to complete the construction of the work in an acceptable manner, including authorized extensions thereof, all of which constitute one instrument.
18. Contract Item (Pay Item) - A specifically described unit of work for which a price is provided in the contract.
19. Contract Period (Also Contract Time) - The number of working days or calendar days allowed for completion of the contract, including authorized time extensions. In case a calendar date of completion is shown in the proposal, in lieu of or in addition to the working days, the contract shall be completed by that date.
20. Contract Sum - The aggregate sum obtained by totaling the amounts arrived at by multiplying the number of units of each class of work, as shown in the contracts by the unit price specified in the contract for that class of work.
21. Contracting Authority - The governmental body, board, commission, or officer having authority to award a contract.
22. Contractor - The individual, firm, corporation, or joint venture contracting with the Contracting Authority for performance of prescribed work.
23. Contractor Registration - The registration number issued by the Division of Labor Service, in accordance with Chapter 91C of the Code of Iowa.
24. Deficient Work - Work not in reasonably close conformance with the contract requirements, or otherwise inferior, but in the opinion of the Engineer, reasonably acceptable for its intended use and allowed to remain in place.
25. Department of Economic Development - As defined in Chapter 15, Code of Iowa.
26. Department of Labor Services - As defined in Chapter 91, Code of Iowa.

27. Department of Natural Resources (Department)- The Department of Natural Resources, as defined in Chapter 455A, Code of Iowa.
28. Department of Revenue and Finance - As defined in Chapter 421, Code of Iowa.
29. Department of Transportation -The Department of Transportation, as defined in Chapter 307, Code of Iowa.
30. Director - The duly appointed executive officer for the Department of Natural Resources.
31. Drainage Ditch -An artificially constructed, open depression, other than a road ditch, which is constructed for the purpose of carrying surface water runoff .
32. Drawings (or Plans) - The approved plans, profiles, typical cross sections, working drawings, and supplemental drawings, or exact reproductions thereof, including modifications, altered plan, revisions, and amendments, which show the locations characters dimensions, and details of the work to be done.
33. Employee - Any person working on the project, mentioned in the contract of which these specifications are a party, and who is under the direction or control, or receives compensation from, the Contractor or subcontractor.
34. Engineer - The Chief Engineer, or other Engineer of the Contracting Authority, acting directly or through a duly authorized representative, such representative acting within the scope of the particular duties assigned, or of the authority given.
35. Equipment - All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and tools and apparatus necessary for the proper construction and acceptable completion of the work.
36. Extra Work - Work not provided for in the contract, as awarded, but deemed essential to the satisfactory completion of the contract within its intended scope and authorized by the Engineer. Extra work shall not include additional materials, equipment, and labor used due to natural variations in the surface and subsurface conditions, except as specifically provided for elsewhere in the contract documents.
37. Extra Work Order - A change order concerning the performance of work or furnishing of materials involving additional work. Such additional work may be performed at agreed prices, or on a force-account basis, as provided elsewhere in these contract documents.
38. Independent Contractor - Any persons firms or corporation who contracts with the Contractor to perform a service for which the basis of payment is in terms of units of service rather than salary or wages.
39. Inspector - An employee of the Contracting Authority and who is the authorized representative of the Engineer, assigned to make detailed inspections of any or all portions of the work, or materials included in the work.
40. Instruction to Bidders - The clauses setting forth in detail the information relative to the proposed work and requirements for the submission of proposals.
41. Invitation for Bids - See Notice to Bidders.
42. Item -See Contract Item.
43. Joint Venture - Two or more individuals, firms or corporations combining any equipment, personnel or finances for the purpose of submitting a single bid.
44. Laboratory - The testing laboratory of the Contracting Authority, or any other testing laboratory which may be designated or approved by the Engineer.
45. Lands Acquired for the Work - The land area, reserved or secured by the Contracting Authority, upon which to construct the work, or where to obtain material therefrom.

46. Major Item of Work - Any contract item (Pay item) for which the original contract amount plus authorized additions is more than 10% of the total original contract sum or \$50,000 whichever is less.
47. Materials - Any substances specified for use in the construction of the project and its appurtenances.
48. Notice to Bidders - That portion of the contract documents, prepared and furnished by the Contracting Authority for the information of bidders submitting proposals, which notice specifies provisions, requirements, and instructions pertaining to the method, manner, and time of submitting bids.
49. Notice to Proceed - Written notice to the Contractor to proceed with the contract work including, when applicable, the date of beginning of contract time.
50. Official Publications - The official publications are the formal resolutions and notices relative to the proposed improvement that are required by law to be published in a prescribed manner and that have been published in accordance with the statutes relating to them. Official publications area by statutes vested with all of the force and effect of contract obligations.
51. Owner - The state of Iowa, acting through the Iowa Department of Natural Resources as constituted under the laws of the state of Iowa.
52. Performance Bond - The bond executed by the Contractor and its surety in favor of the owner, guaranteeing the faithful performance of the contract and the payment of all debts pertaining to the work.
53. Plans (or Drawings) - The approved plans, profiles, typical cross sections, working drawings, and supplemental drawings, or exact reproductions thereof, including modifications, altered plan, revisions, and amendments, which show the locations characters dimensions, and details of the work to be done.
54. Project - One or more correlated improvements which constitute the complete improvement of a designated park, recreational reserve, state monument, lake, reserve, game area, fish hatchery, parkway, or other area under jurisdiction of the Department of Natural Resources.
55. Project Engineer - The representative of the Department of Natural Resources, regardless of actual title, directly in charge of the work.
56. Proposal - The formal offer of a bidders on the prescribed form, to perform the work and to furnish the labor and materials at the prices quoted.
57. Proposal Form - The approved form on which the Contracting Authority requires formal bids to be prepared and submitted for the work.
58. Proposal Guarantee - The security furnished by the bidder with his/her proposal for a projects as guarantee he/she will execute the contract for the work if the proposal is accepted.
59. Reasonably Close Conformity - Reasonably close conformity means compliance with reasonable and customary manufacturing and construction tolerances where working tolerances are not specified. Where working tolerances are specified, reasonably close conformity means compliance with such working tolerances. Without detracting from the complete and absolute discretion of the Engineer to insist upon such working tolerances as establishing reasonably close conformity, the Engineer may accept variations beyond such tolerances, as reasonably close conformity, where they will not materially affect value or utility of the work and the interest of the State.
60. Right-of-Way - The land area, the right to possession of which is secured or reserved by the Contracting Authority for road purposes.
61. Road - A general term denoting a public way for vehicular travel, including the entire area within the right-of-way.
62. Shop drawings - See "working drawings".
63. Special Provisions - Additions and revisions to the standard and supplemental specifications covering conditions peculiar to an individual project, method and manner.

64. Specifications - The requirements contained herein and in any supplemental specifications, or special provisions applying to the contract, and pertaining to the method and manner of performing the work, or to the quantity and quality of the materials to be furnished under the contract.
65. Specified Completion Date - The date specified in the proposal for completion of the work. After work has commenced or if the completion date is not specified, the last day of the contract period shall be the completion date.
66. Specified Starting Date - A calendar day shown on the proposal on which date commencement of the work is expected.
67. State - The State of Iowa acting through its authorized representative.
68. Station - One hundred lineal feet.
69. Subcontractor - Any individual, firm, or corporation to whom the Contractor, with the written consent of the Contracting Authority, sublets any part of the contract.
70. Superintendent - The Contractor's authorized representative in responsible charge of the work.
71. Supplemental Agreement - Written agreement between the Contractor and the Contracting Authority, modifying the original contract.
72. Surety - The corporation, partnership, or individual, other than the Contractor, executing a bond furnished by the Contractor.
73. Targeted Small Business - Any enterprise, located in the state of Iowa, which is operated for profits under a single management, and which is 51 percent owned, operated, and actively managed by one or more women or minority persons, and has been certified by the Iowa Department of Economic Development.
74. Unacceptable Work - Work not in reasonably close conformance with the contract requirements and ordered to be removed and replaced.
75. Unauthorized Work - Work neither contemplated by the contract documents nor authorized by the Engineer, and work done contrary to the instructions of the Engineer.
76. Work - Work shall mean the furnishing of all labor, materials, equipment, and other incidentals, as detailed in the plans, specifications, and by the Engineer, necessary or convenient to the successful completion of the project and the carrying out of all the duties and obligations imposed by the contract.
77. Work Order - A written order, signed by the Engineer, of contractual status, requiring performance by the Contractor without negotiation of any sort, and which may involve starting, resuming, or the suspension of work. (Not to be confused with extra work order. )
78. Working Day - Prior to commencement of work, beginning on the date designated in the notice to proceed or beginning on the specified starting date, or as soon thereafter as provided in the specifications, a day other than Saturday, Sunday, or another recognized legal holiday. Any weekdays exclusive of Saturdays, Sundays, or a recognized legal holidays on which weather or other conditions not under control of the Contractor, will permit construction operations to proceed for not less than 3/4 of a normal workday in the performance of a controlling item of work. If such conditions permit operations to proceed for at least 1/2 but less than 3/4 of the normal working hours, 1/2 of a working day will be counted. The days counted will exclude Saturdays, Sundays, and recognized legal holidays the Contractor does not work, but will include Saturdays, Sundays, and recognized legal holidays the Contractor does work. Nonproductive work that does not require inspection may be done on Saturdays with no time charged. Working days will not be charged for the day before or after a holiday when the contract documents specifically prohibit work and the Contractor does not work. Working days will not be counted during periods of suspension of work ordered by the Engineer, except when the suspension is a result of a violation of terms of the contract.

79. Working Drawings - Stress sheets, shop drawings, erection plans, falsework plans, framework plans, cofferdam plans, bending diagrams for reinforcing steel, or any other supplementary plans or similar data which the Contractor is required to submit to the Engineer for approval. Also referred to as "shop drawings". After approval by the Engineer the working drawings became a part of the plans.

## **PART 1101. INSTRUCTIONS TO BIDDERS**

### **1101.01 GENERAL**

- A. These instructions are intended to serve as a guide to the requirements with which the bidder must comply prior to and in submitting a proposal, including various "conditions" affecting the award of the contract. They do not in themselves inform the bidder of all the requirements that must be complied with under the contract.
- B. The time for bid openings shall be the prevailing Central Standard or Daylight Savings time in force at Des Moines, Iowa on the date set forth in the Notice to Bidders.
- C. Before submitting a bid, the bidder shall examine all the drawings and specifications enumerated in the table of contents of this project manual. The successful bidder will be required to do all the work that is shown on the drawings, mentioned in the specifications, or reasonably implied as necessary to complete this contract.
- D. The bidder shall visit and examine the site to become acquainted with the adjacent areas, means of approach to the site, conditions of the actual job site, and the facilities for delivering, storing, placing, and handling of materials and equipment.
- E. Failure to visit the site or failure to examine any and all contract documents will not relieve the successful bidder from the necessity of furnishing any materials or equipment, or performing any work that may be required to complete the work, in accordance with the drawings and specifications. Neglect of the above requirements will not be accepted as reason for delay in the work or additional compensation.

### **1101.02 DRAWINGS AND SPECIFICATIONS**

- A. The drawing and specifications, which are part of this contract, are enumerated in the table of contents of this project manual.
- B. It is the responsibility of the bidder to examine the plans, proposal form, specifications, supplemental specifications, special provisions, the site of the works and the state of the work of other contractors on the project to assure that all requirements of the contract and the plans are fully understood. It is the bidder's responsibility to satisfy herself/himself as to the nature of the work and all reasonably ascertainable conditions that may affect his/her performance under the contract.

### **1101.03 INTERPRETATION**

- A. Nonverbal explanation or instructions will be given in regard to the meaning of the drawings or specifications during the bid period. Bidders shall bring all inadequacies, omissions, or conflicts to the Engineer's attention, at least ten days before the date set for the bidding. Prompt clarification will be supplied to all bidders of record by addendum.
- B. Neither the Department of Natural Resources nor the Engineer will be responsible for verbal instructions.
- C. Failure to request clarification or interpretation of the drawings and specifications will not relieve the successful bidder of responsibility. Signing of the contract will be considered as an implicit indication that the Contractor has thorough understanding of the scope of the work and comprehension of the contract documents.

#### **1101.04 CONTENTS OF PROPOSAL FORMS**

- A. Bidders will be furnished with proposal forms stating the location and description of the proposed work, the approximate quantities of work to be performed or materials to be furnished, the form and amount of the required proposal guarantee, and the contract period.
- B. The statement, "By virtue of statutory authority, preference will be given to products, provisions grown and coal produced within the state of Iowa where applicable," which is on the face of the proposal form shall not be applicable to contracts involving Federal-aid participation in construction.
- C. The following bidding and letting regulations shall apply to all construction projects for which the Department receives bids.
  - 1. Contracts will be recommended for approval for award on the basis of the greatest total savings in the public interest. The determination of which projects are to be awarded will be based on the approval by the appropriate Commission or other contracting agency.
  - 2. Contractors shall not be permitted to tie projects or to designate on the bidding proposal the limit of the amount they will accept.

#### **1101.05 PREPARATION OF PROPOSALS**

- A. Only signed proposals, submitted on forms furnished by the Contracting Authority, will be considered, and the bidder will be assumed to have familiarized himself with the requirements of all applicable contract documents. To insure consideration, the bidder shall specify a unit price in figures for each pay item for which a quantity is given and shall also show the products for the respective unit prices and quantities, written in figures in the column provided for the purposes and the total amount of the proposal obtained by adding the amounts of the several items. All the unit price figures shall be in ink or typed. If there is a discrepancy between unit bid prices, extensions, or total amounts of bid, the unit bid prices shall govern.
- B. If the proposal is made by a partnership or corporations the name of the partnership or corporations its agents and its principal place of business shall be shown. The proposal shall be signed by an authorized agent of the partnership or corporation.
- C. If the proposal is made on the basis of a joint bid, the proposal shall be signed by each of the joint bidders, or in the case of a firms' partnerships or corporations by an authorized agent for such firms' partnerships or corporations and the principal place of business for each shall be shown.
- D. For work let by the DNR, the sworn affidavit on the proposal shall be executed by the bidder of an agent thereof, on behalf of each person, firm, association, partnership, or corporation submitting a proposals certifying that such person, firm, association, partnership, or corporation has not, either directly or indirectly, entered into any agreements participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contracts and is not under debarment currently by the Federal government for a criminal violation which is reasonably related to bidding and contracting procedures.
- E. The attention of the bidders for the work covered by a proposal and referred to as this work, is directed to the fact that contracts for work other than the work covered in this proposal may have been awarded, are being advertised for letting on the same date as this work, or may be awarded in the future.
- F. Completion of work covered by this proposal may be contingent upon certain work covered by other contracts being performed on the project in advance of this work, likewise, completion of work covered by other contracts may be dependent upon completion of work covered by this proposal.
- G. The contract documents will list types of work involving other contracts anticipated to be let on the same letting date or same time within the contract period anticipated for this work. The contract documents will also list other governmental agencies, railroads, utilities, or other parties who will have work with which it is known that this work must be coordinated.

- H. The bidder is expected to be familiar with work already in progress or previously let on this project, the contract periods, the progress being made, and any other conditions regarding that work which may affect his/her bid or his/her performance under this contract.
- I. Cooperation and coordination of all contractors and other agencies authorized to do work on the project will be required.
- J. The bidder for this work acknowledges these facts and agrees that it is in the public interest to have the work of certain contracts and agencies performed concurrently rather than consecutively. The bidder further agrees to cooperate and coordinate his work with that of other contractors or agencies to the mutual interest of all parties doing work on the project, whether by contract with the State, County, or City or necessary work being done by governmental agency or utility force.
- K. By the submission of a bid on this works the bidder acknowledges and agrees that an investigation and inquiry has been made regarding the contracts for work with which this work must be coordinated.
- L. In the event disputes arise between contractors or other agencies, or both, doing work on the project as to their mutual rights or obligations, the Contracting Authority or its authorized representative will, when requested to do so or upon his own motion, act as referee and define the rights of all interested parties with regard to the conduct of the work, which decision shall be final as provided in 1105.01.
- M. If a prospective bidder, for a project for which the Department is the Contracting Authority, is in doubt as to the true meaning of any part of the contract documents, he may submit to the Contracting Authority a request for additional information, explanations, or interpretations. Interpretations may be in the form of an addendum to the proposal. The Contracting Authority will not be responsible for any information, explanation, or interpretation from any other source.

#### **1101.06 IRREGULAR PROPOSALS**

- A. Proposals will be considered irregular and may be rejected for any unauthorized changes in the proposal form or for any of the following reasons:
  - 1. If on a form other than that furnished by the Contracting Authority, or if the form is altered or any part thereof is detached.
  - 2. If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning.
  - 3. If the bidder adds any provisions reserving the right to accept or reject an award because he is low bidder on another project in the same letting,
  - 4. If the bidder adds any provisions reserving the right to accept or reject an award or to enter into contract pursuant to an award.
  - 5. If a bid on one project is tied to a bid on any other project, except as specifically authorized on the proposal form by the Contracting Authority,
  - 6. If the proposal does not contain a unit price for each pay item listed, except in the case of authorized alternate pay items.

#### **1101.07 ESTIMATE OF QUANTITIES**

- A. For all work let on a unit price basis, the Engineer's estimate of quantities, as shown in the notice to bidders and the proposals is understood to be approximate only, and will be used only for comparing bids except as otherwise provided in the basis of payment for the various classes of work.



## 1101.08 SUBMISSION OF PROPOSALS

- A. All proposals shall be submitted on the standard proposal form prepared specifically for this projects an example of which is bound in this specification volume. One separate, unbound copy of the standard proposal forms which has been specifically prepared for this projects is supplied by the Department of Natural Resources with the contract documents. Only proposals which are submitted on this form will be considered.
- B. One copy of the proposal shall be submitted.
- C. No proposal for any subdivision or any subclassification of the work, except as indicated, will be accepted. Any conditional bid, amendment to the proposal form, or the inclusion of any correspondence, written or printed matter, or details of any essential provision of the contract documents, or required consideration of unsolicited material or data in determining the award of the contracts will disqualify the proposal.
- D. The bid amounts shall be inserted in the spaces provided on the proposal form, setting forth clearly and concisely, all designations and prices. Erasures or other changes on the proposal form must be explained or noted over the signature of the bidder.
- E. Addenda issued during the time of bidding shall become part of the contract documents. Bidders shall acknowledge receipt of each addendum in the appropriate space provided on the proposal form. If no addenda are issued, the word "none" is to be entered in the space provided.
- F. When samples are required, they must be submitted by the bidder so as to arrive at the designated office prior to the hour set for opening the proposals. Samples shall be furnished free of expense to the Department of Natural Resources, properly marked by identifications and accompanied by a list when there is more than one sample. The Department of Natural Resources reserves the right to mutilate or destroy any samples submitted whenever it may be considered necessary to do so for the purpose of testing. Samples not so mutilated or destroyed, when no longer required to be retained in connection with the award or delivery of supplies, will be returned at the bidder's expense, if such return is requested in the proposal.
- G. By signing and submitting the proposal, the bidder gives an unsworn declaration on behalf of each person, firm, association, partnership, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract, and is not under debarment currently by the Federal government for a criminal violation which is reasonably related to bidding and contracting procedures.
- H. All proposals must state the full business address of the bidder and be signed with the bidders usual signature. Proposals by partnerships must state the full names of all partners and must state the name of the partnership followed by the signature and designation of one of the members of the partnership or an authorized representative. Proposals by corporations must state the legal name of the corporation and the name of the state of incorporation followed by the signature and designation of the president, secretary, or other person authorized to bind the corporation to the proposal. Contractors are required to include the Iowa Contractors registration number assigned to them by the Iowa Division of Labor Services. The name of each person signing the proposal shall be typed or printed below the signature.
  - 1. A proposal by a person who affixes to their signature the word "president", "secretary", "agent", or any other designation without disclosing their principals may be held to be the proposal of the individual whose name is signed thereon. When requested by the Department of Natural Resources, satisfactory evidence of the authority of the officers signing in behalf of the corporation shall be furnished.
- I. The proposal, with the proposal guarantee, must be securely sealed in an envelope plainly marked as to its contents on the outside of the envelope. Sample envelope forms can be viewed and downloaded on the DNR website [https://programs.iowadnr.gov/engreal/bid\\_envelope.doc](https://programs.iowadnr.gov/engreal/bid_envelope.doc). The bidder shall be responsible for the sealed envelope being delivered to the place designated for the bid opening on or before the date and time specified in the notice to bidders. The officer whose duty it is to open the proposal will decide when the specified time has arrived. Proposals received thereafter will not be considered and will be returned unopened.
- J. No bidder shall submit more than one proposal for identical work for the same project.

### **1101.09 WITHDRAWAL OF PROPOSALS**

- A. Proposals may be withdrawn by written or telegraphic request received from the bidder or authorized representative prior to the time fixed for opening of bids, without prejudice to the right of the bidder to file a new proposal. No proposals may be withdrawn by telephone request. Withdrawn proposals will be returned unopened. Negligence on the part of the bidder in preparing the proposal confers no right for withdrawal of the proposal after it has been opened.

### **1101.10 TAXES**

- A. The bidder shall include in the proposal all applicable federal and state taxes required by law. See Sales Tax Exemption below.
- B. For the purposes of retail sales tax and use tax, general construction contractors, special construction contractors, and construction subcontractors are regarded as consumers or users of all tangible personal property which they purchaser acquire, or manufacture for use in complying their respective construction contracts.
- C. Iowa retailers making sales, within the state of Iowa, of tangible personal property to a construction contractor for such use, are making sales at retail, the receipts of which are subject to retail sales tax. This means that a construction contractor should pay retail sales tax to his Iowa suppliers when purchases of tangible property are made within the state of Iowa. If a Contractor uses tangible personal property in completing the constructions which the Contractor has manufactured or fabricated, the tax will be 5% of the cost of manufacture.
- D. This likewise means that any construction contractor purchasing, acquiring, or manufacturing tangible personal property outside the state of Iowa, for such use in Iowa, owes use tax on such out-of-state purchases, measured at the rate of 5% of the purchase prices or in the case of a product manufactured by the Contractor, the Contractor owes 5% of the cost of manufacture.
- E. The use tax is to be paid by the Contractor directly to the Iowa Department of Revenue and Finance, using the retailers sales and use tax return, unless the out-of-state vendor from whom purchased is registered with the Use Tax Section of the Iowa Department of Revenue and does bill and collect the Iowa Use Tax for the state.
- F. In accordance with Iowa Code Section 442.42 (15) & (16) and 422.47 (5), the DEPARTMENT will issue a Sales Tax Exemption Certificate to CONTRACTOR and each approved contractor which will permit the material suppliers to sell material which will becomes an integral part of the structure exempt from Iowa sales tax and some applicable local option taxes and school infrastructure local option sales taxes.
- G. The CONTRACTOR is responsible for keeping records identifying the materials and supplies purchase and verifying they were used as an integral part of the structure governed by this Contract. Any material purchased tax free and not used on this project are subject to taxes payable within the same quarter as the project completion date.
- H. The Sales Tax Exemption Certificate must not be used to claim exemption for tax items not used on this project or thst do not qualify for exemption under the provisions of the Iowa Code Sections listed above. Such misuse will result in civil or criminal penalties.
- I. Bidders should enticipate that the sale and use tax could increase the cost of non-exempted services and material by at least 5% andmake the necessary llowance before submitting a bid.
- J. The Department will reclaim sales taxes, after receiving a Contractor's Statement of Sales Tax for those projects for which a Tax Exemption Certificate was not issued.

### **1101.11 WORK BY THE DEPARTMENT OF NATURAL RESOURCES**

- A. Unless specifically provided in the contracts the Department of Natural Resources will not furnish any labor, materials, or supplies necessary to complete the work under this contract.

### **1101.12 PREFERENCE FOR LABOR AND MATERIALS**

- A. The Contractor shall observe all of the laws of the state of Iowa with regard to preference for labor and materials, except that preference for Iowa labor and materials shall not apply when federal funding is to pay for any part of the project. When a project is federally funded it is indicated in the notice to bidders.

### **1101.13 PROPOSAL GUARANTEE**

- A. All proposals submitted by bidders must be accompanied by a proposal guarantee in the form of a certified check, cashier's check, or a proposal guarantee bond prepared on the standard proposal guarantee bond form furnished to the bidder by the Department of Natural Resources, an example of which is bound in this specification volume.
  - 1. The proposal guarantee shall be made payable to the Department of Natural Resources in the amount specified in the notice to bidders and on the proposal form.
  - 2. If the bond form is utilized in lieu of certified check or cashier's checks it must be executed by a surety company authorized by the Commissioner of Insurance for the state of Iowa to do business in Iowa and which has filed its certificate of authority with the Clerk of Court. One copy of the proposal guarantee bond form is furnished by the Department of Natural Resources with the contract documents. Only one executed copy must be submitted with the bid proposal.
- B. Any bid which is not accompanied by a proposal guarantee will be considered no bid and will not be read at the bid opening.
- C. All proposal guarantees submitted by unsuccessful bidders will be returned as stated in Section 1103.03 of the General Covenants and Provisions.

### **1101.14 AWARD OF THE CONTRACT**

- A. It is the intent of the Owner to award a contract to the lowest responsible Bidder provided the Bid has been submitted in accord with the requirements of the Bidding Documents, is judged reasonable, and does not exceed the funds available. Award of this contract will be at the place and at the time of the first regularly scheduled meeting of the appropriate commission of the Department of Natural Resources following the opening of the proposals, except for reasonable delays as provided in Section 1103.02 of the General Covenants and Provisions.
- B. The Department of Natural Resources reserves the right to reject all bids or any proposal or to waive informalities in any proposal or to accept any proposal which will best serve the interests of the state of Iowa.
- C. If, at the time this contract is to be awarded, the lowest proposal submitted by a qualified responsible bidder is in the best interest of the state of Iowa, the contract will be awarded, and the bidder to whom the award is made will be promptly notified after the Department of Natural Resources meeting.
- D. The Owner shall have the right to accept Alternates in any order or combination and to determine the low bidder on the sum of the Base Bid and the Alternates accepted.

### **1101.15 EXECUTION OF THE CONTRACT**

- A. The successful bidder shall, within thirty calendar days after the date of the award of the contract, enter into a written contract with the Department of Natural Resources on the forms furnished by the Department for the performance of the awarded work.

### **1101.16 PERFORMANCE GUARANTEE BOND**

- A. Simultaneously with delivery of the signed contracts, the Contractor shall furnish a performance guarantee bond prepared on the standard performance guarantee bond form furnished to the Contractor by the Department of Natural Resources, an example of which is bound in the specification volume.
  - 1. The bond must be executed by a surety company authorized by the Commissioner of Insurance of the State of Iowa to do business in Iowa and which has filed its Certificate of Authority with the Clerk of Court.
  - 2. A copy of the performance guarantee bond form will be attached to a copy of the contract furnished by the Department of Natural Resources to the Contractor after award of the contract. One executed copy of the bond must be returned to the Department of Natural Resources with the signed contract, one copy of the bond may be retained by the surety company for its own records.

#### **1101.17 CERTIFICATE OF INSURANCE**

- A. On or before execution of the contracts the Contractor shall furnish to the Department of Natural Resources a certificate of liability and property damage insurance.
  - 1. The bidder is directed to examine the insurance coverage limits section of this specification volume to determine the coverage limits which apply to this project. Insurance certificates furnished to the Department of Natural Resources showing inadequate limits of coverage will be rejected, thus delaying final execution of the contract. See Sections 1103.04, 1107.02, and 1107.03 of the General Covenants and Provisions.

#### **1101.18 COMMENCEMENT AND COMPLETION**

- A. The Contractor shall not commence work before the preconstruction meeting to be held after execution of the contract by all parties. The Contractor will be responsible for contacting the project Inspector to set up a time for the preconstruction meeting at the project site.
- B. The Contractor must agree to complete the work by the date specified, or within the number of working days indicated if so specified in the contract. Should it be found impossible to complete the work on or before the time specified for completion, a written request may be submitted for a time extension, setting forth the reasons believed to justify the granting of such requests.

#### **1101.19 APPEAL OF CONTRACT AWARD**

- A. If a Contractor who submitted a timely proposal disagrees with an award decision, it may appeal that decision by submitting a written appeal to department's director or the director's designee detailing the factual and legal basis for the challenge within five calendar days of the Notice of Intent to Award. The Issuing Officer may submit a written response to the Contractor's written appeal within five business days after receipt of the appeal. The department's director or designee will issue a written decision within seven business days of receipt of the Issuing Officer's written response.

### **PART 1102. BIDDER QUALIFICATIONS**

#### **1102.01 COMPETENCY AND OF BIDDERS**

- A. Bidders submitting proposals must be recognized contractors, engaged in the class of work provided for in the plans and specifications, and must possess sufficient resources to complete the work. Before the contract is awarded, the bidder may be required to furnish evidence to the satisfaction of the Contracting Authority of the ability to perform and complete the contract.

#### **1102.02 QUALIFICATIONS OF THE BIDDER**

- A. Before award of the contract can be approved, the Department of Natural Resources shall be satisfied that the bidder involved:
  - 1. Maintains a permanent place of business.
  - 2. Has adequate equipment to do the work properly and expeditiously.
  - 3. Has suitable financial status to meet the obligations incident to the work.
  - 4. Has appropriate technical experience.
  - 5. Has satisfactorily completed past projects.
  - 6. Is not ineligible due to discrimination in employment.
- B. The Engineer will make such investigations as deemed necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Engineer all such information and data for this purpose as the Engineer may request.
  - 1. The Department of Natural Resources reserves the right to reject a bid if the evidence submitted by, or an investigation of, such bidder fails to satisfy the Department of Natural Resources that the bidder is responsible and qualified to carry out the obligations of the contract and to complete the work contemplated therein.
- C. Targeted small business set-aside projects.
  - 1. All contractors submitting proposals for set-aside projects shall meet the "Targeted Small Business" definitions and be capable of being certified by the Department of Economic Development within thirty (30) days after the bid letting date. Failure of the low bidder to become certified within this time will be just and sufficient cause for the denial of the award.
  - 2. Contractors eligible for "Targeted Small Business" designation but not currently certified as such by the Department of Inspections and Appeals, should do so immediately by contacting the Targeted Small Business Officer, Lucas State Office Building, Des Moines, Iowa 50319 -0083.

#### **1102.03 REDUCTIONS IN BIDDER QUALIFICATIONS RESTRICTIONS**

- A. The requirements and conditions for bidder qualifications may be reduced by the Contracting Authority either for contractors who have well established performance records in other fields or for contractors having adequate financial responsibility and experienced supervisory personnel available for the work that is under consideration or for both the above reasons.
- B. Likewise, the requirements may be modified by the Contracting Authority for newly formed or reorganized firms or corporations whose basic organization is composed of individuals who are veterans of the construction industry, with proven records of satisfactory performance in the field in which they have elected to bid, provided, however, that they have adequate financial responsibility, equipment, and available experienced supervisory personnel.

#### **1102.04 IMPOSITION OF INCREASE IN BIDDER QUALIFICATION REQUIREMENTS, SUSPENSIONS AND DISQUALIFICATION**

- A. The requirements and conditions for bidder qualification in 1102.01 may be imposed or re-imposed or increased, or a contractor may be suspended or disqualified.
- B. The requirements and conditions for qualifications of a contractor may be imposed or re-imposed or increased if or when:
  - 1. The Contractor seriously delays commencement or completion of any work within the contract period or any extension thereof under circumstances that would normally give rise to a right of the Contracting Authority for liquidated damages or declaration of defaults or;
  - 2. The Contractor does any act or omits doing or performing any act which, in the judgment of the Contracting Authority, evidences a material change in the contractor's financial responsibility or work capability where, in the judgment of the Contracting Authority, the same will materially prejudice the

- contractor's ability to successfully prosecute such public improvement contracts, or he knowingly submits false information concerning prequalification, or;
3. The Contractor takes or fails to take any action which the Contracting Authority deems to warrant an imposition of increase in bidder qualification requirements.
- C. A contractor may be suspended from bidder qualification if or when:
1. The Contractor continually fails or refuses to remove and replace materials or work found by the Engineer not to be in reasonably close conformity with the contract documents or to correct such material or work so as to cause such materials or finished product to be reasonably acceptable work, or;
  2. The Contractor continually and, in the judgment of the Engineer, without good cause therefor, fails to carry on the work in an acceptable manner, or refuses to comply with a written order of the Engineer within a reasonable time, or;
  3. The Contractor fails to perform with his own organization the work as required in 1108.01, or otherwise assigns or disposes of work or the contract or any part thereof without approval of the Contracting Authority, or;
  4. The Contractor forfeits a proposal guaranty and fails to enter into the contract upon an offer of award by the guarantee Contracting Authority in response to a prior advertisement for bids for the same project for which award is currently being considered, or;
  5. The Contractor fails to comply with nondiscrimination requirements of the Standard Specifications or special provisions, or;
  6. The Contracting Authority deems a suspension is appropriate for reasons stated in Paragraph A, above.
  7. The Contractor is debarred from doing work for the federal government.
  8. The Contractor knowingly submitted false or misleading information concerning qualifications.
- D. A suspension is intended to be for an indefinite period of time or, in the case of Paragraph C4, for a specific project. A suspension shall continue until the contractor resolves, to the satisfaction of the Contracting Authority the problem for which the suspension was made.
- E. A contractor may be disqualified from bidder qualification if or when:
1. Currently debarred by some other state or Federal agency, or;
  2. Subcontracts, employs, or otherwise uses services, for work of the Contracting Authority, of one who is debarred by the Contracting Authority or disqualified according to Paragraph 1, except to fulfill agreements for work on existing contracts, or;
  3. Is convicted of or pleads guilty or nolo contendere to a charge of engaging in any conspiracy, combination, or other unlawful act in restraint of trade or of similar charges in any Federal court or a court of this or any other state, or;
  4. Has offered or given gifts or gratuities to employees of the Contracting Authority in violation of State law or has had as his employee a person who was at that time also an employee of the Contracting Authority, or
  5. The Contracting Authority deems a disqualification is appropriate for reasons stated in Paragraph C. above.
- F. A disqualification is intended to be for a specified time. A disqualification shall not exceed 36 months. The Contracting Authority will issue a written notice of any intent to disqualify or suspend a contractors except when suspended for a specific project according to Paragraph C4.

- G. Should the Contractor believe that the increase in bidder qualification requirements, intended suspensions or intended disqualification is based on false, biased, or incomplete information or that the increase or intended action is severe or unwarranted, the Contractor may make a written request to the Contracting Authority for an opportunity to be heard in a contested case pursuant to Chapter 17A, Code of Iowa.
  - 1. If notice is given, the written request for a hearing must be filed with the Contracting Authority within 10 days of receipt of the notice of intended agency action.
  - 2. If the basis of the intended disqualification is a criminal violation which is reasonably related to bidding and contracting procedures, the intended disqualification may be applied to the organization, including a person, firm, association, partnership, or corporation, to an affiliated officer, representative, or employee thereof, and to any other such organization in which the organization or affiliate or the officer, representative, or employee has an interest as either officer or owner.
- H. When a notice is given or when any action is contested, the Contracting Authority will issue a notice of the final action taken.

#### **1102.05 FOREIGN CORPORATIONS**

- A. Before entering into a contract involving construction or maintenance work, corporations organized under the laws of any other state shall file with the Contracting Authority a certificate from the Secretary of State of the State of Iowa showing that they have complied with all of the provisions of Chapter 404 Code of Iowa, governing foreign corporations. For contracts involving only the furnishing of materials, the foregoing requirement does not apply.
- B. When a contract not involving federal-aid participation for a public improvement is to be awarded to the lowest responsible bidder, a resident bidder shall be allowed a preference over a nonresident bidder from a state or foreign country which gives or requires a preference to bidders from that state or foreign country. The preference is equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident.
- C. If another state or foreign country has a more stringent definition of a resident bidder, the more stringent definition is applicable to bidders from that state or foreign country.
- D. Any joint venture that includes a nonresident bidder will be considered nonresident, and the preference rule will be used.

#### **1102.06 INCOME TAX DEDUCTION ON NON-RESIDENT CONTRACTORS**

- A. Each nonresident person or firm doing business as an individual and each nonresident co-partnership will be required, as precedent to receiving an award, to file a certificate issued by the State Tax Commissions as provided in Section 422.17, Code of Iowa, releasing the Contracting Authority from withholding any and all sums required by the provisions of Section 422.17, Code of Iowa.

### **PART 1103. APPROVAL FOR AWARD AND AWARD OF THE CONTRACT**

#### **1103.01 CONSIDERATION OF BIDS**

- A. The Contracting Authority reserves the right to waive technicalities and to reject any or all proposals. Bidders may be denied a contract award for any one of the following reasons:
  - 1. For failure to meet the Contracting Authority's requirements for qualification of bidders, as set forth in Section 1102.02 and in the special provisions for the project.
  - 2. For failure to maintain satisfactory progress on work already under contract.
  - 3. For failure to meet promptly financial obligations undertaken in connection with other work under contract.
  - 4. For filing more than one proposal at any letting for the same work under the same or different names.

5. For an unsatisfactory record of performance and cooperation on previous contracts.
6. For submitting an obviously unbalanced bid.
7. For having sublet or otherwise assigned work without the approval of the Contracting Authority.
8. For forfeiture of a proposal guarantee and failure to enter into contract upon an offer of an award by the Contracting Authority in response to a prior advertisement for bids for the same project or any combination of projects involving the project for which award is currently being considered.
9. For failure to file and maintain with the Contracting Authority a current Certificate of Insurance meeting the requirements of 1107.02.
10. For failure to provide a current Iowa contractor's registration number according to the provisions of Chapter 91C of the Code of Iowa.

#### **1103.02 APPROVAL FOR AWARD**

- A. In the approval for award of contracts consideration will be given not only to prices bid but also to the mechanical and other equipment available to the bidders the financial responsibility of the bidders and his ability and experience in performance of like or similar contracts.
- B. Approvals for award will be made as promptly as practical after bids have been opened and read. The Contracting Authority reserves the right to delay the approval for award for such time as is needed for consideration of bids and for receipt of concurrence in recommended approvals for award from other governmental agencies whose concurrence may be required.

#### **1103.03 RETURN OF PROPOSAL GUARANTEE**

- A. Proposal guaranties will be returned to the unsuccessful bidder by mail promptly after the approval for award has been made. Return to the successful bidder will be made promptly after the filing of the contract documents.

#### **1103.04 CERTIFICATE OF INSURANCE**

- A. The Contractor's certificate of liability and property damage insurance described in 1107.02 shall be filed with the Contracting Authority on or before the execution of the contract and shall be maintained throughout the prosecution of the work and until final acceptance and completion of the contract. A separate verification shall be required for contracts awarded on the basis of joint bids.

#### **1103.05 REQUIREMENT OF CONTRACT BOND**

- B. In compliance with Section 573 of the Code of Iowa, the Contractor shall, at the request of the Contracting Authority, on all contracts amounting to five thousand (\$5,000.00) dollars or more, file an acceptable bond in an amount not less than 100 percent of the contract sum with the Contracting Authority.
  1. The bond shall be executed in on the standard form of the Contracting Authority, contractor shall provide one (1) original. This bond shall be held to cover all work included in the contracts whether performed by the Contractor or under a subcontract or assignment. The bond shall be executed by the Contractor and by a surety company authorized to do business in the state of Iowa.
  2. The Contractor shall not begin work on any contract before he is notified, in writing, that the required bond has been approved and accepted, or until the signed contract is returned to him.
- C. Prime contractors that are certified through Iowa Department of Economic Development as a targeted small business may request a performance bond waiver.
  1. The waiver shall be applied only to a prime contract where the project does not exceed \$50,000.00, not withstanding Section 573.2 of the Iowa Code.



2. The waiver shall only apply to those contractors which are able to demonstrate the inability of securing a bond because of a lack of experience.
3. A waiver shall not apply to business with a record of repeated failure of substantial performance or material breach of contract in prior circumstances. The granting of a waiver shall in no way relieve the business from its contractual obligations and shall not preclude the Contracting Authority from pursuing any remedies under the law upon default or breach of contract.

#### **1103.06 EXECUTION OF CONTRACT**

- A. The bidder to whom a contract is being awarded shall execute and file four copies of such contract with the Contracting Authority.

#### **1103.07 FAILURE TO EXECUTE CONTRACT**

- A. Unless the time limit is modified by special provisions failure to execute a contract and file an acceptable bond within 30 days of the date of the approval for awards herein provided, will be just and sufficient cause for annulment of the approval for award and for forfeiture of the proposal guarantee to the Contracting Authority.

#### **1103.08 SUBCONTRACTORS**

- A. The bidder to whom a contract is being awarded shall file a list of subcontractors and a copy of each subcontract with the Contracting Authority within 30 days of the date of the approval for award. All subcontracts must comply with the provisions of 1106.01.

#### **1103.09 MATERIAL SUBSTITUTION**

- A. The bidder to whom a contract is being awarded shall file all requests for materials substitutions within 30 days of the approval of award of the contract.

### **PART 1104. SCOPE OF WORK**

#### **1104.1 INTENT OF PLANS AND SPECIFICATIONS**

- A. The intent of the plans and specifications is to provide for the construction and completion of every detail of the work described therein. It shall be understood that the Contractor shall furnish all labor, material, tools, transportation, and supplies required for all or any part of the work to make each item complete in accordance with the spirit of the contract. It is understood that the apparent silence of the specifications as to any detail or the apparent omission of a detailed description concerning any point shall be regarded as meaning that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be used.
- B. For the purpose of design and the preparation of the Engineer's estimate, the Contracting Authority or its representatives may perform a reasonable amount of exploratory work to gain information relative to surface and subsurface conditions relating to types of soils moisture content, and types and extent of rock strata.
  1. This information, when shown on the plans, represents a summary of conditions as of the date the survey was made, it is only an approximate estimation of the site conditions made merely to be suggestive to the Contracting Authority of construction conditions and quantities and classes of work. This information may be used as the bidder sees fit. The appearance of this information on the plans or specifications will not constitute a guarantee that conditions other than those indicated will not be encountered at the time of construction.
  2. The bidder is advised that all information concerning the project, compiled by the Contracting Authority preceding the design, is available for examination at the Contracting Authority's headquarters. The prospective bidder shall conduct an examination as provided in 1102.06 to satisfy himself as to the character of the work to be done, the probable construction conditions, and any other

reasonably ascertainable conditions and the potential effect these could have on the performance of work under the contracts which shall be the basis for the bid to be prepared.

- C. Any bidder interested in the work is authorized to make whatever additional investigation he consider advisable. In making such additional investigation, the bidder is directed to the Engineer for information relating to available right-of-way. If there are, at that time, any parcels of land over which the Contracting Authority does not have jurisdiction, right of entry must be secured by the prospective bidder from those authorized to grant such permission.
  - 1. All such additional investigation work shall be performed without costing or obligating the Contracting Authority in any way.

#### **1104.02 SPECIAL WORK**

- A. Any conditions not covered by these standard specifications are stated in the special provisions.

#### **1104.03 INCREASED OR DECREASED QUANTITIES**

- A. The Contracting Authority reserves the right to make such increase or decrease in the quantities of the work shown on the plans as may be considered necessary to complete fully and satisfactorily the construction included in the contract. The compensation to the Contractor for such changes will be as provided in 1109.04.
- B. Except as provided in 1109.05, no significant change in quantities, as defined in 1109.17, shall be made by increasing or decreasing the project area to be improved as shown on the plans and described in the proposal forms unless the Contractor gives written consent to such increase or decrease. However, such consent will not be required for maintenance or restoration work ordered by the Engineer.
  - 1. For the purpose of this article a material change shall be defined as an increase or decrease of more than 20 percent in the measured quantity of any item in the contract.

#### **1104.04 EXTRA WORK**

- A. The Contracting Authority reserves the right to order, in writing, the performance of work of a class not contemplated in the proposal but which may be considered necessary to complete satisfactorily the work included in the contract. Such extra work will be paid for as provided in 1109.04B.

#### **1104.05 MAINTENANCE OF DETOURS**

- A. Unless so required by the plans or the special provisions, the Contractor will not be required to assume any responsibility in connection with the maintenance or marking of suitable detours.

#### **1104.06 REMOVAL AND DISPOSAL OF STRUCTURES AND OBSTRUCTIONS**

- A. The contractor for bridge and culvert work shall remove any existing structure, or part of structure, that in any way interferes with the new construction. If specific payment for such work has not been provided in the contract, it will be paid for as extra work.
- B. The contractor for road work shall remove any materials or structures found on the right-of-way which are not designated to remain in place or which have not been designated for use in the new construction.
  - 1. The removal and disposal of pipe culverts will not be paid for directly but shall be considered as incidental works and the cost of such removal and disposal shall be considered to be included in the contract price for other items. Pipe culverts designated for salvage shall be removed by methods that will cause a minimum of damage to the pipe culverts.
  - 2. The removal and disposal of bridges or other masonry or monolithic concrete construction will be paid for. If the contract does not contain an item for such work, it will be paid for as extra work.

#### **1104.07 RIGHTS IN AND USE OF MATERIALS FOUND ON THE RIGHT-OF-WAY**

- A. Unless stated to the contrary in the contract documents, all materials, such as stone, gravel, sand, timber, and structures or parts of structures, found on the right-of-way or on land acquired for the work, are the property of the Contracting Authority or the owner of the fee title to the land.
  - 1. If such materials are to be removed but use or salvage is not designated on the plans, they shall become the property of the Contractor, and shall be disposed of by the Contractor.
  - 2. When the Contractor is permitted to use materials found on the right-of-way, any excavations that are made below the grade elevations shall be backfilled with other suitable materials so that the finished road conforms to the grade shown on the plans. No extra compensation will be allowed for such backfilling.

#### **1104.08 FINAL CLEANING UP**

- A. Before final acceptance of the work, the Contractor shall remove all unused material and rubbish from the site of the work, remedy any objectionable conditions the Contractor may have created on private property, and leave the project site in a neat and presentable condition. The Contractor shall make no agreement which allows salvaged or unused material to remain on private property within view of the project except when consistent with previous land use.
- B. All ground occupied by the Contractor in connection with the work, which is within view of or adjacent to a road, shall be restored. Restoration shall include appropriate smoothing to its original condition and may include making the area suitable for cultivation and, where vegetation has been disturbed, seeding of the area.
  - 1. Unless otherwise provided for, the Contractor shall be responsible for securing waste privileges on private property. The general Contractor shall be responsible for cleanup of subcontractors at the completion of all work.
- C. This article is not intended to restrict burning in accord with applicable regulations.
- D. Final clean up shall be subject to approval of the Engineer.

#### **1104.09 RIGHT-OF-WAYS OR LANDS ACQUIRED FOR THE WORK**

- A. Access to the construction site will be over designated routes of travel, on land owned or made available by the Contracting Authority for the specific use of the Contractor.
- B. Right-of-way or lands will be provided without cost to the Contractor, and it is contemplated that all of the needed right-of-way or lands will have been acquired for the work placed under contract.
  - 1. Whenever it is necessary to secure additional right-of-way or land, performance of the work affected thereby is contingent upon the securing of such right-of-way or land. No claims will be allowed for loss or damage occasioned by delays in securing right-of-way or lands.

#### **1104.10 PERMITS AND ARRANGEMENTS WITH OTHER GOVERNMENTAL AGENCIES**

- A. Whenever the work involves construction with which federal, state, or local governmental agencies are concerned, the performance of the work is contingent on arrangements and/or permits with those concerned agencies.
  - 1. The Contracting Authority shall secure all necessary permits, certificates, and licenses required to prosecute the work, except specifically designated permits, local building permits, and any cost for inspections required by local authorities, which shall be paid for and secured by the Contractor.
  - 2. No additional compensation will be allowed for any delays, inconvenience, or damages sustained by the Contractor due to actions of those concerned agencies with respect to any arrangements or permits they may require.

#### **1104.11 RAILROAD CROSSINGS**

- A. Whenever the work involves construction with which railroad companies are concerned, the performance of the work is contingent upon arrangements with the railroad companies for the proposed construction.
  - 1. The performance of the work shall be in accord with arrangements established by the Contracting Authority. The Contractor may make additional arrangements.
  - 2. No claim will be allowed for loss or damage caused by failure of the railroad to comply with provisions of the agreement with the Contracting Authority. Upon notice given, the Contracting Authority will institute necessary legal action to enforce the conditions of its agreement with the railroad company.

#### **1104.12 PUBLIC UTILITIES**

- A. The Contracting Authority will notify all utility companies, all pipeline owners, or other parties affected, and will endeavor to have all necessary adjustments of the public or private utility fixtures, pipelines, and other appurtenances within or adjacent to the limits of construction made as soon as practicable.
- B. The Contractor shall be responsible for notification concerning work near pipelines, required by Section 479.47, Code of Iowa, and for conducting his work as required therein.
- C. Waterlines, gaslines, wirelines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cableways, signals, and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted are to be moved by the owners at their expense, except as otherwise provided for in the special provisions or as noted on the plans.
- D. It is understood and agreed that the Contractor has considered in the bid all of the permanent and temporary utility appurtenances in their present or relocated positions as shown on the plans and that no additional compensation will be allowed for any delays, inconvenience, or damage sustained by him/her due to any interference from the utility appurtenances or their operation or relocation.

#### **1104.13 DRAWINGS AND SPECIFICATIONS**

- A. Unless otherwise provided in the contract documents the Contracting Authority shall furnish to the Contractor, awarded the contract, free of charge, all copies of drawings and specifications reasonably necessary for the execution of the work.

#### **1104.14 THE CONTRACTING AUTHORITY'S RIGHT TO OCCUPY**

- A. The Contracting Authority shall have the right to enter the building or work site and store or attach such fixtures or furniture as it may elect, or to do such other work providing that such storage or work will not interfere with the completion of the Contractor's work. Such occupancy by the Contracting Authority shall in no way imply final acceptance of any portion of the Contractor's work.

#### **1104.15 CONTRACTOR'S UNDERSTANDING**

- A. It is understood and agreed that the Contractor has, by careful examination, satisfied him/herself as to the nature, character and location of the work, conformation of the ground, character, quality and quantity of the materials to be encountered, character of the equipment and facilities needed, preliminary to and during the prosecution of the work, general and local conditions and all other matters which can in any way affect the work under this contract. No verbal agreement or conversation with any officer, agency, or employee of the Contracting Authority, either before or after the execution of the contracts shall affect or modify any of the terms or obligations herein contained.

#### **1104.16 HISTORICAL AND ARCHEOLOGICAL**

- A. If during the course of construction evidence of deposits of historical or archeological interest is found, the Contractor shall cease operations affecting the find and shall notify the Iowa Department of Natural Resources and the state Historic Preservation Officer. No further disturbance of the deposits shall occur until the contractor has been notified by the agency that he/she may proceed. The agency will issue a notice to proceed only after the state official has surveyed the find and made a determination to the Iowa Department of Natural Resources.

- B. Compensation to the contractor, if any, for lost time or changes in construction to avoid the finds shall be determined in accordance with changed conditions or change order provisions of the specifications.

## **PART 1105. CONTROL OF WORK**

### **1105.01 AUTHORITY OF ENGINEER**

- A. The Engineer will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the rate of progress of the work, all disputed and mutual rights between contractors, all plans and specifications, and all questions as to the acceptable fulfillment of the contract on the part of the Contractor. Except as provided in Section 1109, the Engineer's decisions will be final.
- B. For authority to temporarily suspend work see 1105.08 and 1108.06.

### **1105.02 PLANS**

- A. The official plans, profiles, and cross sections, on file in the office of the Contracting Authority, show the location, typical construction details, and dimensions of the work contemplated. The work shall be performed in conformity therewith, except in case of error or unforeseen contingency.
- B. The plans are made from careful surveys and represent the foreseen construction requirements. Any appreciable deviation from the plans made necessary to expedite construction, or because of errors shall be called to the attention of the other party, in writing, by the party discovering such conditions. If necessary, revised plans will be provided.

### **1105.03 WORKING DRAWINGS**

- A. The plans will be supplemented by such working drawings as are necessary to adequately control the work. Working drawings shall be furnished by the Contractor, as required by the specifications or the plans.
  - 1. When certification by a professional structural or civil engineer registered in Iowa is required, it will be so designated on the plans or in other contract documents.
  - 2. Working drawings may include shop drawings of fabricated materials, erection plans, falsework plans, cofferdam plans, or other supplemental plans or data. Contractor submitted shop drawings for steel structures shall show fully detailed dimensions and sizes of all component parts of the structure, descriptions of drains, etc.
    - a. Prior to review of working drawings, any work done or material ordered shall be at the Contractor's risk.
  - 3. The Contractor shall expressly understand that the Contracting Authority's review of working drawings submitted by the Contractor covers only requirements for strength and arrangement of component parts.
  - 4. The Contracting Authority assumes no responsibility for errors in dimensions and assumes the Contractor will use material complying with requirements of the contract documents, or, where not specified, those of sound and reasonable quality, and will erect the subjects of such working drawings in accord with recognized standards of first-quality workmanship or, when specified, in accordance with standards of the contract documents.
  - 5. If unanticipated and either unusual or complex construction procedures or site conditions occur, the Engineer may require the Contractor to submit such working drawings as, in the judgment of the Engineer, are necessary to satisfactorily complete the proposed construction.

### **1105.04 ALTERATION OF PLANS OR CHARACTER OF WORK**

- A. The Engineer will have the right to make alterations in plans or character of work as may be considered necessary or desirable during the progress of the work to satisfactorily complete the proposed construction. Such alteration will neither waive any conditions of the contract nor invalidate any of the provisions thereof.

## **1105.05 CONFORMITY WITH AND COORDINATION OF SPECIFICATIONS, PLANS AND SPECIAL PROVISIONS**

- A. Discrepancies within contract documents:
  - 1. In case of any discrepancy between the drawings on the plans and the figures written thereon, the figures, unless obviously incorrect, are to govern.
  - 2. In case of any discrepancy between the plans, including plan notes, and the general or supplemental specifications, the plans are to govern.
  - 3. In case of a discrepancy between the general specifications and supplemental specifications, the supplemental specifications are to govern.
  - 4. In case of any discrepancy between the general or supplemental specifications and the special provisions or between the plans and the special provisions, the special provisions shall govern.
- B. The Contractor shall not take advantage of any apparent error or omission in the plans, specifications, or of any discrepancy between the plans or specifications. The Engineer shall be permitted to make such correction in interpretation as may be deemed necessary for the fulfillment of the intent of the plans and specifications, subject to compensation as provided in 1109.03, 1109.05, and 1109.06.
- C. The plans shall not be so changed as to materially affect the cost or the difficulty of performing any item or work for which the contract amount is more than 20 percent of the total contract sum, except with the consent of the Contractor.
- D. All work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown on the plans or indicated in the specifications.
- E. If the Engineer finds the material, or the finished product in which the material, is used is not within reasonably close conformity with the plans and specifications, but that reasonably acceptable work has been produced, the Engineer shall determine, based on engineering judgment, if the work shall be accepted and remain in place.
  - 1. In this events the Engineer will document the basis of acceptance and supplement it by contract modification which will provide for an appropriate adjustment in the contract price for such work or materials as deemed necessary to conform to the Engineer's determination.
- F. If the Engineer finds the material, the finished product in which the material is used, or the work performed is not in reasonably close conformity with the plans and specifications and has resulted in an inferior or unsatisfactory product, the work or material shall be considered unacceptable and shall be removed and replaced, or otherwise corrected, as acceptable to the Engineer, by and at the expense of the Contractor.

## **1105.06 SUPERVISION BY CONTRACTOR**

- A. The Contractor, when absent from the construction site, shall have on site at all times, as its agent, a competent superintendent, capable of reading and thoroughly understanding the plans, specifications, and other contract documents and who shall be thoroughly experienced in the type of work being performed.
  - 1. The superintendent shall supervise, direct, and control the Contractor's operations, personnel, work, and subcontractor's operations. The superintendent shall have full authority to execute orders or directions of the Engineer, without delays, and to promptly supply such materials, equipment, tools, labor, and incidentals as may be required.
  - 2. The Contractor shall give the Engineer written notification of the name of the superintendent. The superintendent shall not be replaced, except with the consent of the Engineer, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in the Contractors employ.

#### **1105.07 CONSTRUCTION STAKES AND BENCH MARKS**

- A. If there is no provision in the Contract documents for a Construction Survey Bid Item, the Engineer will set the necessary centerline, slopes and grade stakes promptly upon notification by the Contractor that stakes are needed, unless otherwise noted on the Plans.
- B. For all structures, unless otherwise noted on the Plans, the Engineer will set stakes for centerline and such other stakes as are necessary to establish definitely, the location, elevations, and alignment of the structure. Every reasonable precaution will be taken by the Engineer and his technical assistants to insure that the construction stakes and/or computations are true and accurate, but the Contractor shall ensure that no gross error exists before beginning operations. Should such mistakes or errors be allowed to exist, and work completed on erroneous data, the Contractor will be held responsible to remedy the work to conform to the correct lines, grades, or standards without expense to the Contracting Authority or the Engineer.
- C. The Contracting Authority shall not be responsible for delays due to lack of grade or line stakes, unless the Contractor has given the Engineer 48-hour written notice that such stakes will be needed, and the Contractor's work is being conducted in a satisfactory manner and at the specified rate of progress.
- D. The Contractor shall be held responsible for the preservation of stakes and marks. If, in the opinion of the Engineer, any of the survey stakes or marks have been carelessly or willfully destroyed or disturbed by the Contractor, the cost of replacing them shall be charged against the Contractor.
- E. The Contractor shall provide and keep constantly upon the work site, first-class instruments for use in establishing the various lines, levels and grades for the construction and shall have a superintendent on the work who is thoroughly familiar with their use. The Contractor shall provide and maintain a permanent bench mark at the construction site for the use of mechanics and other subcontractors.

#### **1105.08 AUTHORITY AND DUTIES OF INSPECTOR**

- A. The Contracting Authority may appoint inspectors to represent the Engineer in the inspection of all materials used in and all work done under the Contract. Such inspection may extend to any part of the work and to preparation or manufacture of materials to be used.
  - 1. The inspector will not be permitted to modify in any way the provisions of the contract documents or to delay the work by failing to inspect materials and work with reasonable promptness. An inspector is placed on the work to keep the Engineer informed as to its progress and the manner in which it is being performed. The inspector will not be authorized to approve or accept any portion of the work.
  - 2. Results of inspection tests and examinations will be available to the Contractor on an informational basis. Absence or presence of representative test data does not alter the Contractor's responsibility for plan and specification compliance in accordance with 1104.01.
  - 3. The inspector will not act as foreman or perform other duties for the Contractors nor improperly interfere with management of the work.
  - 4. In case of dispute between the Contractor and inspector as to quality of materials or manner of performing the works the inspector will have authority to reject materials or suspend the work until the question at issue can be decided by the Engineer. Written notice of suspension of work will be given to the Engineer and Contractor by the inspector.

#### **1105.09 INSPECTION OF WORK**

- A. The Contractor shall furnish the Engineer with every reasonable facility for ascertaining whether the work is being performed in conformance with the contract documents. At any time before acceptance of the works upon request of the Engineer, the Contractor shall remove or uncover such portions of finished work as the Engineer may direct. After examination has been made, the Contractor shall restore such portions of the work to the standard required by the contract documents.

1. If work thus exposed or examined proves acceptable, the uncovering or removing and replacing of coverings or the restoring of parts removed, shall be paid for as extra work, except that no payment will be made for work involved in checking smoothness of concrete surfaces.
  2. If work thus exposed and examined proves unacceptable, the Contractor shall replace the defective work in accordance with the specifications.
  3. If work thus exposed and examined proves either unacceptable or deficient, the Contractor will be paid only for work as finally accepted.
  4. Work done without the Engineer having been afforded ample opportunity to provide suitable inspection, or unauthorized work, may be ordered removed and replaced at the Contractor's expenses or may be excluded from the quantities measured for payment.
- B. If the specifications, Engineer's instructions, laws, ordinances, or any public authority require any work and/or materials to be specially tested or approved, the Contractor shall give the Engineer timely notice of readiness for review. If the review is to be made by authority other than the Engineer, the Contractor shall notify the Engineer of the date fixed for review. Reviews by the Engineer will be promptly made and, where practicable, at the source of supply.

#### **1105.10 REMOVAL OF DEFECTIVE WORK**

- A. Any defective work shall be removed and replaced at the Contractor's expense.
- B. Should the Contractor fail or refuse to remove defective work when so ordered by the Engineer, the Engineer shall have authority to order the Contractor to suspend further operations, and may withhold payment on estimates until such defective work has been removed and replaced in accordance with the plans and specifications.
1. Continued failure or refusal on the part of the Contractor to correct defective work promptly shall be sufficient cause for the Contracting Authority to declare the contract in default and to complete the work in accordance with 1108.11.

#### **1105.11 UNAUTHORIZED WORK**

- A. Unauthorized work and work done in excess of that provided by the lines and grades shown on the plans or as given by the Engineer, or any work done without the authority of the Engineers will be considered as unauthorized and will not be paid for.
1. Unauthorized work may be ordered removed and replaced at the Contractors expense.

#### **1105.12 OTHER CONTRACTS**

- A. The Contracting Authority reserves the right to do, or to contract for other work adjacent to, or in the vicinity of, the work herein described.
- B. The Contractor agrees to permit such other work to progress and to arrange for joint occupation of the site under such provision as the Engineer determines necessary. If in the judgment of the Engineer, such joint occupation of the site impedes progress on the work herein described, the Contracting Authority will proportionally extend the time for completion of the work.
1. The Contractor hereby waives any claim for damages or extra compensation by reason of such interference with his work.

#### **1105.13 FINAL INSPECTION**

- A. Upon notification, by the Contractor or his authorized representative, that the work is completed, the Engineer shall make prompt final inspection of each item of work included in the contract. If the work is found not to be in accordance with the contract documents, the Contractor will be advised as to the particular defects to be remedied before final acceptance can be made.



## 1105.14 RESTRICTIONS ON MOVING AND USE OF HEAVY EQUIPMENT

- A. The following restrictions shall apply to the moving and use of heavy equipment:
1. Movement of equipment to and from the project shall be in compliance with the laws governing the operation of vehicles on the highways of Iowa. Movement and operation of equipment over completed portions of pavements, bituminous surfaces, base courses, and structures which are a part of the project shall be with legal axle loads, except as modified in this article.
  2. In the case of earthwork and shouldering to be done in connection with either rigid or flexible pavement, or pavement widening and resurfacing, no tractor-drawn, earth-moving equipment shall be operated, or driven on or across the pavements, except at designated crossovers, as authorized by the Engineer.
    - a. When crossovers are specifically permitted, the Contractor will designate, before use, the location and number of crossovers to be used. The Engineer will not approve crossovers in areas of limited sight distance, near structures, railroad crossings, or at any other location which will place safety of the traveling public in jeopardy. At these crossovers, equipment having axle loads greater than the maximum permitted by law may be used.
    - b. Crossovers shall be 30 feet in length measured along the centerline and shall not be closer than 300 feet to each other.
    - c. For each crossover used, the Contractor shall, at the Engineer's option, either replace the pavement or pay the Contracting Authority at the rate of five thousand (\$5,000.00) dollars on the basis of a two-lane pavement.
    - d. In lieu of the surface crossover, approved hauling bridges may be used. The hauling bridge shall accommodate two lanes of public traffic, and it shall be removed from the roadway at the close of each day's operations. When a hauling bridge is used, no payment will be required.
    - e. The provisions of the Supplemental Specification for Traffic Controls in effect on the contract letting date, shall apply.
  3. No dragline, cranes or power shovel shall be operated with any part of the machine resting upon a pavement, bituminous surface, base course, or structure except with approval of the Engineer and in accord with restrictions in that approval.
  4. Under no conditions shall machines equipped with metal lugs or similar projections on the treads be operated on the surface of a pavement, bituminous surface or base course.
  5. For building shoulders, on completed pavements of any type, the maximum axle load used for equipment operating on pavement shall not exceed the legal axle load, as defined herein.
  6. Crawler-type tractors shall not be moved on or off a pavement or base course except at places where the compacted earth adjacent to slab is at least 2 inches higher than the surface of the pavement or base course. Whenever heavy, crawler-type equipment, such as a crane or mixers is moved on or off the edge of a pavement or base course, a substantial timber approach shall be built, at the edge of slab, to prevent overloading or otherwise injuring the edge of the slab.
  7. Compacting equipment having axle loads greater than 20,000 pounds may be used on the work under the following provisions:
    - a. The equipment shall be transported to and from the work and across the bridges on the work in compliance with laws of the State of Iowa.
    - b. For compaction of subbase, the weight of equipment used shall not be greater than that of compaction equipment used in correction of the roadbed for grade and cross section.
    - c. For compaction of base course, the weight of equipment used shall not be greater than the weight of equipment used in compaction of the subbase on which the base is placed.

- d. For compaction of surface courses, the weight of equipment shall not be greater than that of equipment used in compaction of the base on which the surface course is placed.
8. For grading or any other type of work, no rollers or other equipment, having an axle load greater than 50,000 pounds or a total weight in excess of 60,000 pounds shall be operated over a culvert, except as may be authorized by the Engineer, and then, in strict compliance with prescribed precautionary measures.

#### **1105.15 PLACEMENT OF FILL MATERIAL IN STREAMS AND WATERBODIES**

- A. The placement of fill material in streams is regulated by Federal law. The intent of this specification is to require contractor operations in streams and other waterbodies and adjacent swamps, marshes, bogs, or similar areas, to be in compliance with Federal regulations.
- B. Fill material shall mean; any material used for the primary purpose of replacing an aquatic area with dry land, or of changing the bottom elevation of a waterbody.
- C. Fill material shall consist of clean, suitable, naturally occurring material, free from toxic pollutants in other than trace quantities.
- D. Temporary stream crossings shall be bridged or culverted so as not to restrict expected high flows or disrupt the movement of aquatic life native to the stream or waterbodies. Expected high flows are those flows, which the Contractor expects to experience during the period of time that the crossing is in place.
  1. Temporary stream crossings shall:
    - a. Not extend over 100 feet into any swampy, boggy, marshy, or similar area that is adjacent to the stream or waterbody.
    - b. Be maintained to prevent unnecessary erosion and other nonpoint sources of pollution.
    - c. Be removed after they are no longer needed.

#### **1105.16 COST REDUCTION INCENTIVE**

- A. The Contractor may submit to the Engineer, in writing, proposals for modifying the plans, specifications, or other contract requirements for the sole purpose of reducing the total cost of construction.
  1. The proposals shall not impair, in any manner, essential functions or characteristics of the projects, including but not limited to, service life, economy of operation, ease of maintenance, desired appearance, or design and safety standards.
- B. Proposals shall contain the following changes:
  1. Existing requirements and proposed changes,
  2. Contract requirements that must be changed if the proposal is adopted,
  3. A detailed cost estimate of performing the work as stipulated and as proposed,
  4. The time within which the Engineer must make a decision thereon,
  5. The items of work affected by the proposed changes, including any quantity variation attributable thereto.
- C. The provisions of this article shall not be construed to require the Engineer to consider any cost reduction proposal which may be submitted hereunder.
  1. Proposed changes in basic design of a bridge or pavement type will not be considered an acceptable proposal.

2. The Contracting Authority will not be liable to the Contractor for failure to accept, or act upon, any proposal submitted pursuant to this article, or for any delays to the work attributable to any such proposal.
  3. If a proposal is similar to a change in plans or specifications under consideration by the Contracting Authority for the project at the time said proposal is submitted, or if such a proposal is based on, or similar to, standard specifications, special provisions, or plans adopted by the Contracting Authority after the advertisement for the contract, the Engineer will not accept such proposals and the Contracting Authority reserves the right to make such changes without compensation to the Contractor under provisions of this article.
- D. The Contractor shall continue to perform the work in accordance with contract requirements until a change order, incorporating the cost reduction proposal, has been issued. If a change order has not been issued by the date on which the Contractor's cost reduction proposal specifies that a decision thereon should be made, or such other date as the Contractor may subsequently have specified in writing, such proposal shall be deemed rejected.
- E. The Engineer shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings in construction costs from adopting all, or any part of, such proposal. In determining the estimated net savings, the right is reserved to disregard the contract bid prices if, in the judgment of the Engineer, such prices do not represent a fair measure of the value of work to be performed or to be deleted.
- F. The Contracting Authority reserves the right, where it deems such action appropriate, to require the Contractor to share in the Contracting Authority's costs of investigating a cost reduction proposal. Where such a condition is imposed, the Contractor shall indicate his acceptance thereof in writing, and such acceptance shall constitute full authority to deduct amounts, payable to the Contracting Authority from any money due, or that may become due, to the Contractor under the contract.
- G. If the Contractor's cost reduction proposal is accepted in whole or in part, such acceptance will be by change order, which shall specifically state that it is executed pursuant to this article. Such a change order shall incorporate the changes in the plans and specifications which are necessary to permit the proposal, or such part of it as has been accepted, to be put into effects and shall include any conditions upon which the Contracting Authority's approval is based, if the approval is conditional.
1. The change order shall also set forth the estimated net savings in the cost of performing the work attributable to the proposal effectuated by the change order, and shall further provide that the Contractor be paid 50 percent of said estimated net savings amount.
- H. Acceptance of the cost reduction proposal and performance of the work thereunder shall not extend the time of completion of the contract, unless specifically provided for in the change order authorizing use of the proposal.
- I. The amount specified to be paid to the Contractor in the change order which effectuates a cost reduction proposal shall constitute full compensation to the Contractor for the proposal and performance of the work thereof pursuant to the said change order.
- J. The Contracting Authority expressly reserves the right to adopt a cost reduction proposal, for general use on contracts administered by the Contracting Authority, when it determines that said proposal is suitable for application to other contracts.
1. When an accepted proposal is adopted for general use, only the contractor who first submitted such proposal will be eligible for compensation pursuant to this article, and in that case, only to those contracts awarded to him/her prior to submission of the accepted proposal and as to which such proposal is also submitted and accepted.
  2. Cost reduction proposals identical or similar to previously submitted proposals will be eligible for consideration and compensation under provisions of this article, if the identical or similar previously submitted proposals were not adopted for general application to other contracts administered by the Contracting Authority.

3. Subject to the provisions contained herein, the State or any other public agency shall have the right to use all, or any part of any submitted cost reduction proposal without obligation or compensation of any kind to the Contractor.

## **PART 1106. CONTROL OF MATERIAL**

### **1106.01 QUALITY OF MATERIALS**

- A. It is the intent of the specifications that first-class materials shall be used throughout the work, and that these first-class materials shall be incorporated in such a manner as to produce completed construction which is acceptable in every detail. Only materials conforming to the requirements of these specifications, approved by the Contracting Authority, shall be incorporated into the work
- B. When more than one kind of manufacture of a material is specified, the option will be with the Contractor, but the choice shall be confined to the materials mentioned.
- C. Whenever in any of the contract documents, an item of material or equipment is defined by describing a proprietary product or by using the name of a manufacturer or vendor, the terms "or equivalent", or "or equal", if not inserted, shall be implied. This specific item of material or equipment mentioned shall be understood as establishing a standard of type, function, efficiency, minimum basis of design, and quality desired. Other manufacturer's products of comparable quality, design and efficiency, and suitable for the service intended will be considered, but no change will be made without written approval of the Contracting Authority.
- D. Requests for materials substitutions must be submitted in duplicate, or in the quantities required elsewhere in the specifications, and meet the requirements of 1103.09

### **E. 1106.02 SOURCE OF MATERIALS**

- A. At the option of the Engineer, the source of supply of each material shall be approved by the Contracting Authority before the delivery is stated.
  1. If requested by the Contracting Authority, representative preliminary samples, of prescribed character and quality, tested in accordance with the methods referred to under samples and tests, shall be submitted by the contractor or producer for examination.
  2. All materials proposed to be used may be inspected or tested at anytime during their preparation and use.
  3. If, after trial, it is found that sources of supply which have been approved do not furnish a uniform product or if products from any source do not meet the specifications, at any time, the Contractor shall furnish approved material from other approved sources. No material which, after approval has in any way become unfit for use, shall be used in the work.

### **1106.03 SAMPLES AND TESTS**

- A. Each consignment of materials required by the Engineer, shall be tested or inspected before being incorporated into the work and approved by the same Engineer before it is used.
  1. The contractor shall afford facilities for collecting and forwarding samples as the Engineer may require.
  2. Unless otherwise designated in the standard, supplemental specifications, or instructional memorandums, the inspection, sampling, testing, and basis of acceptance of materials shall be in accordance with the current AASHTO "Standard Specifications for Sampling and Testing of Transportation Materials" including published interim standards.

### **1106.04 STORAGE OF MATERIALS**

- A. The Contractor shall be responsible for care and storage of materials delivered for the work or purchased for use thereon. Material which has been delivered and has become damaged before actual incorporation in

the work may be rejected by the Engineer even though it may have been previously acceptable. Stored materials shall be located to facilitate thorough inspections.

#### **1106.05 UNACCEPTABLE MATERIALS**

- A. All materials not conforming to requirements of the specifications at the time they are to be used shall be considered unacceptable, and all such materials will be rejected and shall be removed immediately from the work site, unless otherwise instructed by the Engineer. No rejected materials the defects of which have been corrected shall be used until approval has been received.

### **PART 1107. LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC**

#### **1107.01 LAWS TO BE OBSERVED**

- A. The Contractor is presumed to be familiar with all laws, ordinances, and regulations that may, in any manner, affect those engaged or employed by the Contractor, the materials or equipment used, or which may in any way, affect the conduct of the Contractor's work. The Contractor shall conduct his work to avoid conflict with any such laws, ordinances, or regulations, and shall save harmless the Contracting Authority and its representatives against any claim arising from violation thereof.
- B. The Contractor shall give preference to Iowa domestic labor, in accordance with the provisions of Chapter 73 of the Code of Iowa, and this provision is hereby specifically made a part of any contract of which these contract documents are a part. A person shall be deemed a domestic laborer of this state if he/she is a citizen and has resided in this state for more than six months.
- C. The provisions of Chapter 73 of the Code of Iowa concerning preferences for Iowa products and labor shall not apply to contracts involving work financed wholly, or in part, by the federal government.
- D. The Contractor and all subcontractors shall have on file with the Contracting Authority, a valid state of Iowa contractors registration number, issued by the Iowa Department of Labor Services, in accordance with Chapter 91C of the Code of Iowa.

#### **1107.02 LIABILITY INSURANCE**

- A. It shall be the Contractor's responsibility to have liability insurance covering all of the construction operations incident to completion of this contract. The Contractor must have on file, with the Contracting Authority, a current "Certificate of Insurance" prior to award of contract. The certificate shall identify the following: insurance company firm name and address, contractor firm names policy period, type of policy, limits of coverage, and scope of work covered, (single project or statewide).
  - 1. This requirement shall apply with equal forces whether the work is performed by -- (1) persons employed directly by the Contractors (2) by a subcontractor or his employees, or (3) by an independent contractor.
- B. In addition to the above, the Contracting Authority shall be included as an insured party, or a separate owner's protective policy shall be filed showing the Contracting Authority as an insured party.
- C. The liability insurance shall be written by an insurance company (or companies) qualified to do business in Iowa. For independent contractors engaged solely in the transportation of materials, the minimum coverage provided by such insurance shall not be less than required by Chapter 327, Code of Iowa, for truck operators or contract carriers as defined therein. For all other contractors, subcontractors, and independent contractors, the minimum coverage by such insurance shall be as follows:

Public Liability Insurance  
Per person - \$100,000.00  
Each occurrence - \$300,000.00  
Property Damage Insurance  
Each occurrence - \$50,000.00

- D. Failure on the part of the Contractor to comply with the requirements of this article will be considered sufficient cause to suspend the work, withhold estimates, and to deny the Contractor from receiving further contract awards, as provided in 1103.01.

#### **1107.03 PATENTS AND ROYALTIES**

- A. The Contractor shall be responsible for all claims for infringement of patents, or for royalties on tools, machinery, appliances, devices, or materials used in construction and completion of the work, except as are specifically required by the contract documents.
  - 1. The Contractor agrees that the Department may retain out of the money that is or may become due the Contractor an amount to cover all such claims and to retain the same, until all such claims are paid or adjusted.
- B. The Contracting Authority assumes responsibility for payment of claims for damages from patent or copyright infringement or for royalties on material processes, specifications, or types of construction that are required by the contract documents.

#### **1107.04 RESTORATION OF CONSTRUCTION WORK OPENED BY PERMIT**

- A. Prior to final acceptance, if any repairs to the work constructed hereunder are made necessary by construction or repair of drains or sewers, laying or repairing of pipes or conduits for telegraphy, telephone or electric wires, or from any other disturbance of said work under permission issued by the Contracting Authority, the Contractor shall, upon notification by the Engineer, immediately make necessary repairs in conformity with the specifications.
  - 1. Such repairs shall be paid for as extra work, however, no compensation will be allowed when such repairs are made necessary by the Contractor's negligence or carelessness.
- B. The Contractor shall not authorize any person or persons to make alterations or additions to the construction work unless a permit duly authorized by the Contracting Authority is presented.

#### **1107.05 FEDERAL PARTICIPATION**

- A. The attention of the Contractor is called to the provisions of the Acts of Congress known as the "Land and Water Conservation Fund Act", the "Federal Aid in Wildlife Restoration Act", the "Federal Aid in Fish Restoration Act", the "Boating Safety Act", the "Superfund Amendments and Reauthorization Act", the "Clean Water Act" and amendments thereto, and any other acts of congress providing for fish and wildlife of conservation improvements.
  - 1. When the United States Government is to pay for all or any portion of the cost of an improvement or project, the construction work, although it is under the direct supervision of the Contracting Authority and subject to the laws of the State of Iowa, is also subject to the above mentioned Acts of Congress and all rules, regulations, and reimbursements that may be imposed by the federal authority thereunder. Such construction work will, therefore, be subject to inspection by the duly authorized agents of the federal government, but such inspections will not make the federal government a party to the contract.
- B. On all contracts involving Federal aid, all steel products incorporated into the work must have been manufactured in the United States. The Engineer may allow minimal amounts of these materials from foreign sources, provided the cost does not exceed 0.1 percent of the contract sum or \$2,500 whichever is greater.

#### **1107.06 SAFETY, HEALTH, POLLUTION AND SANITATION**

- A. In the performance of his contract, the Contractor shall comply with all applicable laws, rules, regulations, and ordinances governing safety, health, pollution, sanitation, noise control, and disposal of waste materials, and shall make available such additional safeguards, safety devices, protective equipment, and take such actions as are reasonably necessary to protect life and health of employees and the public.

1. The Engineer will not act as an enforcement agent for compliance of rules and regulations governing industrial safety. However, violations of properly promulgated laws, rules, regulations, and ordinances reported to the Engineer by responsible agencies may result in the issuance of a suspension order until such time as the violation is corrected.
- B. The Contractor shall make adequate provisions satisfactory to the Engineer for safety of inspectors, particularly at sampling locations. Provisions shall include guards for moving belts, pulleys, and wheels near the sampling point and a stable platform to be used when sampling is to be done from an elevated location.
- C. There shall be suitable retention dams, in areas where approved liquid asphaltic material, or asphalt cement are stored and used, to minimize pollution of nearby areas from effect of normal rains. The Contractor shall take other necessary precautions to prevent pollution of streams, lakes, ponds, reservoirs, and other areas with fuels, oily bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.
- D. The disposal by open burning of landscape waste originating on the construction site shall be permitted unless prohibited by local ordinances or regulations. However, the burning of landscape waste produced in clearing, grubbing, and construction operations shall be limited to areas located at least one-fourth mile from any inhabited buildings. Rubber tires will not be used to ignite landscape waste.
- E. The Contractor shall be specifically responsible for adhering to all local burning ordinances or regulations, and to ascertain what the local burning restrictions consist of in addition to the regulation stated above and to see that all subcontractors comply with those restrictions.
- F. All internal combustion engines, used for any purpose on the job, or related to the job, should be equipped with a muffler of the type recommended by the manufacturer. No internal combustion engine will be operated without a muffler. Faulty or damaged mufflers must be replaced. Machinery must be properly maintained at all times in order to limit engine noise, as well as other extraneous noise.
- G. When directed by the Engineer, the Contractor shall apply moisture to the construction area and haul routes, as necessary, to prevent the spread of dust, at no expense to the Contracting Authority.

#### **1107.07 PUBLIC CONVENIENCE AND SAFETY**

- A. The Contractor shall conduct the work as to assure the least possible obstruction to access by the residents along the project. The Contractor should schedule and conduct the work in such a way as to provide for their safety and convenience.
  1. Work and materials required by the Engineer for public convenience and safety in excess of that provided for in the contract, shall be considered as provided for in 1109.03.

#### **1107.08 BARRICADES AND WARNING SIGNS**

- A. The Contractor shall take every reasonable precaution to prevent the public from interfering with the work, and to prevent the work from interfering with the public, for providing for safety of the general public traveling to, through, within, along, and across the project, and shall take such precautions, measures, or acts as are required herein and as specifically required by the contract documents or by the Engineer. In additions the Contractor shall provide such additional safeguards as deemed necessary to protect equipment, the work, and the public at the Contractors own expense.
- B. The Contractor shall erect and maintain suitable barriers, and at night, such lights, as will prevent accidents to persons or property in and around the area of work.
- C. The Contractor shall provides at his own expense, such security guards as are necessary to protect equipment and to maintain proper lighting. Security guards that may be necessary for the protection of the public shall be provided by the contractor on written order from the Engineer.
- D. Whenever the work is under the Contractor's control, the Contractor shall be held responsible for any damage to the newly completed portions of the work resulting from public misuse.

#### **1107.09 USE OF EXPLOSIVES**

- A. When the use of explosives is necessary for the prosecution of the work, the Contractor shall exercise the utmost care not to endanger life or property. The Contractor shall be responsible for all damage resulting from use of explosives.
- B. All explosives shall be stored in a secure manner in compliance with all laws and ordinances and in quantities maintained at a practical minimum. Storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided, satisfactory to the Engineer and, in general, not closer than 1,000 feet from the road or from any building, camping area , or place of human occupancy.
- C. The Contractor shall notify each public utility company, having structures in proximity to the site of the work, of the intent to use explosives. Such notice shall be given sufficiently in advance to enable the companies to take such steps as they may deem necessary to protect their property from injury.

#### **1107.10 PROTECTION AND RESTORATION OF PROPERTY**

- A. The Contractor shall replace or renew fences, sidewalks, or other property damage by reason of the work or the negligence of the Contractors employees. The Contractor shall take suitable precautions to prevent damage to telephone, telegraphy, and electric transmission lines along the highway and to pipes, conduits, and other underground structures. The Contractor shall carefully protect from disturbance all land monuments and property marks until an authorized agent has witnessed or otherwise referenced their locations and shall not remove them until so directed.
  - 1. The Contractor shall be responsible for damage or injury to property resulting from the prosecution of his work, however, responsibility shall not extend to damage to fences, telephones, telegraph, or electric lines occupying the right-of-way unlawfully, provided due caution has been used in removing them. The Contractor's responsibility shall not be released until the work under the contract is completed and accepted.

#### **1107.12 RESPONSIBILITY FOR DAMAGE CLAIMS**

- A. The Contractor shall indemnify and save harmless the state of Iowa, the Contracting Authority and other agencies which have concurred in the award of contract, their officers and employees, from all suits, actions, or claims of any character brought because of any injuries or damage received or sustained by any person, persons, or property because of any act, omissions or neglect in safeguarding or performing the work, or through use of unacceptable materials in constructing the work, and so much of the money due the said Contractor, under and by virtue of the contract, as may be considered reasonable and necessary by the Contracting Authority for such purpose, may be retained for the use of the State, or in case no money is due, the surety may be held until such suit or suits, action or actions, claim or claims for injuries or damages, as aforesaid, shall have been settled and suitable evidence to that effect furnished to the Contracting Authority, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence of adequate protection by public liability and property damage insurance.
  - 1. Notwithstanding the above, it is specifically agreed between the parties executing this contract that it is not intended by any of the provisions of any part of the contract documents to create in the public or member thereof a third party beneficiary hereunder, or to authorize anyone not a party to this contract to maintain a suit for personal injuries or property damage pursuant to the terms of provisions of this contract.
  - 2. The duties, obligations, and responsibilities of the parties to this contract with respect to third parties shall remain as imposed by law. It being the intention of the parties that indemnity herein provided shall not extend to acts of omission, of negligence for which the Contracting Authority is solely responsible. But indemnity shall extend to all claims in which the Contractor and the Contracting Authority are found to be either jointly or concurrently negligent.
- B. Responsibility of the Contractor for providing warning devices, required by 1107.08 to avoid damages or injuries on any portion of the work covered by the contract, shall not cease until the work on such portion has been released by the Engineer.



1. A release shall be construed to mean a written statement by the Engineer to the effect that the Contractor may cease to maintain barriers and lights, that the work may be opened to the public and that the Contractor is relieved of further maintenance of that portion of the work. Such release shall not constitute an acceptance of the work.
- C. The Contractor's responsibility for maintenance of lights on any individual structure shall cease upon final acceptance of such structure, or when specifically released in writing by the Engineer.

#### **1107.13 OPENING OF SECTION OF CONSTRUCTED WORK TO THE PUBLIC**

- A. When any substantial portion, part, or feature of a contract is completed to the extent that its stability and integrity is not dependent upon completion of the other item, or work required in the contract, that portion, part, or feature may be released by the Engineers after conferring with the Contractor, and opened to traffic or received for public usage prior to final approval and acceptance of all work involved in the contract.
1. The Contractor will not be responsible for damages due to the elements or the ordinary use of the public to those portions, parts, or features of the work which have been released by the Engineer.
  2. The Contractor will be responsible for any damages which may be caused by defective work or failure to comply with the contract documents.
- B. The above provisions relating to a release by the Engineer will be applicable only to those portions, parts, or features of the contract for which the Engineer has furnished to the Contractor a written release.

#### **1107.14 CONTRACTOR'S RESPONSIBILITY FOR WORK**

- A. The Contractor shall be responsible for the care and maintenance of partially completed and furnished work on any portion of the project until released by the Engineer from such responsibility. It will be the Contractor's responsibility to adjust the Contractor's operation or method of operation to prevent any damage of any nature to any portion of the partially completed or completed work. Repair work shall be done promptly upon being so ordered by the Engineer.

#### **1107.15 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES**

- A. At points where the Contractor's operations are adjacent to properties of railway, telegraph, telephone, and power companies, or are adjacent to other property, damage to which might result in considerable expense, loss, or inconvenience. Work shall not be commenced until all arrangements necessary for the protection thereof have been made.
- B. The Contractor shall cooperate with owners of underground or overhead utility lines in their removal and rearrangement operations, in order that these operations may progress in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum, and that services rendered by those parties will not be unnecessarily interrupted.
- C. In the event of interruption to water or utility services, as a result of accidental breakage or as a result of being exposed or unsupported, the Contractor shall promptly notify the proper authority and shall cooperate with said authority in restoration of service.
1. If water service is interrupted, repair work shall be continuous until service is restored.
  2. No work shall be undertaken around fire hydrants until provision for continued service has been approved by the local fire authority.

#### **1107.16 PERSONAL LIABILITY OF PUBLIC OFFICIALS**

- A. In carrying out any of the provisions of the contract, or in exercising any power or authority granted to any agency or representative of the Contracting Authority thereby, there shall be no liability upon such agent or representatives including the Engineer or authorized agents, either personally or as an official of the Contracting Authority, it being understood that in such matters the agent acts as the agency and representative of the Contracting Authority.

## **1107.17 NO WAIVER OF LEGAL RIGHTS**

- A. The Contracting Authority shall not be precluded or stopped by any measurement, estimate, or certificate made, either before or after the completion and acceptance of the work and payment therefor, from showing the true amount and character of the work performed and materials furnished by the Contractor, or from showing that any such measurement, estimate, or certificate is untrue or incorrectly made, or that the work or materials do not, in fact, conform to the contract.
- B. The Contracting Authority shall not be precluded or stopped, notwithstanding any such measurement, estimate, or certificate, and payment in accordance therewith, from recovering from the Contractor and the Contractor's sureties such damages as it may sustain by reason of the Contractor's failure to comply with the terms of his contract.
- C. Neither acceptance by the Contracting Authority, or any representative of the Contracting Authority, nor any payment for or acceptance of the whole or part of the work, nor any extension of time, nor any possession taken by the Contracting Authority, shall operate as a waiver of any portion of the contract, or for any power herein reserved, or any right to damages herein provided. A waiver of any breach of contract shall not be held to be a waiver of any other or subsequent breach.

## **PART 1108. PROSECUTION OF PROGRESS**

### **1108.01 SUBLETTING OF CONTRACT**

- A. The Contractor shall perform, with his/her own organization, work amounting to not less than 30% of the total contract cost, however, any items designated in the contract as "specialty items" may be performed by subcontracts and the cost of any such specialty items so performed by subcontract may be deducted from the total cost before computing the amount of work required to be performed by the Contractor with his/her own organization.
- B. Any items that have been selected as "specialty items" for the contract are listed as such in the special provisions found elsewhere in the contract documents.
- C. At the time specified by the contract documents or when requested by the Engineer, the Contractor shall submit, in writing to the Contracting Authority, for approval the names of the subcontractors proposed for the work. Subcontractors may not be changed except at the request of and with the approval of the Contracting Authority.
  - 1. The Contractor is responsible to the Contracting Authority for the acts and omissions of the subcontractors, and of their direct and indirect employees, to the same extent as the Contractor is responsible for the acts and omissions of its own employees.
  - 2. The contract documents shall not be construed as creating any contractual relation between the subcontractor and the Contracting Authority.
- D. The Contractor shall bind every subcontractor and every subcontractor agrees to be bound by the terms of the contract, the contract documents, the plans, the general conditions of the contract, the supplementary general conditions, the special conditions, and the specifications as far as applicable to the subcontractors work.
- E. The subcontractor shall be bound to the Contractor by the terms of the contract, the contract documents, the plans, the general conditions, and specifications, and to assume toward the Contractor all the obligations and responsibilities that the Contractor, by those documents, assumes towards the Contracting Authority.
  - 1. The Contractor agrees to be bound to the subcontractor by all the same obligations that the Contracting Authority assumes to the Contractor under the terms of said documents, and by all the provisions thereof affording remedies and redress to the Contractor from the Contracting Authority.
- F. The Contractor shall not assign, sublet, or transfer in whole or part any of the work herein specified without the written consent of the Contracting Authority. Any such assignment, subletting, or transfer shall not in any manner relieve the Contractor from any of the responsibilities assumed herein.

- G. For convenience of reference and to facilitate the letting of contracts and subcontracts, the specifications are separated into title sections. Such separations shall not, however, operate to make the Engineer an arbitrator to establish limits to the contracts between Contractor and subcontractors.
- H. This article shall further be applicable to contracts involving Federal-aid participation in construction insofar as they are consistent with the required provisions for Federal-aid contracts attached to the contracts, and shall be additional specifications insofar as they cover matters not covered by the required provisions for Federal-aid contracts.

## 1108.02 PROSECUTION OF WORK

- A. The proposal form may designate the contract period by either completion date, approximate starting date, or specified starting date.
- B. Intermediate contract periods may be designated for completion of certain portions of the contract. The contract period for each portion and the liquidated damages, if any, will be listed in the special provisions.
- C. The return of the signed and executed contract to the Contractor shall serve as notice to the Contractor that the contract bond is acceptable, that the contract is in force, and that the Contractor may complete arrangements for materials and other work in accordance with the contract documents.
- D. Should delay become apparent before or after the work is started, the Engineer will immediately notify the Contractor, in writing, that work on the contract will be delayed and, if possible, the approximate duration of such delay. For delays exceeding 2 weeks, new construction dates may be established by the Engineer after consulting with the Contractor.
  - 1. Specified Starting Date: When a starting date is specified, working days will be charged to the Contractor starting on the specified starting date or 10 days after execution of the contract, whichever is later. Starting work prior to the specified date will be considered upon request, and working days will be charged when work starts.
  - 2. Approximate Starting Date:
    - a. Site available immediately, as determined by the Engineer: Anytime after execution of the contract and on or after the approximate starting date, the Contractor may work, weather and specifications permitting. Working days will be charged any time the Contractor is working on/or after the approximate starting date. Starting work prior to the approximate starting date will be considered upon request. If allowed, working days will be charged.
    - b. Site Availability Date Unknown, as determined by the Engineer: It is expected the site will be available by the approximate starting date. If it appears the site will not be available by the approximate starting date, the Engineer will inform the Contractor of the delay and if possible the duration of the delay. The Contractor may commence work, weather and specifications permitting, any time after execution of the contract and on or after the approximate starting date provided the site has become available. If work is started under these conditions, working days will be charged. Starting work before the approximate starting date and before the site is available, will be considered only after the Contractor has submitted a signed waiver of any right to claim extra compensation for damages due to delays from any cause related to the early commencement. If approved, working days will not be charged when working prior to the date of site availability. If the Contractor is working on the project when the site becomes available, working days will be first charged on the following day.
  - 3. Specified Completion Date: The Contractor may commence work any time after execution of the contract, weather and specifications permitting.
    - a. Working days will begin to be charged whenever the Contractor starts work.
  - 4. Winter Work: The proposal may require winter work on all or portions of the project, and working days will be counted as indicated therein. When not so specified, the Contractor may work, unless advised to the contrary by the Engineers between November 15 and April 1 with no working time

charged. If the best interest of the Contracting Authority so dictates, the Engineer may require the Contractor to continue work after November 15.

- a. Working days will not be charged if working time remains on November 15, and working days may be charged for days worked if no working time remains on November 15.
5. Notice to Proceed: A notice to proceed will be issued when, in the opinion of the Engineer, considering the approximate starting date, site availability, and working days allowed, failure of the Contractor to commence work places the timely completion of the project in jeopardy. The starting date in the notice to proceed will not be less than 15 calendar days after the date of the issuance of the notice. Working days will be charged beginning with the starting date established by the notice or when the Contractor starts work if prior thereto. A notice to proceed will be issued, except:
    - a. It will be assumed when a specified starting date is used.
    - b. It will be assumed when a specified completion date is used, the number of working days allowed will be counted back from the specified completion date, exclusive of Saturdays, Sundays, and holidays, to determine the first day working days will be charged.
    - c. It may be included as an agreed starting date at a preconstruction conference for projects with an approximate starting date.
    - d. It will be assumed when the Contractor is working at the time for issuance of the notice.
    - e. It will be assumed, if an early work waiver is approved, as having been issued at the time of site availability, as documented in the project records.
  6. Weekly Report of Working Days: Whenever the Contractor is subject to being charged with working days, the Engineer will furnish the Contractor a weekly statement indicating the working days to be charged against the Contractor for that period. Should the Contractor believe the statement to be inaccurate, a statement should be submitted to the Engineer, in writing, stating the objection and reasons, within 10 calendar days after receipt of the statement. If the Contractor fails to submit an objection within that time, the original statement may be considered as accurate and final.
  7. Work Progress: The progress of the work shall be at a rate sufficient to complete the contract within the time allowed. If it appears that the rate of progress is such that the contract will not be completed within the time allowed, or if the work is not being executed in a satisfactory and workmanlike manner, the Engineer may order the Contractor to take such steps as necessary to complete the contract within the period of time specified or to prosecute the work in a satisfactory manner.
    - a. If the Contractor fails to comply with such order within 2 weeks after receipt of the order, the Contractor may be disqualified from receiving any additional bidding proposals, and the Contracting Authority shall have the right to declare the contract in default and to complete the work in accordance with 1108.11.
    - b. Failure of the Contracting Authority to issue such order shall not alter the Contractor's responsibility under the contract.
    - c. The Contractor's sequence of operations shall be such as to cause as little inconvenience to the general public as possible.
  8. Schedule of Staging: On any project, or part of a project, on an existing road where the work may prohibit or restrict public or private access that has been previously available, the Contractor may be required to submit a schedule of staging for the Engineer's approval before work is started.
    - a. Preliminary work may be required in stage construction, even though the work involved in these operations is similar, in order to minimize the inconvenience to the public and those to whom access has been previously available. This requirement will apply equally to work that is subcontracted.

9. Accelerated Work Schedule: An accelerated work schedule may be required by a note on the proposal. When required, the Contractor shall marshal the necessary forces, including but not limited to: extra crews, subcontractors, extra work hours, or other acceptable methods to insure completion of the projects or various stages of the projects within the contract period and in compliance with the specifications.
  - a. A work plan shall be submitted to the Engineer for review prior to commencement of work. Work will be permitted on a 24-hour-day basis and on Sundays and holidays when traffic interference exists, though work may be restricted during peak traffic periods. No credit will be allowed for delayed or slow delivery of materials. The special provisions may include other requirements or modifications for the accelerated work schedule.
10. Preconstruction Conference: The Engineer shall schedule and conduct a preconstruction conference. The Contractor and intended subcontractors shall participate in this conference. The Engineer will invite utilities and others having responsibilities or interest in the work.

### **1108.03 LIMITATIONS OF OPERATIONS**

- A. The Contractor shall conduct the work so as to create a minimum amount of inconvenience to the public. At anytime, when in the judgment of the Engineer, the Contractor has obstructed, closed, or is conducting his/her operations on a greater portion of the project vicinity than is necessary for the proper prosecution of the work, the Engineer may require the Contractor to finish the section on which work is in progress before work is started on any additional sections.
- B. Whenever work which is being done by other contractors or subcontractors is contiguous to, or a part of the work included in this contract, the Engineer shall in case of dispute, determine and define the respective rights of the various interests involved, in order to secure the completion of all parts of the work in general harmony and with satisfactory results.
- C. Except when an accelerated work schedule is required, no work will be permitted on Sundays, holidays observed by the Department of Natural Resources or within the time frame of dusk until dawn (as observed by current Farmer's Almanac) unless explicit permission from the Engineer has been obtained.
  1. The Contractor should request a determination of the holidays to be observed at the beginning of each calendar year.

### **1108.04 METHODS AND EQUIPMENT**

- A. The methods, equipment, and appliances used shall produce a satisfactory quality of work and shall be adequate to maintain the schedule of progress specified. Equipment used on any portion of the project shall be such and its use so regulated that no serious or irreparable damage to the adjacent property, or highways will result from its use. If damage does occur to the highways suitable repairs shall be made.
- B. When the methods and equipment to be used by the Contractor in accomplishing the construction are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the contract work in conformity with the requirements of the contract, as demonstrated to the satisfaction of the Engineer.
- C. When the contract specifies that the construction be performed by use of certain methods and equipment, such methods and equipment shall be used, unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than specified in the contract, he/she may request approval from the Engineer to do so.
  1. The request shall be in writing and shall include a full description of the methods and equipment proposed to be used and an explanation of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing construction work in conformity with contract requirements.
  2. If after trial use of the substituted methods or equipment the Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue use of the substitute

method or equipment and shall complete the remaining construction with the specified method and equipment.

3. The Contractor shall remove the defective work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the construction items involved or in contract time as a result of authorizing a change in methods or equipment under these provisions.

#### **1108.05 CHARACTER OF WORKERS**

- A. Any employee of the Contractor who is careless, incompetent, or disorderly, or who refuses or neglects to perform work in accordance with the specifications, or who shall commit trespass upon any public or private property in the vicinity of the work, shall be discharged upon the written request of the Engineer and shall not be reemployed on any of the work unless written permission is given by the Engineer.

#### **1108.06 TEMPORARY SUSPENSION OF WORK**

- A. Work shall be suspended, wholly or in part when, in the opinion of the Engineer, weather or other conditions are unfavorable to its satisfactory prosecution.
  1. Work shall also be suspended at the direction of the Engineer pending settlement of disputes arising of failure of the Contractor to comply with provisions of the contract. Written notice of suspension of work shall be given by the Engineer.
  2. When the conditions causing suspension no longer exists, written notice to resume work will be given to the Contractor by the Engineer. Promptly after such written notices the Contractor shall resume prosecution of the work as provided in 1106.02.
- B. The start of work may be delayed or work may be suspended upon request of the Contractor and with approval of the Engineer. The Engineer may require the request to be in writing and also may require the Contractor to include with the request a schedule for satisfactory completion of the work.

#### **1108.07 EXTENSION OF CONTRACT PERIOD**

- A. An extension of the contract period will be granted by the Engineer for additional work requiring additional construction time and may result from a modification of the plans or extra work.
  1. If any delay is caused by active interference by the Contracting Authority, the Contracting Authority will grant such an extension of time for completion of the contract as will, in the opinion of the Engineer, compensate for such delay. An extension of the contract period will be granted by the Contracting Authority for:
    - a. Additional work resulting from a modification of the plans for the project, or
    - b. Other reasons beyond the control of the Contractor which, in the Contracting Authority's judgment would justify such extension.
- A. All claims for extension of the contract period shall be made in writing to the Engineer no more than thirty days after the occurrence of the delays otherwise they shall be waived. In the case of continuing cause of delays only one claim is necessary.

#### **1108.08 LIQUIDATED DAMAGES**

- A. Time is an essential element of the contract and it is important that the work be pressed vigorously to completion.
- B. For each calendar day that any work shall remain uncompleted after the end of the contract period, number of working days allowed, or any extension granted under 1108.07, the amount per calendar day specified in the proposal form will be assessed, not as a penalty, but as predetermined and agreed liquidated damages.

1. The Contracting Authority will prepare and forward to the Contractor an invoice for such liquidated damages.
  2. The final payment will be withheld until payment shall have been made on this invoice.
- C. Assessment of liquidated damages will be based only on the number of working days required to complete the work in excess of the specified working days allowed, plus authorized extensions thereto.
- D. This provision for the assessment of liquidated damages for failure to complete work within the contract period does not constitute a waiver of the Contracting Authority's right to collect any additional damages other than time delays which the Contracting Authority may sustain by failure of the Contractor to carry out the terms of the contract.

#### **1108.09 FAILURE TO COMPLETE WORK WITHIN CONTRACT PERIOD**

- A. If the Contractor fails to complete his work within the contract periods or any extension thereof, as provided in 1108.07, upon written notice to the Contractor and surety, said contract shall be in default. The Contracting Authority may, at its option, permit the Contractor or the Contractor's surety to complete the work included in the contracts or may proceed to complete the work in accordance with 1106.11. In either event, the Contractor or the Contractor's surety shall be responsible for all costs incident to the completion of the work, and also for the liquidated damages stipulated in the proposal form. The Contracting Authority may waive such portion of the liquidated damages as may accrue after the work is in condition for safe and convenient use by the public.

#### **1108.10 CONTRACTS IN DEFAULT**

- A. The Contracting Authority may declare a contract in default for any one of the following reasons:
1. Failure to complete the work within the contract period or any extension thereof,
  2. Failure or refusal to comply with an order of the Engineer within a reasonable time,
  3. Failure or refusal to remove rejected materials,
  4. Failure or refusal to correct any defective or unacceptable work,
  5. Bankruptcy or insolvency, or the making of an assignment for the benefit of creditors,
  6. Failure to carry on the work in an acceptable manner.

#### **1108.11 COMPLETION OF CONTRACTS IN DEFAULT**

- A. If for any reason a contract is declared in default, the Contracting Authority shall have the right, without process or action at law, to take over all or any portion of the work and complete it, at its option, either by day labor or by reletting the work.
1. Written notice shall be given the Contractor by the Contracting Authority that the contract has been declared in default, and upon receiving such notices the Contractor shall peaceably relinquish possession of the said work or the parts thereof specified in the notice.
- B. The Contracting Authority may, at its option and, at a rental which it considers reasonable, retain all material, equipment, and tools on the work until the work has been completed.
- C. Neither the Contracting Authority nor any member or employee thereof shall be in any way liable or accountable to the Contractor or the Contractor's surety for the method by which the completion of said work, or any portion thereof, may be accomplished, or for the price paid therefor.
1. Should the cost of completing work be in excess of the original contract prices the Contractor and the Contractor's surety shall be held responsible for such excess cost.

2. Should the cost of such completion, including all proper charges, be less than the original contract price, the amount so saved shall be paid to the Contractor.
3. Neither by taking over the work nor by declaring the contract in default shall the Contracting Authority forfeit the right to recover damages from the Contractor or the Contractor's surety for failure to complete the entire contract.

#### **1108.12 REMOVAL OF EQUIPMENT**

- A. In the case of cancellation of this contract before completion from any cause whatsoever, the Contractor, if notified to do so by the Contracting Authority, shall promptly remove any part or all of his equipment and supplies from the property of the Contracting Authority. In the event of failure of the Contractor to remove such equipment and supplies within thirty days after the issuance of the notification for removal, the Contracting Authority shall have the right to remove such equipment and supplies at the expense of the Contractor.

#### **1108.13 ORDER OF COMPLETION AND USE OF COMPLETED PORTIONS OF THE WORK**

- A. The Contractor shall complete any portion or portions of the work in such order of time as the Engineer may require. The Contracting Authority shall have the right to take possession of, and use any completed or partially completed portion of the work at anytime, but such taking possession and use shall not be deemed as acceptance of the work so taken or used or any part thereof. If such prior use increases the cost or delays the work, the Contractor shall be entitled to such extra compensation or extension of time, or both, as determined by the Engineer.

#### **1108.14 METHOD OF SERVING NOTICES**

- A. Any notice to be given by the Contracting Authority to the Contractor under this contract shall be deemed to be served if delivered to any office used by the Contractor, or foreman, or agent, at or near the work, or deposited in the post office, postpaid, addressed to the Contractor at the last known place of business.

#### **1108.15 TERMINATION OF CONTRACTOR'S RESPONSIBILITY**

- A. The contract shall be considered completed when the work has been accepted in writing by the Contracting Authority.
  1. Such acceptance shall release the Contractor from all further obligation with respect thereto, except as to conditions and requirements set forth in the performance bond, and if, within one year after the final acceptance or a longer period of time, as may be prescribed by law or by the terms of any applicable guarantee required by the contract documents, any of the work is found to be defective or not in accordance with the contract documents, the Contractor shall correct it promptly after receipt of a written notice from the Contracting Authority to do so unless the Contracting Authority has previously given the Contractor a written acceptance of such conditions specifically stating the condition that is accepted.
  2. The Contracting Authority shall give such notice promptly after discovery of the condition. All such defective or non conforming work shall be removed from the site if necessary, and the work shall be corrected to comply with the contract documents without cost to the Contracting Authority.
- B. The Contractor shall bear the cost of making good, all work destroyed or damaged by such removal or correction of separate contractors.

### **PART 1109. MEASUREMENT AND PAYMENT**

#### **1109.01 MEASUREMENT OF QUANTITIES**

- A. The work completed under the contract shall be measured according to United States standard measures. Payment will be based on the actual quantity of work performed under the various work classifications in



the contract, unless otherwise provided below, or by the method of measurement for the various classes of work.

- B. By written agreement between the Contractor and the Engineer, final settlement may be made on the basis of contract quantities without final field measurements. Such an agreement may be made before work is started or after work has been completed, if no material deviation from the original plans is involved.
  - 1. Except for those items for which quantities cannot be accurately predetermined, the contract quantities have been accurately and properly estimated, but adjustments will be made for obvious errors or authorized changes.
  - 2. The Engineer shall exercise such controls and make such measurements, as are necessary, to assure that each item of work is done in substantial compliance with the contract documents. The use of this agreement for payment shall not be considered as a change in the contract.

#### **1109.02 SCOPE OF PAYMENT**

- A. The Contractor shall accept the compensation herein provided as full payment for furnishing all materials labor, tools, and equipment for performing all work under the contract or any extension thereof allowed under 1108.07, also, for all costs arising from the action of the elements or other natural causes, agreements, and performance, nonperformance, or delays involving other contractors and third parties, or injunctions or lawsuits resulting therefrom, or from any unforeseen difficulties not otherwise provided for in the specifications and which may be encountered during prosecution of the work and up to the time of acceptance thereof, except damage to the work due to acts of war. Nothing herein shall in itself be construed to prejudice or deny any claim filed under provisions 1109.12.
- B. The contract price for any item shall be full compensation for acceptable work and for materials, equipment, tools, and labor for performance of all work necessary to complete the item in accordance with the plans and specifications, except as specifically exempt in the clauses covering the basis of payment for the item.

#### **1109.03 ADJUSTMENT IN CONTRACT PRICE**

- A. When the measured quantity of any item varies by more than 20% from the estimated quantity specified in the contracts an adjustment in price may be made for such item of work, and the adjustment will be made on the full variance from the contract quantity. Such adjustment may be requested by either party to the Contract.
  - 1. If the contract sum for an item is less than five thousand (\$5,000.00) dollars, the price of that item will not be subject to adjustment.
- B. If the increase or decrease in quantity is due to an alteration in plans, any price adjustment shall be requested and agreed upon before the work is done. If the increase or decrease in quantity is not the result of an alteration in plans, but results from errors in original estimates, or unforeseen conditions, price adjustments may be requested after the work is completed.
- C. In making price adjustments, consideration shall be given to the portion of the cost of the work that can be classified as fixed costs, independent of the exact quantity of work performed, such as transportation and installation costs on equipment, overhead costs, etc. Any price adjustment shall be arrived at from the standpoint that neither party to the contract shall be penalized by the increase or decrease in quantities which occasioned the price adjustment.
- D. If changes or alterations, as outlined in 1105.04, result in a substantial increase or decrease in cost or difficulty of the work, appropriate modifications will be made in the contract by extra work order, regardless of the quantity.
- E. All price adjustments shall be agreed to by the Engineer and the Contractor and shall be subject to the approval of the Contracting Authority.

#### **1109.04 PAYMENT FOR WORK PERFORMED**

- A. All contract price adjustments approved by the Engineer shall be subject to the concurrence of the Contracting Authority.
- B. The Contractor will receive and accept payment for work performed under his contract as follows:
1. Items or Work Performed Which Are Covered by Definite Prices Stipulated in the Contract: For all items of acceptable work performed which are covered by definite unit prices or lump-sum amounts specified in the contract, the Contractor shall receive and accept compensation at the rate specified in the contract, except as provided in 1109.03 and for items identified as that of "significant change" as provided in 1109.17.
  2. Extra Work: Extra work ordered by the Engineer, of a quality or class not covered by the contract, will be paid for, either at an agreed price or on a force-account basis.
  3. Agreed-Price Basis: For extra work ordered by the Engineer and performed on an agreed-price basis, the Engineer and the Contractor shall enter into a written agreement before such work is undertaken. This written agreement shall describe the extra work that is to be done and shall specify the agreed price or prices.
  4. Force-Account Basis: Extra work performed on a force-account basis will be paid for in the following manner:
    - a. For laborers, timekeepers, foremen, and superintendents, the Contractor shall receive the rate of wage shown on previous payrolls for the time they are actually engaged in the extra work, to which shall be added an amount negotiated up to 15% thereof, plus the amount of social security tax imposed by law upon the Contractor because of such force-account work, plus the cost of worker's compensation, public liability insurance, and employment security contributions. The percentage shall cover compensation for furnishing of necessary small tools for the work together with all other overhead expense items.
    - b. The wage of the superintendent, timekeeper, or foreman who is employed partly on force-account work and partly on other work shall be prorated between the two classes of work according to the number of persons shown by the payroll, as employed on each class of work.
    - c. For materials used on force-account work, the Contractor shall receive the actual cost of materials delivered on the work, including the freight and handling charges as shown by original receipted bills, to which cost shall be added an amount negotiated to 15% thereof.
    - d. For machinery, tools, or equipment, fuel and lubricants therefor, except small hand tools which may be used, the Engineer shall allow the Contractor a reasonable rental rate to be agreed upon in writing before such work is begun. No profit percentage shall be added to the rate.
    - e. Compensation, as herein provided, shall be accepted by the Contractor as payment in full for extra work done on a force-account basis. It will be assumed that such payment includes the use of tools and equipment for which no rate is allowed, overheads and profit.
    - f. At the end of each day, the Contractor shall prepare payrolls in duplicate for labor furnished on a force-account basis, using the Contracting Authority's standard force-account forms. Both copies shall be signed by the inspector and Contractor's representative. One copy shall be furnished to the Engineer and one to the contractor.
    - g. Claims for extra work performed on a force-account basis shall be submitted to the Engineer in triplicate. To the claims shall be attached such receipt or statements as the Engineer may require in support of such claims. Such claims shall be filed not later than the tenth day of the month following that in which the work was actually performed, and shall include all labor charges, rental charges on machinery, tools, and equipment, and all material charges insofar as they are available.
  5. Deficient Work: Payment for work judged by the Engineer to be deficient work shall be made at the reduced rate specified in the contract documents or, if no such rate is specified, at a modification of the contract prices as determined by the Engineer.

#### **1109.05 CANCELLED WORK**

- A. The Contracting Authority shall have the right to cancel any or all items from the contract when unforeseen circumstances, failure to secure permits, approvals, loss of funding, unanticipated design changes, or other reasons beyond the control of the Contractor prevent or unreasonably delay completion of the contract, or of certain items of the contract, or when the Contracting Authority determines that cancellation is in the public or national interest.
- B. The Contractor may be prevented from starting work on a contract, or an identified phase of a contract, as a result of a delay caused by the Contracting Authority or others.
- C. When the contract period is defined by approximate starting date and the delay prevents the Contractor's starting work on the contract or an identified phase of the contract for 30 days beyond the date which, by notice to the Engineer, the Contractor proposed to start work, the Contractor may request cancellation by written notice to the Engineers stating the reasons.
- D. In either case, within 30 days from the date of the request, the Engineer will eliminate or minimize, if possible, the cause for the delay and issue a notice to proceed, redefine the basis on which the work is to proceed, or cancel the contract or phase of the contract.
- E. The Contractor shall not use delays that occur prior to starting work or an identified phase of the work as a basis of a claim against the Contracting Authority except for an extension of contract period.
- F. Notices described in this article should be transmitted by certified mail.
- G. For finished portions of items canceled, the Contractor will be paid at the contract unit prices, in accordance with the provisions of 1109.04. For finished portions of major items canceled, the Contractor will be paid as provided in 1109.17. For all items, materials ordered and delivered for the unfinished portion of such canceled, or omitted items, the Contracting Authority will pay cost plus 10 percent as an overhead charge. The Contractor's expense for work of handling or transporting such material shall be included in computing the cost.
- H. The Contracting Authority will also pay any actual expenses sustained by the Contractor by reason of such cancellation or omission and not represented by work completed or material delivered. In computation of material cost or expenses sustained, no anticipated profit will be included.
  - 1. Material paid for shall become the property of the Contracting Authority and shall be disposed of as directed by the Engineer.

#### **1109.06 PARTIAL PAYMENTS**

- A. If the work extends over a period of more than one month, the Engineer may, upon request from the Contractor, prepare monthly estimates based on the amount of work completed in an acceptable manner.
  - 1. On contracts for which the contract sum is \$10,000.00 or more, monthly estimates may be allowed, based on 90% of invoiced value of processed or fabricated materials which have been delivered on the project site, provided the materials are of acceptable quality and the manner of storage is satisfactory to the Engineer.
  - 2. The Engineer's monthly estimates shall be partial payments on the contract, and the allowance of a monthly estimate by the Contracting Authority does not constitute final acceptance of the work upon which the estimates are based. Each estimate shall be filed by the Contractor in the form of a claim against the Contracting Authority and certified to by the Engineer on a payment request form supplied by the Contracting Authority.
- B. Five percent (5%) of each progress estimate shall be deducted and held as a suspended payment. Payments may be made on the remainder of the progress estimate, except under circumstances which would prejudice the rights of those who have filed claims pursuant to Chapter 573, Code of Iowa.

1. The retained percentage will not be due and payable for a period of at least 30 days after the date of final acceptance of the entire contract or following the release or adjudication of claims that may have been filed, or until the Contractor has filed the sworn final estimate and sales and use tax statement with the Contracting Authority.
  2. Should a reasonable doubt arise as to the integrity of any part of the completed work, the estimate for that portion shall not be allowed until the cause for such doubt has been removed.
  3. The progress estimates and payments are approximate only, and shall be subject to correction in the final estimate and payment.
- C. Failure to make partial payment within 30 days after receipt and approval of the monthly estimate by the Engineer, will cause interest to accrue and additional payment therefor to be made in accordance with provisions of Chapter 573, Code of Iowa, subject to limitations included therein.

#### **1109.07 SUPPLEMENTAL CONTRACT FOR WORK INTERRUPTED**

- A. After ninety-five (95%) of the work has been performed to the satisfaction of the Contracting Authority, including consideration of the contract period, and it is apparent that conditions beyond the control of the Contractor will delay the completion of the contract for more than 60 days, the Contractor may request a supplemental contract for the uncompleted portion of work on the same terms as those of the original contract.
1. If the Contracting Authority agrees, and the surety for the Contractors consents to the extension of the bond for the time required to complete the supplemental contract, the supplemental contract will be issued. After the contract has been entered into, full payment will be made for the work completed, except under circumstances which would prejudice the rights of those who have filed claims pursuant to Chapter 573, Code of Iowa.
- B. The unpaid money, held by the Contracting Authority as a retainer of the original contract price, will be due and payable to the Contractor 30 days after the date of the Contracting Authority's approval of the supplemental contract, except as provided for the release and adjudication of claims in 1109.06.

#### **1109.08 CERTIFIED STATEMENT OF SALES TAX AND USE TAX PAID**

- A. Unless the Contracting Authority has issue an authorization letter and a Sales Tax Exemption Certificate for this project, before final payment can be made on a contract, the Contractor and subcontractors shall file a certified statement on forms provided by the Contracting Authority, showing the amount of Iowa sales tax and use tax paid by them on all materials which have become a component part of the finished, completed contract and on such supplies for this construction as were actually consumed on this work.
- B. These statements shall be submitted in duplicate to the Contracting Authority at the completion of the contract.

#### **1109.09 ASSIGNMENT OF MONIES**

- A. The Contractor shall not assign, by power of attorney or otherwise, any of the monies to become due and payable under this agreement unless the Contractor has received written consent of the Contracting Authority.

#### **1109.10 SUBMITTALS REQUIRED BEFORE FINAL PAYMENT**

- A. Before final payment can be made on this contract, the Contractor shall submit to the Engineer the following:
1. A request for prefinal and final payment.
  2. One copy of any guarantees for products incorporated into the work.
  3. Two copies of the operating instructions on each piece of equipment incorporated into the work.

4. Statements of Sales Tax from the Contractor and subcontractors, unless in receipt of an authorization letter and a Sales tax Exemption Certificate issued by the Contracting Authority for this project.

#### **1109.11 FINAL ACCEPTANCE AND PAYMENT**

- A. Final acceptance is stipulated to mean a written acceptance by the Contracting Authority. The Contracting Authority shall make final acceptance promptly upon the satisfactory completion of the work. Final payment shall be made as soon as possible following the expiration of statutory time for filing claims, or following adjudication or release of claims against the amount withheld.
- B. Failure to make final payment within 70 days after completion of the work, and if all requirements of the contract are completed, will cause interest to accrue and additional payment therefor to be made in accordance with provisions of Chapter 573, Code of Iowa, subject to limitations included therein, however, this provision shall not apply when final payment includes a supplemental contract for work interrupted, as provided for in 1109.07.
- C. Completion of the work will be considered as the date of approval and work acceptance by the Contracting Authority. When interest is to be paid, the date from which interest is to be calculated will be the thirty-first day after all required materials, certifications, and other documentation required to be submitted by the Contractor are received by the Engineer, however, the Contractor will be paid no interest if final payment is made within 70 days from the date of approval and work acceptance. The signed final payment request is not required documentation, but if not returned to the Engineer within 30 days, it will be considered required documentation.
- D. Signing of the final payment request or acceptance of payment based thereon, shall not waive any rights of either party in the resolution of any claim filed in accordance with 1109.12.
- E. The Contracting Authority shall satisfy itself as to the faithful completion of each part of the work, and may reject any portion found to be inconsistent with the terms of the contract.

#### **1109.12 DISPUTED CLAIMS FOR EXTRA COMPENSATION**

- A. In any case where the Contractor deems that extra compensation is due for work or material not clearly covered in the contract and not ordered by the Engineer as extra work as defined herein, the Contractor shall notify the Engineer in writing of the intention to make a claim for extra compensation before beginning the work on which the claim is based.
- B. The Contracting Authority shall be responsible for damages attributable to the performance, nonperformance, or delay of any other contractor, governmental agency, utility, firm, corporation, or individual authorized to do work on the project, only when such damage is a result from negligence on the part of the Contracting Authority, Engineer, or any of its officers or employees.
  1. In any case where the Contractor deems that extra compensation is due from the Contracting Authority as damages resulting from such performances, nonperformances, or delays, the Contractor shall notify the Engineer in writing at the time the delay occurs.
- C. In either cases if such notification is not given, or if after such notification is given, the Engineer is not afforded facilities for keeping strict account of actual cost, as defined for force-account construction, the Contractor thereby agrees to waive the claim for extra compensation for such work. Such notice by the Contractors and the fact that the Engineer has kept account of the cost as aforesaid, shall not be construed as establishing the validity of the claim.
  1. The claims when filed, shall be in writing and in sufficient detail to permit auditing and evaluation by the Contracting Authority. Claims shall be supported by such documentary evidence as the claimant has available and shall be verified by affidavit of the claimant or other persons having knowledge of the facts.
  2. In the event the claimant wishes an opportunity to present the claim in person, then the claim shall be accompanied by a written request to do so.

3. Where the claimant asks an opportunity to present the claim in person, the Contracting Authority, within a reasonable period of time after the filing of the claim, shall fix a time and place for a meeting between the claimant and the Contracting Authority or its designated representatives.
  - a. The Contracting Authority shall, within a reasonable time from filing of the claim or the meeting above referred to, whichever is later, rule upon the validity of the claim and notify the claimant in writing, of its ruling together with the reasons therefor. In case the claim is found to be just, in whole or in part, it shall be allowed and paid to the extent so found.
- E. The Contractor shall not institute any court action against the Contracting Authority for the adjudication of any claims until such claim has first been presented to Contracting Authority pursuant to this articles and submitted to arbitration or a request for arbitration is denied pursuant to 1109.13.

### **1109.13 ARBITRATION**

- A. If a Contractor's claim, as outlined in 1109.12, has been disallowed, in whole or in part, then the Contractor may, within 30 days from the date the ruling of the Engineer is mailed to the Contractor, make a written request to the Engineer that the claim or claims be submitted to a board of arbitration.
  1. The Engineer shall decide whether the matter is one which is subject to arbitration and shall, within 30 days of the receipt of the request for arbitration, grant or deny the request.
  2. The Engineer's decisions shall be final.
- B. Said board of arbitration shall consist of three persons, one to be chosen by the Engineer, one by the Contractor, and the third by the two arbitrators.
- C. The arbitrators selected shall be persons experienced and familiar with construction or engineering practices in the general type of work involved in the contract, but shall not have been a regular employee or an individual retained by either party at the time involved in the controversy, or at the time of arbitration.
- D. The board of arbitration shall make its own rules of procedure and shall have authority to examine records kept by the Engineer and the Contractor.
  1. If the desired records are not produced within 10 days after they are requested, the board of arbitration shall proceed without them as best it may.
  2. In determining the findings, or awards, or both, the majority vote of the board shall govern. Copies of the findings or awards or both, signed by the arbitrators shall be filed with the Engineer and the Contractor.
  3. A majority report or minority report may be filed. The board of arbitration shall fix the cost of the proceedings, including a reasonable compensation to the arbitrators, and shall determine how the total cost shall be borne.
- E. The board of arbitration shall have jurisdiction to pass upon questions involving compensation to the Contractor for work actually performed or materials furnished and upon claims for extra compensation which have not been allowed by the Engineer. Jurisdiction of the board shall not extend to:
  1. A determination of quality of workmanship, or materials furnished, or to an interpretation of the intent of the plans and specifications, except as to matters of compensation.
  2. Setting aside or modifying the terms or requirements of the contract.
- F. The findings or awards or both, of the arbitration board, if acceptable to both parties to the contract, may become a basis for final payment.
- G. If the findings of the arbitration board are unacceptable to either party to the contract, said findings may become the basis for further negotiations between the parties. If a solution agreeable to both parties has not been reached through the filing of a claims through arbitration, or if arbitration has been denied, either party may resort to whatever other methods for resolving the claim are available.

#### **1109.14 CLAIMS AGAINST CONTRACTOR**

- A. The Contractor guarantees the payment of all just claims against him/her or any subcontractor, in connection with the work. If another contractor on the project submits a claim for alleged damages caused by delay due to the Contractor not having completed its work in a timely manner, the Contractor's bond shall remain in effect until payment of such claim is made, or until litigation is started, at which time the bond will be released.

#### **1109.15 TIME LIMITS FOR FINAL ADJUSTMENT**

- A. The Contractor shall understand that the Contracting Authority will not be bound to consider applications for correction of estimates and payments after the Contractor has signed the final estimate, or after 30 days from the date when the final estimate is submitted to the Contractor for approval. Should an error be discovered as a result of the Contractor's annual audit, an application for corrections promptly made will be considered.

#### **1109.16 NATIONAL EMERGENCY PROVISIONS**

- A. The Contracting Authority may, with written notice, terminate the contract, or a portion thereof, when the Contractor is prevented from proceeding with the construction contract as a direct result of an executive order of the President with respect to the prosecution of war, or in the interest of national defenses as provided in Chapter 573A of the Code of Iowa.
- B. When contracts, or any portion thereof, are terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract unit prices or as mutually agreed for items of work partially completed or not started. No claim for loss of anticipated profits shall be considered.
  - 1. Reimbursement for organization of work (when not included in the contract) and moving equipment to and from the job will be considered where the volume of work completed is too small to compensate the contractor for these expenses under the contract unit prices, the intent being that an equitable settlement will be made with the Contractor.
- C. Acceptable materials, obtained by the Contractor for the work, which have been inspected, tested, and accepted by the Engineer, and which are not incorporated into the work, shall be purchased from the Contractor at actual cost, as shown by receipted bills and actual cost records, at such points of delivery as may be designated by the Engineer.
- D. Termination of a contract, or a portion thereof, shall not relieve the Contractor of its responsibilities for the completed work, nor shall it relieve the Contractor's surety of its obligation for and concerning any just claims arising out of the work performed.

#### **1109.17 STANDARD CONTRACT CLAUSES**

- A. Differing site conditions.
  - 1. During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party, in writing, of the specific differing conditions before they are disturbed and before the affected work is performed.
  - 2. Upon written notification, the Engineer will investigate the conditions, and if he/she determines that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding loss of anticipated profits, will be made and the contract modified in writing accordingly.
    - a. The Engineer will notify the Contractor of his/her determination whether or not an adjustment of the contract is warranted.

3. No contract adjustment which results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.
  4. No contract adjustment will be allowed under this clause for any effects caused on unchanged work.
- B. Suspension of work ordered by the Engineer.
1. If the performance of all or any portion of the work is suspended or delayed by the Engineer, in writing, for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the Contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the Contractor shall submit to the Engineer, in writing, a request for adjustment within seven (7) calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.
  2. Upon receipt, the Engineer will evaluate the Contractor's request. If the Engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or Subcontractors at any approved tier, and not caused by weather, the Engineer will make an adjustment, excluding profit, and modify the contract in writing accordingly.
    - a. The Engineer will notify the Contractor of his/her determination, whether or not an adjustment of the contract is warranted.
  3. No contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.
  4. No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any other term or condition of this contract.
- C. Significant changes in the character of work.
1. The Engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work, as are necessary to satisfactorily complete the project.
    - a. Such changes in quantities and alternations shall not invalidate the contract nor release the Surety, and the Contractor agrees to perform the work as altered.
  2. If the alterations or changes in quantities significantly change the character of the work under the contract, whether or not changed by any anticipated profits, adjustments will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If such a basis cannot be agreed upon, an adjustment will be made either for or against the Contractor in such amount as the engineer may determine to be fair and equitable.
  3. If the alterations or changes in quantities do not significantly change the character of the work to be performed under the contracts the altered work will be paid for as provided elsewhere in the contract.
  4. The term "significant change" shall be construed to apply only to the following circumstances:
    - a. When the character of the work as altered, differs materially in kind or nature from that involved or included in the original proposed construction or;
    - b. When a major item of work, as defined elsewhere in the contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity, any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work.



## 1109.18 INTEREST PAYMENTS

### A. Interest on monthly payment estimates.

1. Interests shall be paid to the Contractor on any progress payment approved by the Chief Engineer under paragraph A of paragraph 1109.06 of these General Covenants and Provisions, which remains unpaid after thirty (30) days of the receipt by the Contracting Authority.
  - a. Receipt by the Contracting Authority shall be defined as the date the Contracting Authority's central office mail staff receives the progress payment request and stamp it. All progress payment requests which are delivered directly to the central office by the Contractor or the Inspector of the Contracting Authority shall have a date of receipt entered by the mail room staff.
  - b. Interest shall accrue on the 31st day after receipt by the Contracting Authority, if approved by the Chief Engineer, and shall end on the date the warrant is issued by the Iowa Department of Revenue. The rate of interest shall be the same as the rate of interest in effect under 453.6 of the Iowa Code, as the date interest begin to accrue.

### B. Interest on retainage.

1. Interest shall be paid on any retained funds held under paragraph B of section 1109.06 of these General Covenants and Provisions. Interest shall be paid as outlined in Iowa Administrative Code section 561, Chapter 8.7.

END OF SECTION 00700

## SECTION 00710

(Revised 9/8/95)

### SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES

Notice of Requirements for Affirmative Action to ensure Equal Employment Opportunity (Executive Order 11246 as amended) and Iowa Executive Orders 15 and 34. This includes employment goals for minorities and women in construction.

#### 60-1.4 EQUAL OPPORTUNITY CLAUSE.

- A. Federally assisted construction contracts.
  - 1. Except as otherwise provided, each administering agency shall require the inclusion of the following language as a condition of any grant, contract, loan, insurance, or guarantee involving federally assisted construction which is not exempt from the requirements of the equal opportunity clause.
- B. The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loans insurance, or guarantee, the following equal opportunity clause:
- C. During the performance of this contracts the Contractor agrees as follows:
  - 1. The Contractor will not discriminate against any employee, or applicant for employment because of race, colors, religion, sex, national origin, or disability.
    - a. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following; Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.
    - b. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
  - 2. The Contractor will in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, national origin, or disability.
  - 3. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
  - 4. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
  - 5. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor or as otherwise provided by law.
7. The Contractor will include the portion of the sentence immediately preceding paragraph 1. and the provisions of paragraphs 1. through 7. in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor.
  - a. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance.
  - b. Provided, however, that in the event a Contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

## I. DEFINITIONS.

### A. Definitions as used in these specifications:

1. **Covered Area** means the entire State of Iowa, however, those areas of a Hometown Plan approved by the U.S. Department of Labor will be considered separately.
2. **Director** means Director, Office of Federal Contract Compliance Program, United States Department of Labor or any person to whom the Director delegates authority.
3. **Employer Identification Number** means the Federal Social Security Number used on the Employer's Quarterly Federal Tax Returns U.S. Treasury Department Form 941.
4. **Designated Geographical Areas**
  - a. **Standard Metropolitan Statistical Area (SMSA)**. These areas represent a reasoned judgement as to how metropolitan areas are defined statistically in a uniform manner, using data items that are:
    - (1) widely recognized as indicative of metropolitan character, (population, urban character, nonagricultural employment, population, density, and commuting ties), and
    - (2) available from a body of Federal statistics which has been uniformly and simultaneously collected in all parts of the country, and processed and tabulated according to consistent standards. Thus, if a project is located within an SMSA, it can be concluded that a reasonable commuting area exists within the SMSA, and that goals based on SMSA statistics are accurate.
  - b. **Economic Area (EA)**. These areas are viewed as centers of commerce, and they generally cover areas which include the places of work and residence for most workers. There are 183 such areas, defined along county lines, covering the entire country. Counties were assigned to these economic areas in accordance with commuting patterns based primarily on data gathered by the Bureau of the Census.
5. **Minority** includes:

- a. **Black** (all persons having origins in any of the Black African racial groups not of Hispanic origin);
- b. **Hispanic** (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish Culture or origin, regardless of race),
- c. **Asian and Pacific Islander** (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands), and
- d. **American Indian or Alaskan Native** (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(Note: Minority women from the above referenced groups shall be counted as satisfying both the minority and female employment goals in each geographic area.)

## II. GENERAL.

- A. Equal Employment Opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity as required by Executive Order 11246 and Executive Order 11375. The requirements set forth in this specification shall constitute the specific affirmative action requirements for project activities under this contract and supplement the equal employment opportunity requirements set forth in the Required Contract Provisions.

## III. EQUAL OPPORTUNITY POLICY.

- A. The Contractor will accept as his/her operating policy the following statement which is designed to farther the provision of equal employment opportunity to all persons without regard to their age, race, color, religion, sex, national origin, or disability, and to promote the full realization of equal employment opportunity through a positive, continuing program.

*"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their age, race, religion, sex, color, national origin, or disability. Such action shall include: employment, upgrading, demotion, and transfer, recruitment and recruitment advertising, layoff, and termination, rates of pay and other forms of compensation, and selection of training, including apprenticeship, preapprenticeship, and/or on-the-job training."*

## IV. GOALS.

- A. Specific goals for female and minority participation have been established.
- B. The goals for female participation, expressed in percentage terms for the total hours worked by the Contractor's aggregate workforce in each trade on all construction work, is 6.9 percent, with no timetable. This goal applies nationwide.
  - 1. Goals for minority participation in Iowa, expressed in percentage terms for the total hours worked by the Contractor's aggregate workforce in each trade on all construction work, are shown on the map of Iowa that follows. The goals shown apply to each designated geographical area, as shown on the map.
- C. These goals are applicable to all the Contractor's construction work (whether or not it is non-Federal or Federally assisted) performed in the designated area. For each contract and/or subcontract in excess of \$10,000, the goals for minority participation will apply for all work to be performed in geographical areas designated by the Director pursuant to 41 CFR 60-4.6, and the goal for female participation will apply nationwide.
  - 1. The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on his/her implementation of the Equal Opportunity Clause, specific affirmative action obligations

required by the specifications set forth in 41 CFR 60-4.3(a), and his/her efforts to meet the goals established for minority participation for the geographical area where the work is to be performed, or nationwide goal for female participation.

2. The hours of minority and female employment and training must be substantially uniform throughout the time period for the work of the contracts and within each trade, and the Contractor shall make a good-faith effort to employ minorities and women evenly on each of his/her projects.
3. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Orders and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

D. The Contractor shall provide written notification to the Department of Natural Resources (on behalf of the Director of the Office of Federal Contract Compliance Programs) within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under this contract.

1. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number, estimated dollar amount of the subcontract, estimated starting and completion dates of the subcontracts and the geographical area in which the contract work is to be performed.

#### E. Application of Minority Participation Goals

1. **Minority Participation.** A single minority participation goal is established for each SMSA and EA. Timetables for the achievement of minority goals are not provided. A separate goal is established for each SMSA and for each EA. When a contract or subcontract to which this specification applies is for work located within a SMSA, the goal for that SMSA applies. When a contract or subcontract to which this specification applies is for work located outside an SMSA, the goal for that EA applies.

- a. The applicable goal for the Contractor or subcontractors is the goal for each geographical area where the work is being performed, and all the work of the Federal or Federally assisted construction contractor or subcontractor is covered, whether the work is being performed for a contract to which the specification applies or not. Therefore, a contractor with work in SMSA "X" would apply the goal for SMSA "X" for that work. The same contractors however, would apply the SMSA "Y" goal to all his/her work in SMSA "Y", even though the Contractor's work in SMSA "Y" is neither Federal nor Federally assisted.

2. **Participation of Minority Women.** The Contractor and required subcontractors will be permitted to count minority women belonging to one of the recognized minority groups listed in Article I of this specification as satisfying both the minority goal for each designated geographic area and the overall female goals. Conversely, nonminority women will only count toward satisfying the overall female goal.

#### V. STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246).

- A. Whenever the Contractors or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, he/she shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation set forth herein.
- B. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, his/her affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan.

1. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontractor participating in an approved Plan is individually required to comply with his/her obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which he/she has employees.
  2. The overall good faith performance by other Contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to make good faith efforts to achieve the Plan goals and timetables.
- C. The Contractor shall implement the specific affirmative action standards provided in paragraphs 6a through p. Article V, of these specifications. The goals set forth in the specifications are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which he/she has employees in the covered area. The Contractor is expected to make substantially uniform progress toward his/her goals in each craft during the period specified.
- D. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
- E. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training program, approved by U.S. Department of Labor.
- F. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluations of the Contractor's compliance with these specifications shall be based upon his/her effort to achieve maximum results from his/her actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
1. Endure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project.
    - a. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of, and carry out, the Contractor's obligations to maintain such a working environments with specific attention to minority or female individuals working at such sites or such facilities.
  2. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
  3. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization, and of what action was taken with respect to each such individual.
    - a. If such individual was sent to the union hiring hall for referral and not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
  4. Provide immediate written notification to the Director, when the union or unions with which the Contractor has a collective bargaining agreement, have not referred to the Contractor a minority person or women sent

by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet his/her obligations.

5. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. Training programs may be specifically required elsewhere in the contract documents. The Contractor's responsibility for training opportunities is not necessarily limited to training programs that are specifically required. The Contractor shall provide notice of these programs to the sources compiled under 6b above.
6. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting his/her EEO obligations, by including it in any policy manual and collective bargaining agreement, by publicizing it in the company newspaper, annual report, etc., by specific review of the policy with all management personnel and with all minority and female employees, at least once a year, and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
7. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions, including specific review of these items with on-site supervisory personnel, such as superintendents, general foremen, etc. , prior to the initiation of construction work at any job site. A written record shall be made and maintained, identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
8. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to, and discussion on the Contractor's EEO policy, with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.
9. Direct the Contractor's recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment sources the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
10. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after schools summer, and vacation employment to minority and female youths both on the site and in other areas of the Contractor's workforce.
11. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
12. Conduct, at least annually, an inventory and evaluation, of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
13. Ensure that seniority practices, job classifications, work assignments, and other personnel practices, do not have a discriminatory effect, by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
14. Ensure that all facilities and company activities are nonsegregated, except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

15. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractor and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
  16. Conduct a reviews at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
- G.** Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (6a through p).
1. The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of the obligations under 6a through p of these specifications, provided the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet his/her individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor.
  2. The obligation to comply, however, is the Contractor's, and failure of such group to fulfill an obligation shall not be a defense for the Contractor's noncompliance
- H.** A single overall goal for women and goals for minorities in each designated area are included in Article IV of these specifications. The Contractor is required to provide equal opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved the goal for women generally, the Contractor may be in violation of the Executive Order if a specific minority group or women are underutilized.
- I.** The Contractor shall not use the goal, or affirmative action standards to discriminate against any person because of age, race, color, religion, sex, national origin, or disability.
- J.** The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts, pursuant to Executive Order 11246.
- K.** The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
- L.** The Contractors in fulfilling his/her obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph G of these specifications, so as to achieve maximum results from his/her efforts to endure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
- M.** The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records.
1. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed.



2. Records shall be maintained in an easily understandable and retrievable form, however, to the degree that existing records satisfy this requirement, Contractor shall not be required to maintain separate records.
- N. Nothing herein provided shall be construed as a limitation upon the application of other Iowa which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

## **VI. SUPPLEMENTAL REPORTING REQUIREMENTS.**

- A. The Contractor and subcontractors are required to make available upon request its Affirmative Action Program containing goals and time specifications. These contractual provisions shall be fully enforced. Any breach of the provisions shall be regarded as a material breach of contract.
- B. The Contractor will keep such records as are necessary to determine compliance with equal employment opportunity obligations. The records kept by the Contractor will be designed to indicate the number of minority and nonminority group members and women employed in each work classification on the project. All such records must be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the Department of Natural Resources and any Federal Agency funding any part of this project.



PART 0 - GENERAL

0.00 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

0.01 GENERAL:

- A. The general conditions of the contract are the General Covenants and Provisions bound within.
  - 1. These General Covenants and Provisions are herein modified or supplemented by this Supplementary Covenant and Provisions.
  - 2. Articles of the General Covenant and Provision not directly affected by this section remains in full force as written unless exceeded in requirement herein or elsewhere in the Specifications.

0.03 DEFINITION OF TERMS:

- A. Article 1101.03 "Definition of Terms" is supplemented and modified as follows:
  - 1. General Explanation: A substantial amount of specification language constitutes definitions for terms found in other Contract Documents, including Drawings which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon. Certain terms used in Contract Documents are defined generally in this article. Definitions and explanations of this section are not necessarily either complete or exclusive, but are general for the work to the extent not stated more explicitly in another provision of Contract Documents.
  - 2. Imperative Language: Used generally in Specifications. Except as otherwise indicated, requirements expressed imperatively are to be performed by Contractor. For clarity of reading at certain locations, contrasting subjective language is used to describe responsibilities which must be fulfilled indirectly by Contractor, or when so noted, by others.
  - 3. Chief Engineer: This term will apply to the Chief of the Land and Waters Bureau of the Department of Natural Resources.
  - 4. Project Engineer: The Project Engineer will be the reviewing and approving authority for all equipment, material or systems to be used in the construction as specified herein. Unless otherwise specified, no material, equipment or systems or components of systems will be used or installed on this project without written approval. The Project Engineer will be the individual, regardless of the title actually used. listed in the special notice to bidders as the contact for questions concerning design, plans and specifications.

5. DNR Construction Inspector: The Department of Natural Resources Construction Inspector will be the direct representative of the department at the project location with the authority to verify compliance with the provisions of each and all divisions of this Project Manual. Contact the DNR Construction Inspector regarding questions on site review, inspections and project coordination.
6. Procurement Supervisor: The Procurement Supervisor will answer all questions regarding Bidding and Contract Procedures.
7. General Requirements: The provisions of requirements of Division-1 sections. General requirements apply to entire work of Contract and, where so indicated, to other elements which are included in project.
8. Indicated: The term "indicated" is a cross-reference to details, notes or schedules on Drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for the purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.
9. Directed, Requested, Etc.: Where not otherwise explained, terms such as "directed," "requested," "authorized," "selected," "directed by Project Engineer," "requested by the Project Engineer," etc. However, no such implied meaning will be interpreted to extend Project Engineer's responsibility into Contractor's area of construction supervision.
10. Approve: Where used in conjunction with Project Engineer's or Project Inspector's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of the term "approved," will be held to limitations of responsibilities and duties as specified in General Covenants and Provisions and Supplementary Covenants and Provisions. In no case will "approval" be interpreted as a release of Contractor from responsibilities to fulfill requirements of contract documents.
11. Project Site: The space available to Contractor for performance of the work, either exclusively or in conjunction with others performing other work as part of the project. The extent of project site is shown on Drawings, and may or may not be identical with description of land upon which project is to be built.
12. Furnish: Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.
13. Install: Except as otherwise defined in greater detail, term "install" is used to describe operations at project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance.
14. Provide: Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.

15. Installer: The entity (person or firm) engaged by Contractor or its subcontractor or sub-subcontractor for performance of a particular unit of work at project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (Installers) be expert in portions of the work they are to accomplish.
16. Contracting Authority – The governmental body, board, commission, or officer having the authority to award a contract on behalf of the Department of Natural Resources.
17. Contract (Also Contract Document) - The written agreement between the Contracting Authority, Polk County Conservation Board, and the Contractor setting forth the obligations of the parties thereunder, including, but not limited to, the performance of the work, the furnishing of labor and materials, and the basis of payment. The contract includes the notice to bidders, proposal, contract form, and contract bonds specifications, supplemental specifications, special provisions, all items covered on the table of contents, plans, notice to proceed, and any change orders and agreements which are required to complete the construction of the work in an acceptable manner, including authorized extensions thereof, all of which constitute one instrument.

## PART 1 - INSTRUCTIONS TO BIDDERS

### 1.02 DRAWINGS AND SPECIFICATIONS:

- A. Article 1101.02 "Drawings and Specifications" is supplemented and modified as follows:
  1. The Drawings and Specifications, which are enumerated in the Index of drawings and Table of Content of this project manual, are part of this contract.

## PART 4 - SCOPE OF WORK

### 4.10 PERMITS AND ARRANGEMENTS WITH OTHER GOVERNMENTAL AGENCIES:

- A. Article 1104.10 "Permits and Arrangements with Other Governmental Agencies" is supplemented and modified as follows:
  1. Contractor shall take out and pay for any building or construction permit which may be required, secure and pay for all permits, certificates and licenses required to prosecute the work, and shall arrange for and pay for all inspections required by local authorities.
  2. Contractor is to apply and pay for NPDES Stormwater Discharge Permit for Construction Operations, as required by EPA regulations for work performed after March 10, 2003, for any land-disturbing activity which will disturb an area of one or more acres.
    - a. Permits are available from IDNR Stormwater Coordinator, Wallace State Office Building, Des Moines, Iowa 50319. (Tel. 515/281-7017)
    - b. Copies of Permit Application and Permit issued are to be furnished to DNR Construction Inspector prior to any construction operations.

PART 5 - CONTROL OF WORK

5.02 PLANS:

- A. Article 1105.02 "Plans" is supplemented or modified as follows:
  - 1. Plans for this project may be referred to as "Drawings, Project Drawings or Plans, Profiles and Cross Sections."

PART 6 - CONTROL OF MATERIALS

6.03 SAMPLES AND TESTS:

- A. Article 1106.03 "Samples and Tests" is supplemented and modified as follows:
  - 1. All testing required by the contract documents or the DNR Construction Inspector shall be considered a part of the Contract and shall be paid for by the Contractor.

PART 9 - MEASUREMENT AND PAYMENTS

9.10 SUBMITTAL REQUIRED BEFORE FINAL PAYMENT:

- A. Article 1109.10 "Submittals Required Before Final Payment" is supplemented and modified as follows:
  - 1. Submit to the Engineer or the DNR Construction Inspector all submittals required in Section 01300 before final payment can be made, unless otherwise specified.
  - 2. Other submittals may be required in other sections.

END OF SECTION 00811

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the Contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions, General Requirements, Field Engineering, Submittals, Quality Control, and Material and Equipment.

1.02 FIELD ENGINEERING

- A. Add the following to section 1.05 PROCEDURES, (A):

5. All detailed surveys and stake-outs, including those described above shall be checked by the Contractor who shall assume full responsibility for accuracy and correctness thereof.

1.03 SUBMITTALS

- A. Add the following to section 1.02 SUMMARY:
  - B. Submit required submittals to the Engineer at least 15 days prior to date upon which reviewed submittals will be needed, unless otherwise stated in the specifications.
- B. Add the following section to 1.05 SHOP DRAWINGS AND MANUFACTURER'S LITERATURE:
  - E. Modify manufacturer's standard drawings to delete information which is not applicable to the project or supplement with additional information applicable to the project.
  - F. Modify manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard information with clear annotation identifying pertinent materials, products, models, or other information.
- C. Add the following section to 1.12 RECORD DRAWINGS, (B):

Record information concurrently with construction progress.

1.04 QUALITY CONTROL

- A. Add the following to section 1.04 LABORATORY SERVICES AND TESTS REQUIRED
  - D. In-Place density tests
    - 1. One in-place density test per 1000 CY of controlled fill.

1.05 MATERIAL AND EQUIPMENT

- A. In section 1.03, "By Others" shall be considered synonymous with "N.I.C."

END OF SECTION 00812

SPECIAL PROVISIONS  
00812-2

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PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions and the Supplementary Covenants and Provisions.

1.02 SUMMARY OF WORK:

- A. Work Covered by Contract Documents:

- 1. Name of the project is "Pine Lake Dredging", Project Number 01-02-28-03. Drawings and Specifications are dated January, 2002.
- 2. Briefly and without force and effect upon contract documents, work of the contract can be summarized as follows:
  - a. This project consists of the hydraulic dredging of Upper and Lower Pine Lake, and incidental work as required by the Plans and/or the DNR Construction Inspector.

- B. Occupancy:

- 1. Owner: The DNR shall have the right to enter the building or work site and store or attach such fixtures or furniture as it may elect, or to do other work providing that such storage or work will not interfere with the completion of the Contractor's work. Such occupancy by the DNR shall in no way imply final acceptance of any portion of the Contractor's work.

1.04 MEASUREMENT AND PAYMENTS:

- A. Measurements and payments shall be in accordance with Section 01250 of these specifications.
- B. Before ordering any fabricated material or doing any work, verify all measurements at the project site. No additional compensation will be allowed because of difference between actual dimensions and the measurements indicated on the drawings. Report any difference immediately to the DNR for instructions before proceeding with the work.

1.06 COORDINATION:

- A. Project Coordination:

- 1. Take out and pay for any building permit which may be required, secure and pay for all permits, certificates and licenses required to prosecute the work, and arrange and pay for all inspections required by local authorities.

2. Visit the site, compare the Drawings and Specifications with any work in place, and verify all conditions, including other work, if any, being performed. Failure to visit the site will in no way relieve the Contractor from necessity of furnishing any materials or performing any work that may be required in accordance with Drawings and Specifications.
- B. Job Site Administration: Take complete charge of work under this contract. Coordinate the work of all trades and all phases of general, structural, plumbing, mechanical, and electrical work.

1.07 FIELD ENGINEERING:

- A. Provide such field engineering services as are required for a proper completion of the work.
1. Immediately upon entering project site for the purpose of beginning work:
    - a. Establish actual project location, set back and side yards, if any, with the DNR Construction Inspector.
    - b. Establish and maintain all lines and levels.
- B. Additional requirements for field engineering may also be described in other sections of these specifications.
- C. Verify all figures shown on Drawings before laying out work and report all discrepancies to the DNR Construction Inspector. Contractor will be held responsible for any error resulting from failure to do so.

1.09 ABBREVIATIONS AND SYMBOLS:

- A. Reference to a technical society, institution, association, or government authority is made in the Specifications in accordance with the following abbreviations:

AAMA	Architectural Aluminum Manufacturers Association
AASHO	American Association of State Highway Officials
ACI	American Concrete Institute
AIA	American Institute of Project Engineers
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ALS	American Lumber Standards
APA	American Plywood Association
ATI	Asphalt Tile Institute
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	Project Architectural Wood Work Institute
AWPA	American Wood Preservers' Association
AWS	American Welding Society

CS	Commercial Standard, U.S. Department of Commerce
FGJA	Flat Glass Jobbers Association
FS	Federal Specification
GA	Gypsum Association
IES	Illuminating Engineering Society
MIA	Marble Institute of America
MLMA	Metal Lath Manufacturers Association
MS	Military Specification
MSTD	Military Standard
NAAMM	National Association of Metal Manufacturers, The
NHLA	National Hardwood Lumber Association
NBFU	National Board of Fire Underwriters
NBS	National Bureau of Standards
NEC	National Electric Code of NBFU
NFPA	National Fire Protection Association
NLMA	National Lumber Manufacturers Association
NTMA	National Terrazzo and Mosaic Association, Inc.,
NWMA	National Woodwork Manufacturers Association
SDI	Steel Deck Institute
SSPC	Steel Structures Painting Council
SCPI	Structural Clay Products Institute
SPR	Simplified Practice Recommendations, U.S. Department of Commerce
TCA	Tile Council of America
UL	Underwriters' Laboratories, Inc.
USA	United States of America Standards Association

#### 1.13 PROJECT MEETINGS:

- A. Preconstruction Conference: Soon after award of contract and prior to the start of construction, attend a preconstruction conference with the representative of the Owner to define the requirements for contract administration and construction operation.
  - 1. Contact the DNR Construction Inspector who will determine the time, date and place of the conference.
- B. Progress Meetings: The Contractor or the Contractor's representative shall be available at the job site to meet with the DNR Construction Inspector, as frequently and as arranged during the preconstruction conference, to discuss work progress.
  - 1. Give verbal report of progress, discuss work schedule, and present all conflicts, discrepancies and other difficulties for resolution.

#### 1.16 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS:

- A. Definitions: Specific administrative and procedural minimum actions are specified in this section, as extension of provisions in other contract documents. These requirements have been included for special purposes as indicated. Nothing in this section is intended to limit types and amounts of temporary work required, and no omission from this section will be recognized as an indication by Project Engineer that such temporary activity is not required for successful completion of the work and compliance with contract documents.

GENERAL REQUIREMENTS

01000-3

- B. General: Establish and initiate use of each temporary facility at time first reasonably required for proper performance of the work. Terminate use and remove facilities at earliest reasonable time, when no longer needed or when permanent facilities have replaced the need.
- C. Temporary Utilities: The types of services required may include, but not by way of limitation, water, sewerage, surface drainage, electrical power and telephones. Where possible and reasonable, connect to existing franchised utilities for required services; comply with service companies recommendations on materials and methods, or engage service companies to install services. Locate and relocate services (as necessary) to minimize interference with construction operations.
  - 1. Sanitary Facilities:
    - a. Temporary Toilets: When such or permanent facilities do not exist, provide and maintain toilets for use by workers. Keep toilets in sanitary condition.
    - b. Temporary toilet facilities shall meet OSHA requirements.
- D. Security:
  - 1. Protection of Work and Property:
    - a. Place and maintain such barricades as may be necessary to prevent public access to the project site at no cost to the Owner.
- E. Options and Substitutions:
  - 1. Bid shall include all equipment, materials, and services as specified, noted on the Drawings or required for a complete and proper installation.

1.19 CONTRACT CLOSEOUT:

- A. Final Cleaning:
  - 1. Remove waste material and rubbish caused by the Work and leave all work clean and free of debris of any kind.
  - 2. Keep the site and access road reasonably clean and free of rubbish or waste material in order that the work may progress efficiently. Remove such rubbish or waste material entirely from the premises at each time of such cleaning.
  - 3. When the Work is completed and ready to turn over to the Owner, leave such work clean. This applies to all areas affected by contract work.
  - 4. On completion of the Work, thoroughly police and clean-up the premises surrounding the building.
- B. Final Inspection:

1. Request a final inspection in writing, at least ten days prior to the anticipated date of completion, from the DNR Construction Inspector.
2. Work will not be considered ready for final inspection until all the work has been completed and the Contractor has certified that all items are properly operating and in strict compliance with the Contract Documents.
3. The Contractor or project supervisor shall be at the job site during the final inspection.
4. After the inspection, the DNR Construction Inspector will present the Contractor a list of items not meeting contract requirements which must be made acceptable before final payment is made.

END OF SECTION 01000

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 DESCRIPTION OF WORK:

- A. Provide such field engineering services as are required for proper completion of the work including, but not necessarily limited to:
  - 1. Establishing and maintaining lines and levels;
  - 2. Structural design of shores, forms, and similar items provided as part of the Contractor's means and methods of construction;
  - 3. Establishing finish grade stakes (including blue tops) as necessary;
- B. Additional requirements for field engineering may also be described in other sections of these specifications.

1.03 REFERENCES:

- A. Refer to Section 1105.07 "Construction Stakes and Bench Marks" of the General Covenants and Provisions for assignment of responsibilities for the Owner and Contractor.

1.04 SUBMITTALS:

- A. Comply with pertinent provisions of Section 01300, if applicable.

1.05 PROCEDURES:

- A. In addition to procedure directed by the Contractor for proper performance of the Contractor's responsibilities:
  - 1. Locate and protect control points before starting work on the site.
  - 2. Preserve permanent reference points during progress of the work.
  - 3. Do not change or relocate reference points or items of the work without specific approval from the DNR Construction Inspector.
  - 4. Promptly advise the DNR Construction Inspector of a lost, destroyed, or reference point-requiring relocation due to other changes in the work.

- a. When directed by the DNR Construction Inspector, replace referenced stakes at no additional cost to the Owner.
- B. Meet with DNR Construction Inspector to establish actual building location, set backs, and side yards, if required.

END OF SECTION 01050

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 LUMP SUM / UNIT PRICE BID:

- A. Bid each item on a Unit Price basis or Lump Sum basis as required, including furnishing all labor, equipment and materials necessary to complete all the work indicated in the Contract Documents.

1.03 QUANTITIES:

- A. Various estimated quantities are furnished within the Contract Documents to assist the Contractor in reviewing the Project prior to bidding. The estimated quantities are not intended to be used by the Contractor as sole basis for determining the scope and volume of the work. The Contractor is responsible for verifying all quantities necessary to submit bids for the construction of a proper and complete project.

1.04 MEASUREMENT:

- A. The contractor is responsible for constructing the project to the final lines and grades shown. Owner will measure construction units only to ensure that at least minimum quantities have been properly installed.

1.05 SCOPE:

- A. Each item in the Bidder's Proposal Schedule of Prices will be paid at the unit or lump sum price. The price for each item shall be considered full compensation for furnishing superintendence, overhead, bonds, insurance, mobilization, testing and profit necessary to complete the construction of the item of the project listed in the Bidder's Proposal.
- B. It is not the intent of the Bidder's Proposal to itemize each and every item and system required. Items required for project completion and not specifically mentioned in Bidder's Proposal shall be included with items which they would be considered subsidiary.

1.06 ESTIMATED QUANTITIES:

- A. The items and quantities described above, as well as others listed throughout the Contract Documents, are provided for the bidder's review and consideration. The quantities listed herein are not guaranteed by the owner or the Project Engineer to be totally accurate nor to include all items of work. They are provided for the bidder's



convenience to assist in the preparation of the bid. The bidder is responsible for preparing his own quantity takeoff and bid preparation.

END OF SECTION 01250

MEASUREMENT AND BASIS OF PAYMENT  
01250-2

2/6/2012

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 SUMMARY:

- A. Provide submittals required in this Section, refer to technical specification for submittal requirements for each section of the work to be performed.

1.03 PROGRESS SCHEDULE:

- A. Submit a project schedule to the Project Engineer for approval within 30 days after award of contract, but not later than the contract start date. The type of schedule required is at Contractor's option.
- B. Prepare an approved, reproducible form and include the following:
  - 1. Breakdown of work activities in categories so approved and segmented as necessary to allow close monitoring of progress of the work during construction.
  - 2. Order of the work necessary to meet time for completion.
  - 3. Breakdown of the work schedule of all subcontractors scheduled in cooperation with Contractor's work.
  - 4. Anticipated monthly value for work completed.
  - 5. Space for the additional display of actual performance on the schedule.
- C. After necessary revisions have been made and approved, present one print of schedule to each subcontractor and three copies to the Owner.
- D. Upon request, update the schedule to reflect changes required by actual conditions and indicate actual work completed. Provide same number of copies as required for original submission.
- E. Payment will be withheld until progress schedule in acceptable form has been received by Project Engineer.

1.04 PRICE BREAKDOWN:

- A. Within 30 days after award of contract, but not later than the contract start date, submit to the Project Engineer for approval a price breakdown of major lump sum bid items into smaller components for the purpose of determining monthly progress payments.
- B. Include profit and overhead prices in each item.
- C. Payment will be withheld until receipt of price breakdown.
- D. Provide breakdown as follows:
  - 1. For each major line item, list subvalues of major products or operations under item.
  - 2. Provide separate listing of items of contract conditions, such as: bonds, insurance, mobilization, field supervision and layout, construction facilities and temporary controls, contingency allowance, and construction schedule.
  - 3. For items on which progress payments will be requested for stored materials, break down value into:
    - a. Cost of materials, delivered and unloaded. Submit documentation of value basis, invoice, shipping ticket, etc. for each item.
    - b. Total installed value.
  - 4. Unit quantity for bulk materials shall include nominal allowance for waste.
- E. Items listed above include, but are not limited to, the following:

1.05 SHOP DRAWINGS AND MANUFACTURER'S LITERATURE:

- A. Prior to installation of any item specified as requiring submittal, submit two (2) copies for Owner's use plus the number required for return to the Contractor, of manufacturer's literature containing detailed specifications and performance data, or shop drawings fully describing the items showing fabrication, layout, setting or erection details, including erection plan and details as required.
- B. Number all submittals consecutively . Resubmittals shall bear the original submittal number plus a letter suffix: Example - #30A is the first resubmittal of item #30; #30B is the second resubmittal, etc.
- C. Shop drawings used at site must be approved by the Project Engineer.
- D. Do not construe the approval of shop drawings to be a complete check. This approval will indicate only that the general method of construction and detailing is satisfactory. Approval of such drawings will not relieve the Contractor of the responsibility to comply with all terms and conditions of the plans and specifications. The Contractor shall be responsible for the dimensions and design of adequate connections, details and satisfactory construction of all work.

1.06 SAMPLES:

- A. Submit in Duplicate:
- B. Provide samples of sufficient size to permit an accurate appraisal of color, texture, finish, workmanship, and other appropriate characteristics.

- C. Submit samples with shop drawings when both are required.
- D. Field Samples and Mock-Ups:
  - 1. Erect mock-ups at location acceptable to the DNR Construction Inspector, at project site.
  - 2. Construct each sample or mock-up complete to the dimension indicated, including work of all crafts required in finish work.

1.07 QUALITY ASSURANCE:

A. Coordination of Submittals:

- 1. Prior to submitting required material, carefully review and coordinate all aspects of each item being submitted.
- 2. Verify that each item and its submittal conform in all respects with the specified requirements.
- 3. Prior to sending submittals to Project Engineer, the stamp and sign each submittal, certifying that they conform in all respects with the specified requirements.

B. Substitutions:

- 1. The contract is based on the standards of quality established in the Contract Documents. Substitutions will be considered only when listed with the Project Engineer prior to the bid date, and when substantiated by Contractor's submittal of required data within 35 calendar days after award of contract.
- 2. The following products do not require further approval except for interface within the work:
  - a. Products specified by reference to standard specifications such as ASTM or similar standards.
  - b. Products specified by manufacturer's name and catalog model number for which another product is not substituted.
- 3. Do not substitute materials, equipment or methods unless such substitutions have been specifically approved in writing.

C. Or Equal:

- 1. Where the phrase "or equal," or "or equal as approved by the Project Engineer," occurs in the Contract Documents, do not assume that the materials, equipment or methods will be approved as equal unless the item has been specifically approved for this work by the Project Engineer.
- 2. The Project Engineer's decision shall be final.

1.08 RESUBMISSION REQUIREMENTS:

- A. Shop Drawings:
  - 1. Revise initial Drawings as directed and resubmit in accordance with submittal procedures.
  - 2. Indicate on Drawings all changes which have been made in addition to those requested by the Project Engineer.
- B. Product Data and Samples: Resubmit new data and samples as specified for initial submittal.
- C. Make all resubmittals within 7 calendar days after date of Project Engineer's previous review.

1.09 DISTRIBUTION OF SUBMITTALS AFTER REVIEW:

- A. Project Engineer will distribute copies of shop drawings and product data, after review, to:
  - 1. DNR Construction Inspector (1 copy)
  - 2. Project Engineer's File (1 copy)
  - 3. General Contractor (remaining copies)
- B. Project Engineer will distribute samples in accordance with requirements.

1.10 CONTRACTOR RESPONSIBILITIES:

- A. Review shop drawings, product data, and samples prior to submission to the next level of control.
- B. Verify:
  - 1. Field dimensions.
  - 2. Field construction criteria.
  - 3. Catalog numbers and similar data.
- C. Coordinate each submittal with requirements of:
  - 1. The work.
  - 2. The contract documents.
  - 3. The work of other contractors.
- D. Contractor's responsibility for errors and omissions in submittals is not relieved by Project Engineer's review of submittals.
- E. Notify Project Engineer, in writing, of proposed deviations in submittals from contract requirements, prior to or at the time of submission.
- F. Contractor's responsibility for deviations in submittals from contract document requirements is not relieved by Project Engineer's review of submittals.

- G. Do not begin any work which requires submittals without having Project Engineer's stamp and initials or signature indicating approval.

1.11 REQUIRED SUBMITTALS:

A. Include, but do not limit to, the following submittals:

<u>Spec.</u> <u>Section</u>	<u>Item</u> <u>Description</u>	<u>Shop</u> <u>Drawing</u>	<u>Product</u> <u>Data</u>	<u>Samples,</u> <u>Test Results,</u> <u>Certification</u>
31 20 00	In-Place Density Test			X
31 25 53	Seed Analysis			X
31 25 53	Fertilizer		X	
31 25 53	Engineered Soil Media		X	X
31 25 53	Erosion Control Mat		X	
31 32 19	Geotextile		X	
31 35 20	Tied-Concrete Block Mat		X	X
31 37 00	Rip Rap and Rock		X	X
32 13 14	Concrete		X	X
32 16 40	Crushed Rock		X	X

1.12 RECORD DRAWINGS:

- A. Provide and maintain at the project site, one complete set of prints of the project drawings. The drawings shall be kept in good, clean and readable condition.
- B. The project site drawings shall have neatly inscribed all changes in work including relocation of lines, valves and fixtures, change in type of materials, etc. Changes shall be noted with red pencil or red ink.
- C. Submit these corrected prints at time of final acceptance and prior to final payment. Note all data and changes on these record drawings in sufficient detail and clarity and provide information necessary for preparation of "as-built" drawings.
- D. Final payment will be withheld until a set of corrected prints of the record drawings has been received by the Project Engineer/DNR Construction Inspector.

1.13 GUARANTEES, WARRANTIES AND CERTIFICATES:

- A. Submit all guarantees, warranties and certificates prior to final payment.
- B. Refer to Section 01700 of these specifications.

1.14 OPERATING AND MAINTENANCE INSTRUCTIONS:

- A. Submit all operating and maintenance instructions to the DNR Construction Inspector prior to final payment.
- B. Refer to Section 01700 of these specifications.

1.15 CHANGE ORDER PRICE QUOTES:

- A. In the event of the need for change order, the DNR Construction Inspector will request a price quote from the Contractor for proposed changes to the contract.
- B. For evaluation purposes, the Contractor's quote shall be broken down to show the costs of labor and materials for each proposed category of work included with the change, along with the total cost for Contractor's overhead, profit and bond for the proposed change.
- C. All contract time extensions required as a result of a proposed change must be justified and supported in detail at the time of the proposal.

1.16 TEST REPORTS:

- A. Refer to Section 01400 of these specifications.

1.17 DELIVERY TICKETS:

- A. Submit to the DNR Construction Inspector one legible copy of each delivery ticket for all material delivered to the construction site.
- B. The delivery ticket shall show brand name, catalog number and number of items received.

END OF SECTION 01300



PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 SCOPE:

- A. Supplementary tests and reports required in this section with any tests, reports, and other information that may be required additionally in any section of the specifications.
- B. Inspection, sampling, and testing is required, but not limited to, the following:
  - 1. Section 31 20 00 – Moisture and Density Testing
  - 2. Section 32 13 14 – Concrete Testing
- C. Sampling and testing frequencies and requirements are to comply with IDOT IM-204.

1.03 TESTS BY INDEPENDENT TESTING LABORATORY:

- A. Testing Laboratory:
  - 1. Contractor to select and pay for an independent testing laboratory, acceptable to the Project Engineer, to perform specified services required by the contract.
  - 2. Employment of testing laboratory will in no way relieve Contractor's obligations to perform work in accord with the contract.
  - 3. Include in lump sum bid the cost for all testing services required. No separate payments will be made for testing. Include all associated costs in the various appropriate bid items. Project Engineer/DNR Construction Inspector will direct all tests. The Contractor shall pay the testing firm.
- B. Contractor Shall:
  - 1. Make available at no cost, all material to be tested.
  - 2. Provide labor necessary to supply samples and assist in making tests.
  - 3. Advise laboratory of the identity of material sources and instruct suppliers to allow inspections by laboratory.
- C. Testing laboratory shall:
  - 1. Submit written report promptly, covering each inspection and test to the Project Engineer, including:

- a. Date issued.
  - b. Project title and number.
  - c. Testing laboratory name and address.
  - d. Name and signature of laboratory technician.
  - e. Date of inspection and sampling.
  - f. Record of temperature and weather.
  - g. Date of test.
  - h. Identification of product and specification section.
  - i. Location of project.
  - j. Type of inspection or test.
  - k. Observations regarding compliance with Contract Documents.
2. Promptly notify Project Engineer of irregularities or deficiencies of work which are observed during performance of testing services.
  3. Perform additional services required by the Project Engineer/DNR Construction Inspector.
- D. Laboratory is not authorized to:
1. Release, revoke, alter or enlarge on, contract requirements.
  2. Approve or accept any portion of work.
  3. Perform any duties of the Contractor.
- E. Conduct tests in accordance with the requirements of the designated specifications or, where not specified, the latest appropriate standard of the American Society for Testing and Material.

1.04 LABORATORY SERVICES AND TESTS REQUIRED:

- A. Concrete:
1. Secure samples of aggregates Contractor proposes to use and test for compliance with specifications.
  2. Certify compliance with specification of cement proposed for use by the Contractor.
  3. Review concrete design mix proportions for the required concrete strengths using materials Contractor proposes to use on the project. Incorporate specified admixtures and not less than amount of cement specified. Perform appropriate laboratory tests, including compression tests of cylinders and slump test to substantiate mix designs. Submit one copy of report to the Project Engineer, one copy to the DNR Construction Inspector, and one copy to the Contractor, clearly indicating the results of the mix design review.
  4. When requested by the DNR Construction Inspector, inspect and test material during concrete work to substantiate compliance with specifications and mix requirements.
  5. Slump Test: The DNR Construction Inspector will require slump tests to be performed as he desires in accordance with the provisions of these specifications.
  6. Test Cylinders:

- a. Each test shall consist of a set of three cylinders provided by the Contractor. Sampling and testing frequencies and requirements are to comply with IDOT IM-204.
  - b. Provide a minimum of one set of test cylinders each day concrete is placed.
  - d. The Contractor shall make and cure test cylinders in conformity with ASTM C-31.
  - e. Note on record drawings placement locations represented by test cylinders.
- 7. Perform compression tests in accordance with applicable sections of IDOT specifications.
  - 8. Identify all test cylinders with symbols to indicate location on the job where concrete tests were made. Note on record drawings.
- C. Aggregate gradation and compaction as per applicable specifications.

1.05 CONTRACTOR'S RESPONSIBILITIES:

- A. Furnish product mix design to meet or exceed Contract Documents.
- B. Cooperate with laboratory personnel and provide access to work, as well as to manufacturer's operations.
  - 1. Monitor each inspection, sampling and test.
- C. Provide to laboratory, preliminary representative samples of material to be tested, in specified quantities.
- D. Furnish copies of mill test reports.
- E. Furnish verification of compliance with contract requirements for material and equipment.
- F. Furnish casual labor and facilities:
  - 1. To provide access to work to be tested.
  - 2. To obtain and handle samples at site.
  - 3. To facilitate inspections and tests.
  - 4. For laboratory's exclusive use for storage and curing of test samples.
- G. Notify laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests. Notify DNR Construction Inspector when work is ready for testing. Schedule testing after approval of the DNR Construction Inspector. The Department of Natural Resources will not pay for any testing scheduled without the DNR Construction Inspector's specific authorization.
- H. Correct work which is defective or which fails to conform to the Contract Documents in accordance with the general condition. Do not delay the project schedule or the work of other contractors with corrective work.

- I. Pay all costs of re-testing when test results indicate non-compliance with contract requirements.
- J. Patch all surfaces and areas disturbed by testing operations.

END OF SECTION 01400

SECTION 01500  
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 WEATHER PROTECTION:

A. General:

1. Provide necessary protection against weather to maintain all materials, apparatus, fixtures, and work free from damage whether in shipment, in storage, or in place.
2. Do not perform wet work when temperature is below 40 degrees Fahrenheit or is forecast to be below 40 degrees Fahrenheit within the ensuing 48 hours, except when work is properly protected and sufficient heat is provided.

B. Heat Provision:

1. When heat is required for proper weather protection, provide temporary enclosures of work and acceptable means to provide sufficient heat to maintain a temperature of not less than 50 degrees Fahrenheit. Provide higher temperatures when required by these specifications.
2. Use only heating apparatus and fuels of approved safe types. Keep equipment and surroundings in a clean, safe condition. Use flame resistant tarpaulins and other materials for temporary enclosure of space. Use vented heaters only.

1.03 TEMPORARY UTILITIES:

A. Electricity, Lighting and Heating:

1. Provide such temporary service as may be required for construction purposes with required distributing facilities and meter.
2. Pay the cost of all electrical energy used on this part of the project until completion of the contract. If partial occupancy by the Owner occurs prior to completion, the Owner will pay proportional share of electrical energy used.
3. Provide light bulbs required for all temporary construction lighting and replace when necessary.
4. Use no temporary service material in permanent system without written approval of the Owner. When temporary electrical lines are no longer required, remove them

and restore any parts of buildings or grounds damaged by such removal to original condition.

5. Provide and maintain temporary lighting at barricades as required for safety.
6. Provide any heating required by these specifications.

B. Telephone:

1. Provide and pay all charges for telephone service.

C. Water:

1. Provide, protect, and maintain an adequate water supply for use on the project for construction purposes, either by means of the permanent water supply line or by installing a temporary waterline as may be required.
2. Install, valve, maintain, and protect such water supply lines as may be required.
3. Remove temporary lines when they are no longer required. Restore to original condition any part of grounds or buildings damaged by removal.
4. Pay the cost of all water used on this portion of the project until final completion of the contract.

D. Toilets:

1. Provide and maintain suitable, weather tight, painted sanitary toilet facilities for all workers during construction period. When toilet facilities are no longer required, promptly remove from site. Disinfect, clean or treat the area as required.
2. Provide and maintain facilities in accordance with requirements of applicable local and state health authorities and OSHA.
3. Keep all toilet facilities clean and supplied with toilet paper at all time.

1.04 OPERATION AND STORAGE AREAS:

- A. All operations of the Contractor (including storage of materials) upon premises shall be confined to areas authorized or approved by the DNR.
- B. Premises adjacent to the construction will be made available for use by the Contractor without costs whenever such use will not interfere with other uses or purposes.
- C. Do not enter on or occupy with personnel, tools, equipment, or material any ground outside the DNR's property without the written consent of the owner of such ground.
- D. Other contractors and employees or agents of the DNR may for all necessary purposes enter upon the work and premises used by the Contractor, and the Contractor shall conduct

his work so as not to impede unnecessarily any work being done by others on or adjacent to the site.

- E. Provide and maintain weather tight storage sheds for own use.
- F. Provide storage sheds with substantial floors raised a minimum of six (6) inches above the ground.
- G. Locate all storage sheds as approved by the DNR Construction Inspector.
- H. Completely remove from site after completion of work.

1.05 PROTECTION AND RESTORATION:

- A. General: Protect all structures, including walks, pipelines, trees, shrubbery, and lawns during the progress of the work; remove from the site all debris and unused materials; and, upon completion of the work, restore the site as nearly as possible to its original condition, including the replacement, at the Contractor's sole expense, of any facility or landscaping which has been damaged.

1.06 ACCESS ROADS:

- A. Temporary Roads and Storage Areas:
  - 1. Construct and maintain all temporary access roads and storage areas required. Locate and construct all roads, ramps, mats, storage areas, and similar items in a manner approved by the Owner and provide overall management of available site areas.
- B. Laws and Regulations:
  - 1. Observe all laws and regulations of the local, county, and state authorities in the use of all public roads and highways for the transportation of materials and equipment in connection with work on the project. Observe all overhead construction, bridges, cables, and the like. Repair damage to roads, highways, overhead construction and similar off-site items, resulting from operations in connection with this project.

1.07 WATER CONTROL:

- A. Carry on construction work in a manner that will direct surface water away from the structures and away from adjoining property.
- B. Provide own means of pumping, well pointing or otherwise maintaining excavations free from ground water encountered. Provide means of properly conveying such water off the construction site.

1.08 PARKING:

- A. Make necessary provisions for parking of all employees on the project within the site limits. Include necessary access roads and maintenance of all roads and parking areas during construction period.
- B. Park vehicles to avoid interference with normal construction activities and to avoid interference with Owner's operation.

1.10 SAFETY:

- A. Provide at least one non-freezing-type fire extinguisher in each workshop and shed used for storage of materials on the premises. Place in readily accessible location.
- B. Provide and maintain a basic first aid kit.
  - 1. Provide first aid supply commensurate with size of project with items necessary for first aid treatment of all injuries.
  - 2. Advise workers of the location of first aid supplies.
  - 3. Post telephone numbers of nearest hospital or ambulance service and fire station in conspicuous location. Advise all workers of location of telephone numbers.

END OF SECTION 01500



PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: The work consists of furnishing all labor, material and equipment for the control and prevention of environmental pollution and damage as the result of construction operations under this Contract and for those measures set described herein, as indicated on the Drawings, specified herein, and as required for the construction of all work of this contract.
  - 1. Scope: The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, solid waste, radiant energy and radioactive materials, as well as other pollutants.
  - 2. Protect the environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this contract.
    - a. Confine activities to areas defined by the Drawings and Specifications.
- B. Related Sections: Drawings and General Provisions of the Contracts, including the General Covenants and Provisions, Supplementary Covenant and Provisions and General Requirements.

1.02 REFERENCES:

- A. Provide protection of Air Resources in accordance with the following state and local codes and rules: Iowa Department of Environmental Quality Act, Oh. 455B of the 1977 Code of Iowa; Iowa Department Rules, 1973 I.D.R. 267 et seq.

1.03 DEFINITIONS:

- A. Environmental pollution and damage: For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural and/or historical purposes.

1.04 QUALITY ASSURANCE:

- A. Quality Control: Establish and maintain quality control for environmental protection of all items set forth herein.
  - 1. Record on daily reports any problems in complying with laws, regulations and ordinances and corrective action taken.
  - 2. Assure compliance of subcontractors with this section.

B. Regulatory Requirements:

1. Notification: The Project Engineer/DNR Construction Inspector will notify the Contractor in writing of any observed noncompliance with the aforementioned Federal, state or local laws, or regulations, permits and other elements of the Contractor's environmental protection plan.
2. After receipt of such notice, inform the Project Engineer/DNR Construction Inspector of proposed corrective action and take such action as may be approved.
3. If the Contractor fails to comply promptly, the Project Engineer/DNR Construction Inspector may issue an order stopping all or part of the work until satisfactory corrective action has been taken.
  - a. No time extensions shall be granted such suspension.

C. National Pollutant Discharge Elimination System (NPDES): Contractor to provide a Notice of Intent (Form 1415) for application of a General Permit for Storm Water Discharge, file all necessary Forms and Drawings with the applicable Bureau of the DNR, and pay necessary application fees.(Required for sites of one acre or more)

1. For Storm Water General Permit Assistance: Contact (515)281-7017 or (515)281-8693 for information.

D. Pollution Control Training: Train personnel in all phases of environmental protection.

1. Include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities to insure adequate and continuous environmental pollution control.

1.05 PROJECT/SITE CONDITIONS:

A. Environmental Requirements:

1. Protection of Land Resources: Prior to beginning construction, the Contractor shall identify all land resources to be preserved within the Contractor's work area.

1.06 MAINTENANCE OF POLLUTION CONTROL FACILITIES:

- A. Maintain all constructed facilities and portable pollution control devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

PART 2 - PRODUCTS

2.01 MATERIAL AND EQUIPMENT:

- A. Provide and maintain material and equipment necessary to perform the specified work.

PART 3 - EXECUTION

TEMPORARY POLLUTION CONTROLS  
01560-2

3.01 EXAMINATION:

- A. Verification of Conditions: Prior to beginning construction, the Contractor shall identify all land resources to be preserved within the Contractor's work area.
- B. Limits of Work Area:
  - 1. Mark the areas that are not required to accomplish work to be performed under this contract.
  - 2. Mark or fence isolated areas within the general work area which are to be saved and protected.

3.02 PROTECTION OF LAND RESOURCES:

- A. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without special permission from the Contracting Authority.
- B. Do not fasten nor attach ropes, cables, or guys to any trees for anchorage unless specifically authorized.
- C. Where such special emergency use is permitted, provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs.

3.03 PROTECTION OF MONUMENTS AND MARKERS:

- A. Protect monuments and markers before and during construction operations.
- B. Where construction operations are to be conducted during darkness, the markers shall be visible.
- C. The Contractor shall convey to his personnel the purpose of marking and/or protection of all necessary object.

3.04 PROTECTION OF LANDSCAPE:

- A. Clearly identify trees, shrubs, vines, grasses land forms and other landscape features to be preserved by marking, fencing, or wrapping with boards, or any other approved techniques.

3.05 LOCATION OF FIELD OFFICES, STORAGE AND OTHER CONTRACTOR FACILITIES:

- A. Place field offices, staging areas, stockpile storage, and temporary buildings in areas approved by the Project Engineer/DNR Construction Inspector.
- B. Do not temporarily move or relocate Contractor facilities unless approved by the Engineer/DNR Construction Inspector.

3.06 DISPOSAL OF SOLID WASTES:

- A. Place solid wastes in containers to be emptied on a regular schedule.
  - 1. Conduct handling and disposal to prevent contamination.
  - 2. Transport all solid waste off state property and dispose of in compliance with Federal, state, and local requirements for solid waste disposal.

3.07 DISPOSAL OF CHEMICAL WASTE:

- A. Store chemical waste in corrosion resistant containers, remove from the work area and dispose of in accordance with Federal, state and local regulations.

3.08 DISPOSAL OF DISCARDED MATERIALS:

- A. Handle discarded materials other than those which can be included in the solid waste category as directed by the Contracting Authority.

3.09 PRESERVATION AND RECOVERY OF HISTORICAL, ARCHEOLOGICAL AND CULTURAL RESOURCES:

- A. Existing historical, archeological and cultural resources within the Contractor's work area will be so designated by the Department and precautions taken to preserve all such resources as they existed at the time they were pointed out to the Contractor.
- B. Install protection and assume responsibility for the preservation of these resources as designated on the Drawings, or if not designated as necessary for their preservation.
- C. Report any unusual items that might have historical or archeological value, found or observed during construction activities as soon as practicable to the DNR Construction Inspector.

3.10 PROTECTION OF WATER RESOURCES:

- A. Keep construction activities under surveillance, management and control to avoid pollution of surface and ground waters.
- B. Implement applicable management techniques to control water pollution in accordance with the listed construction activities which are included in this contract.
- C. Installation, maintenance and removal of water pollution control methods and materials to be incidental to other items of work on the project, unless a specific Bid Item for Erosion Control exists.
- D. Comply with detailed Project Plans for temporary erosion control procedures to be performed on this project.

3.11 PROTECTION OF FISH AND WILDLIFE RESOURCES:

- A. Keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage of fish and wildlife.

- B. List species that require specific attention along with measures for their protection prior to beginning of construction operations.

3.12 PROTECTION OF AIR RESOURCES:

- A. Keep construction activities under surveillance, management and control to minimize pollution of air resources. Perform or operate activities, equipment, processes, and work to accomplish the specified construction in strict accordance with the State of Iowa and all Federal emission and performance laws and standards.
- B. Implement special management techniques as set out below to control air pollution by construction activities.
  - 1. Control of Particulates: Control dust particles, aerosols, and gaseous by-products from all construction activities at all times, including weekends, holidays and hours when work is not in progress.
    - a. Maintain all work areas within or outside the project boundaries free from particulates which would cause the applicable air pollution standards to be exceeded or which would cause a hazard or a nuisance.
    - b. Sprinkling, chemical treatment of an approved type, light bituminous treatment, baghouse, scrubbers, electrostatic precipitators or other methods will be permitted to control particulates in the work area.
    - c. Sprinkling, to be efficient, must be repeated at such intervals as to keep the disturbed area damp at all times, The Contractor must have sufficient competent equipment available to accomplish this task.
    - d. Perform control of particulates as the work proceeds and when ever a particulate nuisance or hazard occurs.
  - 2. Control hydrocarbons and carbon monoxide emissions from equipment in accordance with Federal, State and local allowable limits at all times.
  - 3. Control odors at all times for all construction activities.
  - 4. Assume responsibility for monitoring of air quality throughout the entire areas affected by the construction activities.

3.13 PROTECTION OF SOUND INTRUSIONS:

- A. Keep construction activities under surveillance and control to minimize damage to the environment by noise.

3.14 MOSQUITO CONTROL:

- A. During dredging and due to large areas of shallow water in the disposal area, mosquito breeding must be controlled.

- B. Deposit dredge material to minimize stagnant water pools.
- C. Conduct non-aerial spraying or other methods of application of EPA approved chemicals to control mosquito breeding.

3.15 CLEANING:

- A. Post Construction Clean Up: Cleanup all areas used for construction.
- B. Restoration of Landscape Damage: Restore all landscape features damaged or destroyed during construction operations outside the limits of the approved work areas, in accordance with the plan submitted for approval by the Contracting Authority.

END OF SECTION 01560

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 MATERIAL:

- A. All materials, equipment, and other items incorporated in the work of this project must be new, and both materials and workmanship of best grade of their respective kinds.
- B. To assure ready availability of materials, parts, or components for repair, replacement or future expansion purposes, all materials, equipment, and related components must be obtained from sources which maintain a regular, domestic stock.
- C. Throughout all sections of these specifications, provide other material not specifically described but required to provide Owner with a complete and proper installation of all phases of the work of this contract. Select these materials subject to the approval of Project Engineer/DNR Construction Inspector.

1.03 ITEMS NOT IN CONTRACT:

- A. All items indicated "N.I.C." on drawings or specifications are items not included in this contract.
- B. Provide necessary provisions in the work of this project to permit proper installation of "N.I.C." items.

1.04 TRANSPORTATION AND HANDLING:

- A. Provide protection against damage for all materials during delivery to and storage at the site.
- B. Handling of all materials and equipment shall be such as will prevent damage to such material and/or equipment.
- C. Replace or repair to the satisfaction of the DNR Construction Inspector, all items damaged because of Contractor's failure to properly protect during transportation and handling, when on or off the project site, at no additional cost to the Owner.

1.05 STORAGE AND PROTECTION:

- A. Protect all materials, work, and equipment against damage at all times.

- B. Refer to Section 01500 for requirements for storage sheds. Store all materials that might be damaged within storage sheds.

END OF SECTION 01600



PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 CLEANING UP:

- A. Keep premises free of accumulation of surplus materials and rubbish from contractor and subcontractor operations.
  - 1. Remove all rubbish from premises.
- B. Remove rubbish weekly and at other times as required by the DNR Construction Inspector. Keep interior of building free at all times of unattended combustible rubbish.
- C. Immediately prior to final inspection:
  - 1. Clean all surfaces to condition acceptable for immediate occupancy.
  - 2. Remove all marks, stains, fingerprints, paint droppings, and other foreign matter from all finished items.

1.03 GUARANTEES, BONDS AND AFFIDAVITS:

- A. Submit all written guarantees, bonds and affidavits required to the Owner prior to final payment.
- B. Guarantees shall extend the full period of the required guarantee period after:
  - 1. Replacement of work found defective during guarantee period.
  - 2. Repair of inoperative items or adjustments to proper working conditions of items not operating properly at time of inspection at final completion.

1.04 RECORD DRAWINGS:

- A. Required prior to final payment. Refer to Section 01300 of these specifications. Submit to DNR Construction Inspector.

1.05 SHOP DRAWINGS:

- A. Refer to Section 01300 of these specifications.

1.06 TESTS:

- A. Complete all tests required to prove actual operating performance of equipment and systems incorporated into the project. Refer to Section 01400 of these specifications.
- B. Submit reports of all tests to the Owner prior to final payment.

1.07 MAINTENANCE AND OPERATING:

- A. Refer to Section 01730 of these specifications, if applicable.

1.08 DAMAGE TO EXISTING STRUCTURES:

- A. Prior to final acceptance by the Owner, repair or otherwise return to original condition any parts of the existing facilities which have been damaged during construction.

1.09 FINAL INSPECTION:

- A. Request a final inspection in writing, at least ten days prior to the anticipated date of completion, from the DNR Construction Inspector.
- B. Work will not be considered ready for final inspection until all the work has been completed and the Contractor has certified that all items are properly operating and in strict compliance with the contract documents.
- C. The Contractor or his project supervisor shall be present at the job site during the final inspection.
  - 1. The DNR Construction Inspector will present the Contractor, after the final inspection, a list of any items not meeting contract requirements. This list will be confirmed in writing and all items listed must be made acceptable before final payment will be made.

END OF SECTION 01700

PART 1 - GENERAL

1.01 SUMMARY:

A. Section Includes: To aid the instruction of operating and maintenance personnel, and to provide a source of information regarding the systems incorporated into the Work, furnish and deliver the data described in this section and in pertinent other sections of these specifications.

1. Additional data requirements may be described in individual sections.

B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 SUBMITTALS:

A. Comply with pertinent provisions of Section 01300.

B. Submit two copies of a preliminary draft of the proposed manual or manuals to the Engineer for review and comments.

C. Unless otherwise directed in other sections, or in writing by the Engineer, submit two copies of the final manual to the DNR Construction Inspector.

1.03 QUALITY ASSURANCE:

A. In preparing required data, use only personnel thoroughly trained and experienced in operation and maintenance of the described items, completely familiar with this section's requirements, and sufficiently skilled in technical writing to communicate the essential data.

PART 2 - PRODUCTS

2.01 INSTRUCTION MANUALS:

A. Where instruction manuals are required to be submitted under other sections of these specifications, prepare in accordance with the provisions of this section.

B. Format:

1. Size: 8-1/2" x 11"

2. Paper: White bond, at least 20 lb. weight

3. Text: Neatly written or printed

4. Drawings: 11" in height preferable; bind in with text; foldout acceptable; larger drawings acceptable but fold to fit within the manual and provide a drawing pocket inside rear cover or bind in with text.
  5. Flysheets: Separate each portion of the manual with neatly prepared flysheets briefly describing contents of the ensuing portion; flysheets may be in color.
  6. Binding: Use heavy-duty plastic or fiberboard covers with 3-ring binders. All binding is subject to the Owner's approval.
  7. Measurements: Provide all measurements in U.S. standard units: feet-and-inches, lbs., and cfm.
- C. Provide front and back covers for each manual, using durable Owner's approved material, clearly identified on or through the cover with at least the following information:

OPERATING AND MAINTENANCE INSTRUCTIONS

- ( name and address of work )
- ( name of contractor )
- ( general subject of this manual )
- ( space for approval signature of )
- ( the owner and approval date )

- D. Contents include at least the following:
1. Neatly typewritten index near the front of the manual, giving immediate information as to location within the manual of all emergency information regarding the installation.
  2. Detailed list of subcontractors, including address, phone number and product or equipment installed.
  3. Complete instructions regarding operation and maintenance of all equipment involved, including lubrication, disassembly, and reassembly.
  4. Complete nomenclature of all parts of all equipment.
  5. Complete nomenclature and part number of all replaceable parts, name and address of nearest vendor, and all other data pertinent to procurement procedures.
  6. Copy of all guarantees and warranties issued.
  7. Manufacturers' bulletins, cuts, and descriptive data, where pertinent, clearly indicating the precise items included in this installation and deleting, or otherwise clearly indicating, all manufacturers' data with which this installation is not concerned.
  8. Such other data as required in pertinent sections of these specifications.

PART 3 - EXECUTION

3.01 INSTRUCTION MANUALS:

A. Preliminary:

1. Prepare a preliminary draft of each proposed manual.
2. Show general arrangement, nature of contents in each portion, probable number of drawings and their size, and proposed method of binding and covering.
3. Secure the Architect's approval prior to proceeding.

B. Final: Complete the manuals in strict accordance with the approved preliminary drafts and the Architect's review comments.

C. Revisions:

1. Following the instruction of operation and maintenance personnel, review all proposed revisions of the manual with the DNR Construction Inspector.

END OF SECTION 01730

**DIVISION 31**  
**EARTHWORK**

## SECTION 31 11 00

### SITE PREPARATION

#### PART 1 - GENERAL

##### 1.1. DESCRIPTION

- A. This section describes requirements of site preparation in order to allow for subsequent construction activities.

##### 1.2. BASIC REQUIREMENTS

- A. Furnish all labor, materials, and expertise necessary to complete all work specified in this section.
- B. Notify corporations, companies, individuals or authorities owning utilities running to property or encountered during excavating operations.
- C. Cap or remove services in accordance with instructions by owners of services.
- D. Protect, support, and maintain utilities that are to remain.
- E. Replace to original condition or better, landscape work such as trees, shrubs, and grass within and outside of construction and grading limits that are damaged.

##### 1.3. SUBMITTALS

- A. Material disposal certification information indicating proper disposal location and data.

#### PART 2 - EXECUTION

##### 2.1. CLEARING AND GRUBBING

- A. Clear and grub area within limits to be covered with improvements and where grade is to be changed of shrubs, trees, stumps, vegetation, rubbish, and other perishable or objectionable matter. Grub stumps unless indicated otherwise. Individual valuable trees may be marked by the Owner for preservation.
  - 1. Promptly dispose of removed debris by burning, cutting, chipping and/or grinding trees or other vegetative matter.

2. Log chipper must have capacity to chop logs removed and is subject to approval by Engineer. Chopper must be capable of chopping logs into chips no larger than 2 inches x 2 inches x 1/2 inch thick.
  3. Chips will be hauled off site for final disposal.
- B. Remove cleared material from site.
  - C. Clearing and grubbing limits shall be as required for construction of improvements and shown on drawings.
  - D. Coordinate with Owner prior to removing trees within 20 feet of construction limits with efforts made to adjust final grading to allow for protection of desirable trees.

## 2.2. STRIPPING TOPSOIL

- A. Remove topsoil to entire depth in areas where grade is to be raised and in areas to be covered by structure, or as indicated on the drawings. Stockpile where designated by Engineer. Stockpile for proper drainage.
- B. Strip stockpile areas of vegetation prior to stockpiling.
- C. Stripped topsoil shall be free from clay, stones, excessive vegetation, and debris.
- D. Use for finish grading.
- E. Areas below normal water level or devoid of existing topsoil are exempt from topsoil stripping requirements.

## 2.3. TREE REMOVAL

- A. Obtain authorization from Engineer prior to removing any trees except as indicated on Plans. Individual valuable trees may be marked by the Owner for preservation.
- B. Removal includes grubbing and removing stump and roots (unless indicated otherwise) and disposal of trees and debris.
- C. Trees meeting U.S. Fish and Wildlife Service bat habitat criteria are located on this project. These trees may only be removed from October 1 through March 31. The Contractor should plan all clearing operations around these dates.

## 2.4. DISPOSAL OF SPOIL MATERIAL

- A. Contractor is responsible for disposal methods and compliance with all Federal, State, County and local laws, ordinances and regulations.



- B. Contractor is responsible for obtaining all permits necessary for disposal.
- C. Disposal of spoil material may be by one of the following methods:
  - 1. Removal and Disposal
    - a. Promptly remove cleared debris from site.
    - b. Disposal site will be arranged by Contractor.
  - 2. Disposal On Site
    - a. Dispose of material in areas with agreement of Owner or as designated on the drawings.
    - b. Topsoil shall not be buried during disposal operation.
    - c. Complete finish grading that provides drainage and that closely resembles surrounding natural topography.
    - d. Place topsoil after completion of spoil operation. Seed as specified.

## SECTION 31 20 00

### EARTHWORK

#### PART 1 - GENERAL

##### 1.1. DESCRIPTION

- A. Earthwork for construction of lake grading, shoreline improvements and fish habitat and earthwork associated with construction of the improvements shown on the drawings and specified herein.
- B. Consolidation and compaction.
- C. Fill for over-excavation.

##### 1.2. BASIC REQUIREMENTS

- A. Furnish all labor, equipment, materials, and expertise necessary to complete all work specified in this Section.

##### 1.3. SUBMITTALS

- A. Test results: In-Place Density Tests where required.

##### 1.4. REFERENCES

- A. ANSI/ASTM C316 - Method for sieve analysis of fine and coarse aggregate.
- B. ANSI/ASTM D698 - Test method for Moisture Density Relationship of Soils and Soil-Aggregate Mixtures using 5.5 lb. Rammer and 12 inch drop.
- C. ASTM D2434-68 - Test Method for Permeability.
- D. Where reference is made to one of the above standards, the revision in effect at the time of the notice to proceed shall apply.

##### 1.5. QUALITY ASSURANCE

- A. See Section 01400.

## 1.6. DEFINITIONS

- A. Earth: All materials, not classified as rock, including clay, silt, sand, gravel, hardpan, disintegrated shale, debris, loose stones, boulders less than 3/4 CY in volume, trees, stumps, roots and rubbish.
- B. Rock: Solid mineral material with a volume in excess of 3/4 cubic yard or solid material that cannot be removed with heavy duty trench excavating equipment such as a Caterpillar 349 Excavator equipped with a rock ripper bucket without drilling, jackhammering or blasting.
- C. Rubble: Buried concrete foundations, beams, walls and other material which require continuous use of pneumatic tools or blasting.
- D. Borrow: Materials in excess of excavated materials, needed to construct access drive embankments, parking lots and grading around buildings.
- E. Removal of rock, rubble and miscellaneous debris above ground is incidental to construction.

## 1.7. JOB CONDITIONS

- A. Notify corporations, companies, individuals or authorities owning above or below ground conduit, wires, pipes or other utilities running to property or encountered during the work operations. Cap or remove and relocate services in accordance with instructions by owner of said services. Protect, support, and maintain utilities to remain in accordance with requirements of owners of said services.
- B. Heavy hauling (dump trucks, semi-trucks, etc.) on existing park roads shall be minimized wherever possible. All on-road truck transportation of spoil material from shall be conducted when the subgrade is thoroughly frozen or with approval by the Owner. Other heavy transport on park roads will be conducted on frozen subgrade or with approval by Owner. No heavy transport will be allowed during frost thaw. Dates of allowable heavy transport are solely at the discretion of the Owner.
- C. Contractor is responsible for providing all equipment, labor, and materials necessary for controlling groundwater and surface water as required to complete excavation and earthwork during construction.

## PART 2 - PRODUCTS

### 2.1. MATERIALS

- A. Fill material for site grading shall be on-site excavated material unless indicated otherwise.
- B. All fill materials shall be uniform and free from organic matter, stones, logs, brush, broken concrete or other unsuitable material.
- C. Topsoil, fertile, friable, containing liberal amounts of humus, suitable for growth of grass:
  - 1. Free from hard lumps, roots, gravel cinders and stones over 1 inch in any dimension, weed seed and other undesirable material.
  - 2. Topsoil removed and stockpiled may be used provided it meets the above requirements.
- D. Unsuitable and excess cut material is to be spread and disposed of per Owner's request at on on-site location.

## PART 3 - EXECUTION

### 3.1. PREPARATION

- A. Identify required lines, levels, contours and datum.
- B. Maintain and protect existing utilities.
- C. Protect plant life, ground cover and other features remaining as a portion of the final landscaping. Areas disturbed outside construction limits indicated on plans will be shaped, graded and seeded at no additional cost to the Owner.
- D. Remove and replace fences and other structures indicated on plans.
- E. Protect benchmarks, grade stakes and other control stakes. Cost of restaking will be paid by the Contractor.
  - 1. Engineer will be paid by the Owner for costs associated with replacing benchmarks, grade stakes and control stakes destroyed by the Contractor. These costs will be deducted from payments made by the Owner to the Contractor.

- F. Clear entire surface of all areas to be excavated. Refer to Section 31 11 00.
  - 1. Remove all trees, stumps, down timber, logs, snags, brush, undergrowth hedges, heavy growth of grass or weeds, structures, debris and rubbish of any nature.
  - 2. Clear all areas on which embankments or fill is to be placed.
    - a. Comply with item 3.1, A.
    - b. Excavate a minimum of six (6) inches to remove roots and organic material.
    - c. Disk to a depth of six (6) inches.

### 3.2. SITE EARTHWORK AND GRADING

- A. The proposed grading plan shown on drawings will be constructed of suitable material borrowed from excavations on-site.
- B. Contractor shall adjust the in-place subgrade soil moisture content to within a range of +0% to +4% above the optimum moisture content and compact to minimum of 90% of the materials maximum dry density (ASTM D698). Compaction under road and parking areas shall be 95% (min).
- C. Type A compaction to be used for all fill areas except jetties.
- D. Excavated material suitable for backfill may be stockpiled on-site at designated locations.
- E. Prior to placing fill disc area minimum of 6 inches deep and compact with a minimum of 8 full coverage passes with compaction equipment approved by Engineer.
  - 1. Slopes steeper than 5:1 (horizontal to vertical): Bench prior to placing fill.
  - 2. Benches to be cut a maximum of 3-4 feet deep and have an approximate width of ten (10) feet.
- F. Place fill material in maximum 12 inch loose lifts, compact to specified maximum dry density as measured by Standard Proctor Test where required.

- G. Should moisture conditions become such that, in the opinion of the Engineer, adequate compaction cannot be obtained, he may require that the operations be halted until moisture conditions have improved. Frozen materials shall not be used in the construction of the embankments. The fill shall not be placed on a frozen surface. If the operation in the construction of any section of the embankment has to be stopped during which rain is likely to occur, the surface shall be left in such a condition that it will provide drainage.
- H. The haul distance to perform fill operations shall be incidental to the price of excavation and no separate or additional payment will be awarded.

### 3.3. EXCAVATION

- A. Remove unsuitable material from excavated areas and prepare such areas for filling and backfilling as specified hereinafter.
- B. Excavated material suitable for backfill may be stockpiled on-site in location designated by Engineer, except place no fill where trenches or other services will be located.
- C. Place excavated soil not suitable for backfilling or site grading and materials containing slag, cinders, foundry sand, debris, and rubble in designated spoil areas and grade to drain.
- D. Prior to placing fill for site grading, disc area minimum of 6 inches deep and compact with a minimum of 8 full coverage passes with compaction equipment. Remove soft spots as directed by Engineer.
  - 1. Slopes steeper than 5:1 (horizontal to vertical): Bench prior to placing fill.
- E. Should moisture conditions become such that, in the opinion of the Engineer, adequate compaction cannot be obtained, Engineer may require that the operations be halted until moisture conditions have improved. Frozen materials shall not be used in the construction of the embankments. The fill shall not be placed on a frozen surface. If the operation in the construction of any section of the embankment has to be stopped during which rain is likely to occur, the surface shall be left in such a condition that it will provide drainage.

### 3.4. SUBGRADE CONSTRUCTION FOR PAVING (SPECIAL SUBGRADE COMPACTION)

- A. This specification applies to construction of subgrades under road paving, parking lots, driveways and other paved areas including:
  - 1. Portland Cement Concrete Paving.

2. Asphaltic Cement Paving.
- B. Provide uniform composition at least 12” below top of subgrade for full width of subgrade plus two (2’) feet on each side; scarify materials, mix and recompact, or otherwise treat to produce a uniform condition. Sequence of compaction is as follows:
    1. Grade to subgrade elevation.
    2. Remove top 6” of subgrade material and stockpile.
    3. Scarify, disk and recompact lower 6” of subgrade to 95% standard proctor density.
    4. Replace top 6” of subgrade and recompact to 95% standard proctor density.
  - C. Remove stones over 2” in size from loosened portion of subgrade and dispose of as directed by Engineer.
  - D. Construct subgrade with uniform density for a width equal to that of proposed drive plus 2’ on each side; density - not less than 95% maximum density.
  - E. In areas where roller cannot compact, provide approved select material; 12” minimum thickness; compact to 95% maximum density with vibrating tamper.
  - F. Construct to elevation and cross-section such that, after rolling, surface will be at required subgrade elevation.
  - G. Fill depressions that develop during rolling with suitable material; continue rolling until subgrade is uniformly firm, properly shaped and true to grade and cross-section.
    1. Maintain until pavement or granular surfacing is placed.
    2. Remove materials (other than sand) which will not compact readily under roller; replace with materials which will compact readily; again roll that portion of subgrade.
  - H. If ruts or other objectionable irregularities form in subgrade during construction, reshape and re-roll subgrade before placing pavement or granular surfacing; fill ruts or other depressions with material similar to other subgrade material.
  - I. Draw template, resting on side forms, over subgrade before pavement material is deposited.

1. Use steel shod template or scratch template with metal pegs set to proper subgrade elevation and spaced at intervals of 6" throughout its length.
2. In irregular sections where use of template is impractical, check subgrade by most accurate practical method with approval of Engineer.

### 3.5. FINISH GRADING

#### A. Examination:

1. Verify fill material to be reused is acceptable.
2. Verify building and trench backfilling has been inspected.
3. Verify subsoil base has been contoured and compacted.

#### B. Subsoil Preparation:

1. Eliminate uneven areas and low spots.
2. Remove debris, roots, branches and stones in excess of 1 inch in size. Remove subsoil contaminated with petroleum products.
3. Scarify subgrade to depth of 3 inches where topsoil is scheduled. Scarify in areas where equipment is used for hauling and spreading topsoil and has compacted subsoil.

#### C. Placing Topsoil:

1. Place topsoil in areas disturbed by construction to a nominal depth of six inches.
2. Use topsoil in relatively dry state. Place during dry weather.
3. Fine grade topsoil eliminating rough or low areas. Maintain profiles and contour of subgrade.
4. Remove roots, weeds and foreign material while spreading.
5. Manually spread topsoil close to trees, plants and building to prevent damage.
6. Lightly compact placed topsoil.
7. Remove surplus subsoil and topsoil from site.



8. Leave stockpile area and site clean and raked, ready to be seeded.

D. Tolerances:

1. Top of Topsoil: Plus or minus 1 inch.

E. Protection:

1. Protect landscaping and other features remaining as final work.

2. Protect existing structures, fences, sidewalks, utilities, paving and curbs.

F. Schedule:

1. Finish grading required on all surfaces not receiving paved surfaces.

## SECTION 31 23 99

### SURFACE RESTORATION

#### PART 1 - GENERAL

##### 1.1. DESCRIPTION

- A. This section describes replacement of obstructions removed to facilitate construction or to excavate trenches, structures or other appurtenances.
- B. Finish grading of excavated areas, excluding areas below Easter Lake normal water level not included in shoreline improvement work.
- C. Restoration of haul roads.

##### 1.2. BASIC REQUIREMENTS

- A. Furnish all labor, materials, and expertise necessary to complete all work specified in this section.

##### 1.3. SUBMITTALS

- A. None.

##### 1.4. REFERENCES

- A. Iowa DOT Standard Specifications for Highway and Bridge Construction, most recent edition, hereinafter referred to as IDOT Standard Specifications.

#### PART 2 – PRODUCTS – Not Used

#### PART 3 - EXECUTION

##### 3.1. FINISH GRADING

- A. Examination:
  - 1. Verify fill material to be reused is acceptable.
  - 2. Verify subsoil base has been contoured and compacted.
- B. Subsoil Preparation:
  - 1. Eliminate uneven areas and low spots.

2. Remove debris, roots, branches and stones in excess of 1 inch in size. Remove subsoil contaminated with petroleum products.
3. Scarify subgrade to depth of 3 inches where topsoil is scheduled. Scarify in areas where equipment is used for hauling and spreading topsoil and has compacted subsoil.

C. Placing Topsoil:

1. Place topsoil in areas disturbed by construction to a nominal depth of six inches.
2. Use topsoil in relatively dry state. Place during dry weather.
3. Fine grade topsoil eliminating rough or low areas. Maintain profiles and contour of subgrade.
4. Remove roots, weeds and foreign material while spreading.
5. Manually spread topsoil close to trees, plants and building to prevent damage.
6. Lightly compact placed topsoil.
7. Remove surplus subsoil and topsoil from site.
8. Leave stockpile area and site clean and raked, ready to be seeded.

D. Tolerances:

1. Top of Topsoil: Plus or minus 1 inch.

E. Protection:

1. Protect landscaping and other features remaining as final work.
2. Protect existing structures, fences, sidewalks, utilities, paving and curbs.

F. Schedule:

1. Finish grading required on all surfaces not receiving paved surfaces.

## SECTION 31 25 53

### SEEDING AND EROSION CONTROL

#### PART 1 - GENERAL

##### 1.1. DESCRIPTION

- A. This section describes seeding and erosion control on project as shown on plans and described herein.
  - 1. Preparation of the seedbed, furnishing and installing seed, maintenance, and guarantee for completed seeded areas, as shown on plans. Seed all areas disturbed by construction, unless otherwise noted.
  - 2. Erosion control measures such as hydraulically applied erosion control, silt fence, and matting.

##### 1.2. BASIC REQUIREMENTS

- A. Furnish labor, equipment, materials, and expertise to complete all work specified in this section.

##### 1.3. PROTECTION OF PROPERTY

- A. Protect existing conditions at the site against damage including the following:
  - 1. Take precautions to insure that equipment, vehicles, and seeding operations do not disturb or damage existing grades, walls, drives, pavement, utilities, plants, lawns, irrigation systems, and other facilities.
  - 2. Any damage to existing trees or shrubs, including branches and root systems shall be repaired and/or pruned by an experienced tree surgeon or arborist.
  - 3. Contractor shall replace plantings damaged due to watering of newly seeded areas with same species, size, 1-year warranty, and planted as approved by Engineer without additional compensation.
  - 4. All existing lawn areas undisturbed by construction within the construction limits shall be mown by the Contractor until the project is accepted.

5. New seeding installed adjacent to existing lawns shall be installed to provide a smooth matching grade transition in a straight, neat alignment as approved by the Engineer.
6. Repair, replace, and/or return to original condition any damaged item, without additional compensation.

#### 1.4. SUBMITTALS

- A. Submit a laboratory analysis showing the seed provided meets or exceeds the minimum requirements of purity and germination stated on an independent certificate of seed analysis document in accordance with the AOSA (Association of Official Seed Analysts) rules and State of Iowa requirements. The seed certification tag and seed analysis document provided must be from the same lot number as shown on the seed tag. The date of test results shall be no greater than 9 months from seed application date. The following information shall be included on the seed laboratory analysis:
  1. Name of company responsible for analysis,
  2. Lot number of seed being provided and tested,
  3. Kind - Botanical and common name of each species. Include cultivar or variety name if applicable.
  4. Seed origin,
  5. Percentage of purity and germination,
  6. Percentage of dormant seed,
  7. Percentage of inert matter, other crop seed and weed seeds,
  8. Restricted and prohibited noxious seed. Provide name of and number per pound of seed.
- B. Submit fertilizer data and application information demonstrating compliance with specifications.
- C. Submit written maintenance instructions recommending procedures for maintenance of seeded areas, prior to final acceptance of the seeded areas.
- D. Submit seed analysis information demonstrating compliance with specifications.

- E. Submit hydraulically applied erosion control product data and installation instructions; including, required substrate preparation, list of materials and application rate.
- F. Submit certification from manufacturer stating they hydraulically applied erosion control product meets or exceeds all physical property, performance, endurance and packaging requirements.
- G. Submit erosion control product data demonstrating compliance with specifications.
- H. Submit data pertaining to other seeding and erosion control accessories, as required.

#### 1.5. QUALITY ASSURANCE

- A. All seed shall be certified and provided by an established seed dealer or certified seed grower.
- B. All materials to be in accordance with Iowa Seed Law and Iowa Department of Agricultural Regulations and shall be labeled accordingly.
- C. All materials and method of operation shall be subject to inspection and approval by Engineer.
- D. Material not meeting requirements specified will be rejected.

#### 1.6 SCHEDULING

- A. Coordinate the seeding schedule with all other work on the project. Seedbed preparation shall be reviewed and approved by the Engineer. Notify the Engineer at least three working days prior to the start of seeding operations.
- B. After all land-disturbing activities are complete and the seedbed has been approved by the Engineer, perform seeding operations.

#### 1.7 DELIVERY, HANDLING AND STORAGE

- A. Deliver seed to site in producer's unopened, fully labeled packages.
- B. Seed package label shall bear producer's guaranteed analysis for percentages of mixture, purity, germination and weed seed content.
- C. Deliver hydraulically applied erosion control products in UV and weather-resistant factory labeled packages. Store and handle as specified and recommended by manufacturer.

- D. Protect all products from damage, from weather, excessive temperatures and construction operations. Store packaged materials off ground and protect from moisture.

## 1.8 WARRANTY

- A. The seeding shall be installed as specified to germinate and provide a uniformly dense stand of the seed mix specified, free of weeds and undesirable species, debris, and free of eroded areas and bare spots. Re-rake areas failing to show a good dense stand within 60 days and reseed as originally specified.
- B. A warranty is to be provided for completed seeded areas, starting upon the date of project acceptance. The warranty is to guarantee completed seeded areas to provide a uniformly dense, live, and healthy stand of seed mix specified, free of weeds and undesirable species, debris, and free of eroded areas, bare spots, diseases, and insects at the end of the minimum maintenance period of 60 days.
- C. During warranty period, any defects in the seeded area and grass stand such as weedy areas, eroded areas and bare spots shall be corrected and reseeded as originally specified until all affected areas are accepted by the Engineer, without additional compensation.
- D. Repair and replace to original condition all damages to property resultant from the seeding operation and all damages as a resultant from the remedying of these defects, without additional compensation.

## 1.9 REFERENCES

- A. Iowa DOT Standard Specifications for Highway and Bridge Construction (Iowa DOT Standard Specifications), most recent edition.
- B. Iowa Statewide Urban Design and Specifications (SUDAS) Standard Specifications, most recent edition.

## PART 2 - PRODUCTS

### 2.1. TOPSOIL

- A. Use topsoil stripped from site and stockpiled during excavation and grading operations as directed by Engineer.
- B. Fertile, friable loam, suitable for growth of grass and plants.
- C. Reasonably free of subsoil, clay lumps, brush, weeds, stones larger than 1" diameter, stalks, roots or other material toxic or harmful to growth.

- D. Containing minimum 2% by weight decomposed vegetable matter, finely divided and readily discernible by visual inspection.

## 2.2. SEED

- A. Provide fresh, clean, new crop, certified seed complying with tolerance for germination and purity and free of poa annua, bent grass, and noxious weed seed. Furnish all seeds, including grass, legume, forbs, and cereal crop seeds, from an established seed dealer or certified seed grower. All materials and suppliers are to follow Iowa Seed Law and Iowa Department of Agriculture and Land Stewardship regulations, and be labeled accordingly.

- B. Approval of all seed for use will be based on the accumulated total of Pure Live Seed (PLS) for each phase of work. PLS is obtained by multiplying purity times germination. PLS shall not be less than the accumulated total of the PLS specified. If the seed does not comply with minimum requirements for purity and germination and such seed cannot be obtained, the Engineer may approve use of the seed on a basis of PLS or may authorize a suitable substitution for the seed specified.

- C. Seed Mix:

1. Cover Crop; provide the following based on seeding date. Seed does not need to be certified Source Identified Class (Yellow Tag).
  - a. Spring (March 1 – May 20): Provide 65 lbs of oats and 40 lbs of annual ryegrass
  - b. Summer (May 21-August 14): Provide 95 lbs of oats and 50 lbs of annual ryegrass
  - c. Fall (August 15-September 30): Provide 40 lbs of annual rye and 65 lbs of grain rye
  - d. Winter (November 1-February 28): Oats 62 lbs of oats and 62 lbs of grain rye
2. Native Seed Mix:
  - a. Provide the following seed mix. All seed, except nurse crop, shall be source-identified, Certified Yellow Tag, in accordance with AOSCA standards and appropriate for project location.
  - b. Seed Dates: Spring Seeding April 1 – June 15, Dormant Seeding may occur when soil temperatures are between 38-32 degrees F between November and March 14<sup>th</sup>.



**Native Seed Mix -**

Shoreline Edge

<u>Botanical Name</u>	<u>Common Name</u>	<u>PLS Ounces/Acre</u>	<u>PLS LBS/Acre</u>	<u>Seed/Oz</u>	<u>Seed/SQ FT</u>
<b>Permanent Grasses/Sedges/Rushes:</b>					
<i>Calamagrostis canadensis</i>	Blue Joint Grass	0.81	0.05	280000	5.20
<i>Carex cristatella</i>	Crested Sedge	1.05	0.07	58000	1.40
<i>Carex comosa</i>	Bootlebrush Sedge	5.81	0.36	30000	4.00
<i>Carex hystericina</i>	Porcupine Sedge	2.90	0.18	30000	2.00
<i>Carex lupulina</i>	Common Hop Sedge	79.20	4.95	3300	6.00
<i>Carex stipata</i>	Common Fox Sedge	7.69	0.48	34000	6.00
<i>Carex stricta</i>	Tussock Sedge	0.49	0.03	53000	0.60
<i>Carex tribuloides</i>	Blunt Broom Sedge	0.22	0.01	120000	0.60
<i>Carex vulpinoidea</i>	Brown Fox Sedge	5.66	0.35	100000	13.00
<i>Glyceria striata</i>	Fowl Manna Grass	2.83	0.18	160000	10.40
<i>Juncus dudleyi</i>	Dudley's Rush	0.14	0.01	3200000	10.00
<i>Juncus effusus</i>	Soft Rush	0.87	0.05	1000000	20.00
<i>Juncus interior</i>	Inland Rush	0.16	0.01	2800000	10.00
<i>Leersia oryzoides</i>	Rice Cut Grass	3.33	0.21	34000	2.60
	<b>Total</b>	<b>107.02</b>	<b>6.69</b>		<b>84.00</b>
<b>Forbs &amp; Legumes:</b>					
<i>Allium cernuum</i>	Nodding Onion	3.44	0.21	7600	0.60
<i>Anemone canadensis</i>	Canada Anemone	3.27	0.20	8000	0.60
<i>Aster novae-angliae</i>	New England Aster	0.20	0.01	65000	0.30
<i>Asclepias incarnata</i>	Rose Milkweed	10.89	0.68	4800	1.20
<i>Asclepias syriaca</i>	Silkweed	13.07	0.82	4000	1.20
<i>Boltonia asteroides</i>	False Aster	0.68	0.04	160000	2.50
<i>Eupatorium perfoliatum</i>	Bonet Grass-leaved	0.95	0.06	160000	3.50
<i>Euthamia graminifolia</i>	Goldenrod	0.50	0.03	350000	4.00
<i>Eryngium yuccifolium</i>	Rattlesnake Master	12.20	0.76	7500	2.10
<i>Gentiana andrewsii</i>	Bottle Gentian	0.05	0.00	280000	0.30
<i>Iris versicolor</i>	Northern Blue Flag	100.52	6.28	1300	3.00
<i>Iris virginica var shrevei</i>	Blueflag Iris	17.42	1.09	1000	0.40
<i>Lythrum alatum</i>	Winged Loosestrife	0.09	0.01	3000000	6.50
<i>Liatris pycnostachya</i>	Prairie Blazing Star	1.98	0.12	11000	0.50
<i>Lobelia cardinalis</i>	Cardinal Flower	0.49	0.03	400000	4.50
<i>Lobelia siphilitica</i>	Great Blue Lobelia	0.57	0.04	500000	6.50
<i>Melanthium virginicum</i>	Bunch Flower	1.45	0.09	9000	0.30
<i>Monarda fistulosa</i>	Wild Bergamot	0.37	0.02	70000	0.60
<i>Parthenium integrifolium</i>	Wild Quinine	3.73	0.23	7000	0.60
<i>Pedicularis lanceolata</i>	Marsh Betony	1.39	0.09	44000	1.40
<i>Penthorum sedoides</i>	Ditch Stoncrop	0.10	0.01	1300000	3.00
<i>Physostegia virginiana</i>	Obedient Plant	5.94	0.37	11000	1.50

<b>Botanical Name</b>	<b>Common Name</b>	<b>PLS Ounces/Acre</b>	<b>PLS LBS/Acre</b>	<b>Seed/Oz</b>	<b>Seed/SQ FT</b>
<i>Pycnanthemum virginianum</i>	Mountian Mint	0.69	0.04	220000	3.50
<i>Rudbeckia hirta</i>	Black-eyed Susan	1.42	0.09	92000	3.00
<i>Solidago rigida</i>	Stiff Goldenrod	0.32	0.02	41000	0.30
<i>Verbena hastata</i>	Blue Vervain	1.17	0.07	93000	2.50
<i>Zizia aurea</i>	Golden Alexanders	4.75	0.30	11000	1.20
<b>Total</b>		<b>184.22</b>	<b>11.51</b>		<b>55.00</b>
<b>Provide Nurse Crop Based on Seeding Dates Below:</b>					
<i>Spring Seeding (April 1 - June 30)</i>					
Avena sativa	Common Oat		32.00	lbs/acre	
<i>Dormant/Frost Seeding (November 1 - March 31)</i>					
Winter Wheat					
			30.00	lbs/acre	

### 2.3. WATER

- A. Water shall be free of any substance harmful to seed growth.
- B. The Contractor shall provide water, equipment, methods of transportation, water tanker, hoses, sprinklers, and labor necessary for the application of water.

### 2.4. FUNGICIDE

- A. A fungicide shall be a noncommercial protectant formulation to provide protection from soil-born fungus diseases of seeds.
- B. The application shall be made at the rate of 5 1/2 ounces of a 75 percent concentrate or equivalent per 100 pounds of seed.

### 2.5. STICKING AGENT

- A. A sticking agent shall be a commercial material recommended by the manufacturer to improve adhesion of inoculant and fungicide to the seed.
- B. For small quantities, less than 50 pounds, the sticking agent need not be a commercial agent, but it must be approved by the Engineer and must be applied separately prior to application of inoculant and fungicide.

## 2.6. HYDRAULICALLY APPLIED EROSION CONTROL PRODUCT

- A. Hydraulically applied erosion control product shall be free of plastic netting and form a fully biodegradable, flexible erosion control blanket composed of one-hundred percent recycled phyto-sanitized and sterilized wood fibers, water absorbents, micro-pore granules, crimped interlocking man-made biodegradable fibers, and naturally derived cross-linked biopolymers.
- B. The product shall disperse readily in water to form a homogeneous slurry and remain in such a state when agitated in a hydraulic mulching unit.
- C. The slurry shall be dyed green to facilitate visual metering during application with said material or homogeneous slurry having no growth or germination-inhibiting factors, being completely non-injurious to plant or animal life and having no toxic effect when combined with seed, fertilizer, and water.
- D. Product shall meet the following requirements:
  - 1. The product shall cure less than 2-hours from time of application, forming a continuous, porous, absorbent and flexible erosion control blanket which is intimately bonded to the soil.
  - 2. The product shall not form a water-resistant crust that can inhibit plant growth, but instead encourage rapid germination and accelerated plant growth.
  - 3. 100% biodegradable as verified by ASTM Test Method D5338.
  - 4. A proven longevity of 12-18 months in accordance with ASTM D5338 and as observed under field conditions.
  - 5. A documented erosion control effectiveness rating of 99% or better as approved by a large-scale independent testing laboratory. It shall exhibit effluent runoff turbidity values less than 100 NTU.
  - 6. Water holding capacity of 1500% in accordance with ASTM D7367.
  - 7. Flexural rigidity when wet of 0.138 oz-in in accordance with ASTM D6575.
  - 8. An 800% growth impact factor or better in accordance with ASTM D7322.
  - 9. Wood fibers shall be weed and pathogen free; as well as, shall be 100% recycled in accordance with ISO 14021.
  - 10. The material shall have no growth or germination-inhibiting factors nor any toxic effect on plant or animal life when combined with seed or fertilizer. Product shall not contain any excessive heavy metals as verified

by US EPA Standard Methods 18<sup>th</sup> Edition. Product shall be verified non-toxic to aquatic and terrestrial life forms as verified by EPA 2021.0 requirements.

- E. All components shall come pre-packaged by manufacturer to ensure material performance and compliance. Field mixing of additives or any components will not be allowed.
- F. Acceptable Products and Manufacturers:
  - 1. Flexterra FGM  
Applied at a rate of 4000 lbs per Acre.  
Manufactured By: PROFILE Products LLC,  
750 Lake Cook Road – Suite 440  
Buffalo Grove, IL 60089  
800-366-1180 (Fax 847-215-0577)  
www.profileproducts.com
  - 2. Or Approved Equal.

## 2.7. OTHER EROSION CONTROL MEASURES

- A. Comply with SUDAS, Section 9040 for the following erosion control measures.
  - 1. SWPPP Management
  - 2. Temporary Rolled Erosion Control Product (RECP)
  - 3. Silt Fence
  - 4. Mulch
  - 5. Stabilized Construction Entrance
  - 6. Turf Reinforcement Mat

## PART 3 - EXECUTION

### 3.1. LOCATIONS

- A. Seeding: All areas disturbed by construction above the normal water level and in areas identified on the plans for shoreline improvements. See plans for location of Native Seed Mix. All other areas shall be seeded with the Cover Crop Seed Mix.
- B. Hydraulically Applied Erosion Control Matting: All areas disturbed by construction above normal water level unless otherwise identified for alternative shoreline treatment on the plans.
- C. Silt Fencing: All areas indicated on the plans and any other areas where erosion may occur.

### 3.2. TOPSOILING

- A. Bring areas to be topsoiled to an elevation 6" below finish grade during grading operations, Section 31 23 99, Surface Restoration.
- B. When contract operations have been completed to point where areas will not be disturbed, clean subgrade free of waste materials, scarify and pulverize to a depth of not less than 3" and remove surface irregularities.
- C. Uniformly distribute topsoil to minimum depth of 6" after compaction.
- D. Subgrade and topsoil must be damp and free from frost.

### 3.3. SEEDBED PREPARATION

- A. Limit preparation of seedbed to areas which will be seeded immediately upon completion.
- B. Remove all straw-mulch, weeds and weed debris where weed growth has developed, in the opinion of the Engineer. Straw-mulch, weed growth and weed debris removal process shall be approved by the Engineer and shall be done without additional compensation.
- C. Use crawler type or dual-wheeled tractors for seedbed preparation. Operate equipment in a manner to minimize displacement of soil and disturbance of the design cross-section. Harrow ridging in excess of 4 inches due to operation of tillage equipment prior to rolling with the cultipacker. Roll the area with no less than one pass of the cultipacker prior to permanent seeding.

- D. The Contractor shall shape and fine grade to remove washes or gullies, water pockets, and irregularities to provide a smooth, firm, and even surface true to grade and cross-section.
- E. Disk or rototill and cultivate seedbed to a minimum 3 inch depth to a fine texture and without soil lumps. Where the area is inaccessible to machinery, it shall be prepared by hand to a minimum depth of 2 inches. Prepare to a fine texture and without soil lumps. Coordinate preparation of all ditches designated for special ditch control with the seedbed preparation. Till parallel to the contours.
- F. Smooth the seedbed with a cultivator-type tillage tool having a rake bar or a rock rake. Pick up and remove all debris, such as rocks, stones, concrete larger than 2 inches (1/2 inch maximum for lawn seeding areas), or roots and other objectionable material that will interfere with the seeding operation. A spring tooth cultivator may be used in lieu of a rock picker. Remove the rock by hand after each use of the cultivator; repeat the process until the soil is relatively free of rock as determined by the Engineer.
- G. Choose equipment to minimize soil compaction. Operate equipment in a manner to minimize displacement of soil and disturbance of the design cross-section. Roll the area with at least one pass of the cultipacker. Remove ruts that develop during the sequence of operations before subsequent operations are performed. This must be completed just prior to seeding and the work approved by the Engineer before the seeding application.

#### 3.4. TILLING

- A. A mechanical rock picker shall be used on areas accessible to machinery to mix fertilizer in the soil to a depth of 3 inches and to remove all rocks, debris, and solid non-soil material larger than 1 inch in diameter from the upper 3 inches of the soil. A spring tooth cultivator may be used in lieu of a rock picker. The rock shall then be removed by hand after each use of the cultivator--the process to be repeated until the soil is relatively free of rock as determined by the Engineer.
- B. Remove all rock remnants from rock piles used on project smaller than 1 inch.
- C. The seedbed shall then be smoothed with a cultivator-type tillage tool having a rake bar-such as the Roseman rake-or a rock rake-such as the York-gauged by rear gauge wheels or by a blade gauged by a landscape roller-such as the Viking roller blade.
- D. Tilling shall be parallel to the contours.

- E. Ruts and wheel tracks in the seedbed from seedbed preparation are to be removed prior to seeding. This must be completed just prior to seeding and the work approved by the Engineer before the seeding application.

### 3.5. SEEDING

- A. Seed Dates: Sowing shall be done between seed dates specified with seed mix. With the agreement of the Landscape Architect and at the full responsibility of the Contractor, seeding operations for all seed types may be conducted outside the specified seeding dates. Seeding outside the specified seed dates may require an increase in seed rates and an alternative nurse crop. Any required modifications to the seed mix must be approved by the Landscape Architect and shall be provided by the Contractor at no additional cost to the Contracting Authority. Should the seeded areas require reseeding, it must be done as specified and at no additional cost to the Contracting Authority.
- B. Rake surface to produce fine soil texture before seeding.
- C. To ensure proper application rates stake and measure the area to be seeded prior mixing.
- D. Prior to seeding, the seedbed will be inspected and approved by the Engineer. Use methods and procedures consistent with equipment manufacturer's recommendations; however, do not operate ground-driven equipment at speeds greater than 10 mph.
- E. On all areas accessible to machinery, sow seed with a native grass seed drill using a two-pass method in opposite directions.
- F. Seed rate to be carefully calculated based on equipment and sowing method used, if applicable, inert material can be added to the mix to help with even distribution. Inert material must be approved by Landscape Architect.
- G. Seed planting depth is from 1/8-1/4- inch.
- H. On areas inaccessible to native grass seed drill, seed may be broadcast seeded using a endgate cyclone seeder. In areas inaccessible to field machinery, the use of hand-operated cyclone seeders will be permitted.
- I. If broadcast seed is used, broadcast evenly over the planting site with not less than two passes in different directions. The application of grass and legume seed with hand seeders must be performed as separate operations. No mixing of these two types of seed will be permitted.

- J. For broadcast seeding, incorporate the seed into the soil by dragging a piece of heavy chain or chain link fence, or using a drag harrow until the seed disappears into the soil. A hand rake can be used in areas inaccessible to field machinery.
- K. All seeded areas will have one pass with a roller or cultipacker to firm the soil.
- L. Alternative Sowing Methods: All other methods of sowing seed must be reviewed and approved by Landscape Architect.

### 3.6. APPLICATION OF HYDRAULICALLY APPLIED EROSION CONTROL PRODUCT

- A. After application of seed. Apply erosion control product. Mix in accordance with manufacturer's specification, instructions and recommendations.
- B. Mix materials using potable water.
- C. Apply hydraulically applied erosion control product in accordance with manufacturer's installation instructions, recommendation and requirements. Use approved hydro-spraying machines with a 50-degree tip fan-type nozzle.
- D. Apply product at a rate of 50 lb per 125 gallons of water. Apply in opposing directions to assure 100% soil surface coverage.

### 3.7. SEEDED AREAS WATERING AND MAINTENANCE

- A. Water will be provided by Contractor. Contractor is responsible for providing piping, labor and equipment to transport and apply water.
- B. During the first week seeded areas shall be kept moist at all times. The areas shall be artificially watered a minimum of twice a day (early morning and evening) every day for the first week after seeding is completed.
- C. For the second and third weeks after seeding, the seeded areas shall be artificially watered once a day (early morning or evening).
- D. The quantity of water used shall be adequate to keep the soil and mulch moist to a depth of 1 inch and ensure growth of the seed. If natural rainfall is adequate to keep the soil and mulch moist as stated above, artificial watering may be deleted.
- E. Any area seeded in the month of May shall be maintained for an additional 3 weeks. The seeded areas shall receive a minimum of 1 inch of water each week (either natural, artificial, or combination) for the fourth, fifth, and sixth week after seeding.
- F. Protect and maintain areas designated by watering until completed project is accepted by Owner, minimum 60 days.



- G. When project is accepted by Owner, furnish complete written instructions for care of seeded area to assure promotion of deep root growth, quality, and which is reasonably free of weeds, disease or other visible imperfections.
- H. Maintenance shall begin immediately following the installation of seed and mulch and continue for a 60 day period for non-native seeded areas and 12-month period for native seeded areas from project acceptance.
- I. Maintenance of seeded areas shall include protection against traffic, repairing of areas damaged, watering, rolling, and mowing.
- J. Mow nurse crop prior to dense establishment and prior to seed head production.
- K. Mow native vegetation to a height of 4 to 6 inches whenever the vegetation grows 12 inches in height or prior to seed head production on weed species in first growing season, approximately every two weeks. If applicable, if the maintenance period continues into a second growing season, mow vegetation to a height of 12 inches once a month. If weed presence is minimal spot mowing, hand weeding or reduced mowing may occur with approval by Owner.
- L. Do not mow wet saturated areas if rutting and soil compaction will result.
- M. If areas are seeded in the fall or not given a full maintenance period, or if seeding establishment is not acceptable at that time, continue maintenance the following spring until acceptable seeded area is established.
- N. If persistent perennial weeds and undesirable species are present a herbicide may be required for weed control. The specific herbicide and method of application shall be approved by Owner and Engineer prior to using any herbicides on site.

### 3.8. RE-SEEDING

- A. When all work related to seeding on an area has been completed but is washed out or damaged prior to final acceptance of the seeding area and that area involves seeding in combination with a hydraulic erosion control product, mulching or fertilizing or both, the area shall be reseeded and re-mulched at the contract unit price or prices when so ordered by the Owner.
- B. Seeded areas damaged by rain prior to full application of hydraulically applied erosion control product shall be reseeded or both at a rate not to exceed the specified rate, as designated by the Engineer, without additional compensation.

### 3.9. EROSION CONTROL

#### A. General

1. Install erosion control measures in accordance with SUDAS, Section 9040 or per manufacturer's instructions in areas indicated on plans.
2. Installation and quantity of erosion control measures shall be in those areas indicated on the plans. Contractor is responsible for erosion control on all disturbed areas requiring such. Engineer is sole judge for adequacy and extent of erosion control.

#### B. Cleanup

1. Perform cleanup operations during installation of work and upon completion.
2. Remove from site all excess materials, debris, and equipment.
3. Hose down and/or broom clean all paved surfaces.
4. Repair any damage resulting from seeding operations and/or installation or removal of erosion control products.
5. Site cleanup shall be considered part of application and shall include the removal of hydraulic slurry from buildings, landscaping, pavements and any other area not specified for application. All debris resulting from this application shall be removed from the site.

### 3.10. FINAL ACCEPTANCE

#### A. The areas seeded shall be given acceptance based upon the following criteria:

1. All requirements for the completed installation and a minimum of 60 days maintenance have been provided for seeded areas.
2. Acceptance will occur, provided seeded areas are in a live, healthy, growing, and well-established condition without eroded areas, bare spots, weeds, undesirable grasses, disease, or insects. Contractor shall guarantee in writing that all work has been completed as specified and provide the date that all activities were completed. Contractor shall replant and redevelop any bare spots or area which does not attain a full stand during first growing season.

3. Seeded areas shall be in a live, healthy, growing, and well-established condition without eroded areas, bare spots, free of weeds, undesirable grasses, disease, or insects.
  4. Re-seeding operations are completed, as per original specifications.
- B. Final acceptance may be given by the Owner upon fulfillment of all items completed as required.

## SECTION 31 32 19

### GEOTEXTILES

#### PART 1 - GENERAL

##### 1.1. DESCRIPTION

- A. This section describes geotextiles to be incorporated into the project.

##### 1.2. BASIC REQUIREMENTS

- A. Furnish all labor, equipment, materials, and expertise necessary to complete all work specified in this section.
- B. Furnish and install geotextile products as shown on the plans or directed by the Owner.

##### 1.3. SUBMITTALS

- A. Submit Product Data including:
  - 1. ASTM Test Data.
  - 2. Installation and use instructions.
  - 3. Sample of each product.
- B. Data to be submitted by manufacturer and certified to be correct.

#### PART 2 - PRODUCTS

##### 2.1. WOVEN GEOTEXTILES

- A. Furnish and install woven geotextiles as specified herein and as shown on the Plans.
- B. Woven geotextiles to be used in construction of crushed stone base and surface as shown in the drawings.

1.	ASTM D-4632	Tensile Strength	300 lbs.
2.	ASTM D-4632	Elongation at Break	15%
3.	ASTM D4833	Puncture	120 lbs.

4.	ASTM D-3786	Mullen Burst	600 psi
5.	ASTM D-4533	Trapezoidal Tear	120 lbs.
6.	ASTM D 4595	Wide Width Tensile	175 lbs.
7.	ASTM D-4751	Apparent Opening Size	40

Test Values listed above are minimum average roll values (MARV).

## 2.2. NON-WOVEN GEOTEXTILES

- A. Furnish and install non woven geotextiles as specified herein and as shown on the Plans.
- B. Non-woven geotextiles to be used in gabion construction as shown in the drawings.

1.	ASTM D-4632	Tensile Strength	200 lbs.
2.	ASTM D-4632	Elongation at Break	50%
3.	ASTM D-4833	Puncture	130 lbs.
4.	ASTM D-3786	Mullen Burst	400 psi
5.	ASTM D-4355	UV Resistance	70% @ 500 hrs.
6.	ASTM D-4491	Permittivity	1.4
7.	ASTM D-4751	Apparent Opening Size	100
8.	ASTM D-4491	Flow Rate	80 gal/min/ft <sup>2</sup>

Test Values listed above are minimum average roll values (MARV).

## PART 3 - EXECUTION

### 3.1. INSTALLATION OF WOVEN GEOTEXTILE

- A. Woven geotextile shall be used as shown on the drawings and as follows:
  - 1. Woven geotextile shall be applied to the crushed stone road above the subgrade and below the crushed stone base course as shown on the drawings.

- B. Woven geotextiles shall be applied in strict compliance with manufacturer's recommendations.

### 3.2. INSTALLATION OF NON-WOVEN GEOTEXTILE

- A. Non-woven geotextile shall be used as shown on the drawings and as follows:
  - 1. Non-woven geotextile shall be used as filter media below rip rap as shown on the drawings.
- B. Non-woven geotextiles shall be applied in strict compliance with manufacturer's recommendations.

## SECTION 31 35 20

### TIED-CONCRETE BLOCK EROSION CONTROL MAT

#### PART 1 - GENERAL

##### 1.1. DESCRIPTION

- A. This section describes the requirements for the manufacturing, installation and quality assurance of a Tied-Concrete Block Erosion Control System. All materials shall meet or exceed the requirements of this specification, and all work will be performed in accordance with the procedures in these project specifications.
- B. Furnish and install Tied-Concrete Block Erosion Control Mat at specified locations according to associated plans, drawings, standard specifications and manufacturer's guidelines as detailed herein.
- C. The Contractor shall furnish all labor, materials, equipment and incidentals required and perform all operations in connection with the installation of Tied-Concrete Block Erosion Control Mat in accordance with the lines, grades, design and dimensions shown on the contract drawings and as specified herein.

##### 1.2. BASIC REQUIREMENTS

- A. Furnish labor, equipment, materials, and expertise to complete all work specified in this section.

##### 1.3. SUBMITTALS

- A. Submit product test data.
- B. Submit product data and application information.
- C. Submit installation and use instructions.
- D. Submit maintenance instructions.
- E. Letter from manufacturer illustrating approval contractor as an authorized system installer.
- F. Submit data pertaining to seeding and accessories, as required.

#### 1.4. REFERENCES

- A. Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction (Iowa DOT Standard Specifications), most recent edition.
- B. ASTM references.

#### 1.5. QUALITY ASSURANCE

- A. Bidding installer shall be pre-approved and qualified by the manufacturer and shall provide a letter of approval from the manufacturer with other required submittals.

### PART 2 - PRODUCTS

#### 2.1. MATERIALS

- A. Tied-Concrete Block Erosion Control Mat.
  - 1. Tied-Concrete Block Erosion Control Mat shall be manufactured or field fabricated from integrally formed individual concrete blocks tied together with high strength geogrid or pre-approved cable system.
  - 2. The concrete blocks, cables, geogrid, fittings and other applicable elements shall be manufactured or fabricated in the largest possible pieces to minimize splicing and to best suit the project needs.
- B. Concrete Blocks.
  - 1. Each block shall be tapered, beveled and interlocked. Each block shall incorporate interlocking surfaces or connections that prevent lateral displacement of the blocks within the mats when they are lifted for placement.
  - 2. Tied-Concrete Blocks shall be wet-cast or dry-cast and conform to the following applicable ASTM specifications:
    - a. Portland Cements – Specification C 150, for Portland Cement.
    - b. Blended Cements – Specification C 595, for Blended Hydraulic Cements.
    - c. Hydrated Lime Types – Specification C 207, for Hydrated Lime Types.
    - d. Pozzolans – Specification C 618, for Fly Ash and Raw or Calcined Natural Pozzolans for use in Portland Cement Concrete.



3. Aggregates shall conform to the following ASTM specification, except that grading requirements shall not necessarily apply:
  - a. Normal Weight – Specification C33, for Concrete Aggregates.
4. Physical Properties of Tied-Concrete Blocks
  - a. The Tied-Concrete Block Mat shall have the following nominal characteristics:

Table 1: Physical Requirements					
Compressive Strength Net Area, Min. PSI		Water Absorption Max. lb/ft <sup>3</sup>		POA (percentage open area)	
Avg. of 3 units	Individual unit	Avg. of 3 units	Individual unit	Avg. of 3 units	Individual unit
4,500	4,000	10	12	30%	30%

5. Durability: Tied Concrete Blocks shall exhibit resistance to mild concentrations of acids, alkalis and solvents. The manufacturer of dry-cast products shall satisfy the purchaser by proven field performance that the concrete blocks have adequate durability when subjected to a freeze-thaw environment.

C. Backing Material.

1. Backing material shall be adhered to Tied-Concrete Block Mat, and shall be double-net excelsior blanket (Curlex II), or equal, to promote growth of vegetation, unless otherwise specified on the plans.

D. Polypropylene Geogrid.

1. The Tied-Concrete Block Mat shall be constructed of a high strength, rough service, low elongating, continuous filament polypropylene geogrid with an acrylic coating certified by the manufacturer to achieve 25-year minimum service life in direct sunlight.

2. Interlocking geogrid shall have the following physical properties:

**Mass/Unit Area** ASTM D-5261 7.0 oz./yd<sup>2</sup>

**Aperture Size** Measured 1.6 x 1.6 inch

**Wide Width Tensile Strength**

Machine Direction (MD) ASTM D-6637 2,055 lb./ft.

Cross Machine Direction (CMD) ASTM D-6637 2,055 lb./ft.

**Elongation at Break** ASTM D-6637 6 %

**Tensile Strength @ 2%**

Machine Direction (MD) ASTM D-6637 822 lb./ft.

Cross Machine Direction (CMD) ASTM D-6637 822 lb./ft.

**Tensile Strength @ 5%**

Machine Direction (MD) ASTM D-6637 1,640 lb./ft.

Cross Machine Direction (CMD) ASTM D-6637 1,640 lb./ft.

**Tensile Modulus @ 2%**

Machine Direction (MD) ASTM D-6637 41,100 lb./ft.

Cross Machine Direction (CMD) ASTM D-6637 41,100 lb./ft.

**Tensile Modulus @ 5%**

Machine Direction (MD) ASTM D-6637 32,900 lb./ft.

Cross Machine Direction (CMD) ASTM D-6637 32,900 lb./ft.

E. Revetment Cable and Fittings.

1. Galvanized or other metal cables are not allowed.
2. Polyester Revetment Cable and Fittings. Revetment cable shall be constructed of high tenacity, low elongating, and continuous filament polyester fibers. Cable shall consist of a core construction comprised of parallel fibers contained within an outer jacket or cover. The weight of the parallel core shall be between 65% to 70% of the total weight of the cable. The revetment cable shall have the following physical properties:

Table 2: Polyester Cable		
Nominal Cable Dia.	Approx. Ave. Strength	Weight per Length
(in.)	(Lbs)	(Lbs)/100 ft.
1/4	3,000	2.2
5/16	7,000	4.4
3/8	10,000	5.5
1/2	15,000	9.7

3. Elongation requirements specified below are based upon stabilized new, dry cable. Stabilization refers to a process in which the cable is cycled fifty (50) times between a load corresponding to  $200D^2$  and a load equal to 10%, 20% or 30% of the cable's approximate average breaking strength. Relevant elongation values are as shown in the table below. The tolerance on these values is  $\pm 5\%$ .

Table 3: ELASTIC ELONGATION		
at Percentage of Break Strength		
10%	20%	30%
0.6	1.4	2.2

4. The revetment cable shall exhibit resistance to most concentrated acids, alkalis and solvents. Cable shall be impervious to rot, mildew and degradation associated with marine organisms. The materials used in the construction of the cable shall not be affected by continuous immersion in fresh or salt water.
5. Selection of cable and fittings shall be made in a manner that insures a safe design factor for mats being lifted from both ends, thereby forming a catenary. Consideration shall be taken for the bending of the cables around hooks or pins during lifting. Revetment cable splicing fittings shall be selected so that the resultant splice shall provide a minimum of 60% of the minimum rated cable strength. Fittings such as sleeves and stops shall be aluminum and washers shall be galvanized steel unless otherwise shown on the Contract Drawings.

F. Filter Fabric.

1. The geotextile filter fabric, when required, shall meet the type and style shown on the plans.

G. Alternative Materials.

1. Alternative materials may be considered. Such materials must be pre-approved in writing by the Engineer prior to bid date. Alternative material packages must be submitted to the Engineer a minimum of fifteen (15) days prior to bid date. Submittal packages for alternate materials must include, as a minimum, the following:
  - a. Full-Scale laboratory testing performed by an independent 3rd party testing facility with associated engineered calculations certifying the hydraulic capacity of the proposed Tied-Concrete Block Erosion Control Mat meets the requirements for Hydraulic Performance.

- b. A list of 15 comparable projects in terms of project size, application and material dimensions in the United States, where the results of the specific alternative material's use can be verified and reviewed for system integrity and sustained, consistent vegetation growth after a minimum of 5 years of service life.

H. Hydraulic Performance.

- 1. Tied-Concrete Block Erosion Control Mat shall conform to the following Hydraulic Performance table minimum values.

Table 4: Hydraulic Performance (min)	
Velocity (ft/sec)	19*
Shear Stress (lb./ft <sup>2</sup> )	24*

\*when subject to Large-Scale Channel Erosion Testing over non-vegetated USCS Soil Classification – Silty Sand (SM) in accordance with ASTM D6460 (modified) @ 30% slope.

- I. The Tied-Concrete Block Erosion Mat shall be Flexamat Channel Liner as manufactured by Motz Enterprises, Inc. or Engineer approved equal.

PART 3 - EXECUTION

3.1. SHIPPING, TRANSPORT, STORAGE & HANDLING

- A. Tied-Concrete Block Mats shall be rolled for shipment. These rolls shall be packaged with high-strength lifting straps for mobilization on-site. Any other shipment method or the elimination of handling straps must be pre-approved by the engineer.
- B. Upon delivery, rolls may be left exposed for up to 30 days. If exposure will exceed 30 days, the rolls must be tarped or otherwise covered to minimize UV exposure.
- C. Rolls shall be inspected upon delivery to insure no damage occurred during transportation. Damage will most likely be observed at roll edges where they may have been bumped with loading/unloading equipment. Any damage to delivered rolls not noted at time of delivery is the responsibility of the contractor.

### 3.2. VISUAL INSPECTION

- A. All units shall be free of defects that would interfere with the proper placing of the unit or impair the strength and permanence of the overall system. Surface cracks incidental to the normal manufacture of concrete shall not be deemed grounds for rejection. Surface chipping resulting from customary methods of manufacture, shipping, handling and installation shall not be grounds for rejection.
- B. Cracks exceeding 0.25 inches in width and/or 1.0 inch in depth shall be deemed grounds for rejection and unit replacement.
- C. Chipping resulting in a weight loss exceeding 15% of the average weight of a concrete unit shall be deemed grounds for rejection and unit replacement.
- D. If a unit is deemed rejected, replacement of said unit shall be in accordance with manufacturers specified Unit Replacement Procedures.
- E. Rolls/Units rejected prior to delivery acceptance shall be replaced at the manufacturers expense. Blocks rejected at the job site which are discovered at time of unrolling shall be replaced at manufacturers expense. Blocks damaged following acceptance of covered area shall be replaced at contractor expense.

### 3.3. INSTALLATION

- A. The prepared subgrade shall provide a firm, unyielding foundation for the mats with no sharp or abrupt changes or breaks in the grade.
- B. The subgrade shall be prepared as detailed on the plans. Subgrade surface shall be free of any debris, protrusions, rocks, sticks, roots or other hindrances which would result in an individual block being raised more than 3/4" above the adjoining blocks. Undulations, rolls, knolls and rises in the subgrade to which the Tied-Concrete Mat is able to contour over and maintain intimate contact with the subgrade will be allowed.
- C. Apply seed directly to the prepared soil prior to installation of mats. Use seed and/or topsoil per project specifications.
- D. Install mats to the line and grade shown on the plans and according to the manufacturer's installation guidelines.
- E. The manufacturer or authorized representative will provide technical assistance during installation as needed.

F. Anchoring.

1. Tied-Concrete Block Erosion Control Mat is to have a toe-in at the leading edge of 12-18” in areas parallel to the direction of hydraulic flow. Alternately, if flows are low, limited or infrequent a soil transition cover may be placed over the leading 18-24” of the mat in lieu of placement in an anchor trench.
2. Alternate systems; where permanent anchoring is required, e.g. hanging mats on steep slopes without toe construction, the cables shall be attached to the anchoring system as indicated on the Contract Drawings. The design and layout of the anchored system shall be designed by the manufacturer

G. The manufacturer shall allow for manipulation of the mat during installation to achieve proper positioning and placement through the use of standard construction equipment including, but not limited to; excavator, forklift, skid-steer, or other under supervision of approved manufacturer representative.

H. Panel Seaming.

1. Panel seams perpendicular to the hydraulic flow will be seamed utilizing a 4’ x roll width section of geogrid. The geogrid is to be placed under the joining sections and connected to the grid of the Tied-Concrete Erosion Mat utilizing either hog rings or zip ties.
2. Zip Ties shall exhibit the following minimum performance levels in accordance with ASTM D-4066 PA 0111.
  - a. 18 lb. minimum tensile strength.
  - b. Carbon Black content of 2.5% min.
  - c. UV Resistance criteria for a minimum of 2 years exposure.
3. Hog Rings used shall be minimum 1” Galvanized Steel.
4. Fasteners selected shall be placed at 12” maximum spacing along and within one foot from the seam.

## SECTION 31 37 00

### RIP RAP AND EROSION STONE

#### PART 1 - GENERAL

##### 1.1. DESCRIPTION

- A. This section describes rip rap, erosion stone, oversize river gravel, pea gravel and installation requirements.

##### 1.2. BASIC REQUIREMENTS

- A. Furnish all labor, equipment, materials, and expertise necessary to place pea gravel, erosion stone or rip rap, and oversize river gravel at the areas indicated on the plans and as described herein.

##### 1.3. SUBMITTALS

- A. Submit product information.
- B. Submit location of source of pea gravel, rip rap and erosion stone material, hardness and gradation report.

##### 1.4. REFERENCES

- A. Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction (IDOT Standard Specifications), most recent edition.
- B. Statewide Urban Design and Standards (SUDAS) Standard Specifications, most recent edition.

#### PART 2 - PRODUCTS

##### 2.1. MATERIALS

- A. Erosion Stone or Rip Rap: Sound, hard, dense blasted rock resistant to action of air and water, and free from seams, cracks or other structural defects. Weight loss shall not be more than 20% after 5 cycles when tested by sodium sulfate test methods, ASTM C88 or 10% when tested by the Iowa Department of Transportation freezing-and-thawing test, Laboratory Test Method 211, Method C. Abrasion loss for all tested in accordance with AASHTO T96.

- B. Recycled PCC pavement or broken concrete is allowed according to Iowa DOT Standard Specifications, Section 4030.01 in locations greater than two feet below normal water level or where approved by the Owner.
- C. Oversize River Gravel: Sound, hard, dense river gravel resistant to action of air and water. Gravel shall consist of approximately 66% igneous rocks, minimum.
- D. Pea Gravel: Natural stone; washed, free of clay, shale, and organic matter.
- E. Gradation:
  - 1. Rip Rap: Iowa DOT Standard Specifications, Section 4130.02.
  - 2. Erosion Stone: Iowa DOT Standard Specifications, Section 4130.04.
  - 3. Oversize River Gravel:
    - a. Nominal size: 3" to 8"
    - b. Nominal top size: 12" in any dimension.
  - 4. Pea Gravel:
    - a. Minimum Size: 1/4 inch
    - b. Maximum Size: 5/8 inch
- F. Non-woven geotextile fabric as specified herein.

## PART 3 - EXECUTION

### 3.1. PREPARATION

- A. Areas on which pea gravel and erosion stone or rip rap is to be placed shall be graded and dressed to lines and grades shown on drawings or as required by Owner in accordance with specifications. Eroded or washed out areas shall be repaired to satisfaction of Owner prior to placement of material.
- B. Prior to transportation provide representative sample of pea gravel, erosion stone, rip rap or oversize river gravel, if requested by Owner (approximately 50 lb.).

### 3.2. INSTALLATION

- A. Place pea gravel, erosion stone and rip rap over geotextile fabric in areas as shown on drawings and as directed by Owner.



- B. Place pea gravel, erosion stone and rip rap to produce reasonably well graded mass of stone with minimum practicable percentage of voids.
  - 1. Place by method that prevents segregation of various sizes of stone.
  - 2. Rearrange or shape material to prescribed section after placement and add additional material if sections indicate such to be necessary in opinion of Owner.
  - 3. Larger stones shall be well distributed throughout mass and finished protection shall be free from pockets of small stones and clusters of large stones.
  - 4. Fill holes or open spots to produce well graded protection.
- C. Place Rip Rap for pipe outlet protections in accordance with SUDAS, Section 9040 and SUDAS Figures 9040.110 and 9040.111.
- D. Place erosion stone for rock check dams in accordance with SUDAS, Section 9040 and SUDAS Figure 9040.107.
- E. Where shown or instructed by the Owner, place oversize river gravel on areas receiving rip rap.
  - 1. River gravel is intended to fill small voids and is used to provide a more natural appearance to rip rap areas.
  - 2. Place by method that allows for a uniform single layer of rock interspersed with rip rap.
  - 3. Payment for oversize river gravel will be an additional unit price item.

**DIVISION 32**  
**EXTERIOR IMPROVEMENTS**

SECTION 32 13 14  
CONCRETE SIDEWALKS

PART 1 - GENERAL

1.1. DESCRIPTION

- A. This section describes construction of concrete sidewalks on prepared subgrade.

1.2. BASIC REQUIREMENTS

- A. Furnish all labor, equipment, materials, and expertise to complete all work specified in this section.

1.3. SUBMITTALS

- A. Submit concrete mix design.
- B. Submit cylinder strength test results from mix design prior to placing any concrete.
- C. In accordance with 2.2 of this section.

1.4. REFERENCES

- A. Iowa DOT Standard Specifications for Highway and Bridge Construction, most recent edition (Iowa DOT Standard Specifications).
- B. American Association of State Highway and Transportation Officials (AASHTO):
  - 1. AASHTO M213-81 - Preformed Expansion Fillers for Concrete Paving and Structural Construction.
  - 2. AASHTO M153-70 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Considerations.
  - 3. AASHTO M148-82 - Liquid Membrane-Forming Compounds for Curing Concrete.

## PART 2 - PRODUCTS

### 2.1. MATERIALS

- A. Concrete shall be C4 mix, Type I (Portland Cement), 4,000 psi at 28 days, 3,000 psi at 7 days.
  - 1. A Class 2 durability coarse aggregate shall be used.
  - 2. Entrained Air Content: 6.5% +/- 1.5%.
- B. Admixtures:
  - 1. Air entraining: ASTM C260.
  - 2. Fly Ash: Type C, ASTM C618 and C494.
  - 3. Retarding: Shall comply with Iowa DOT Standard Specification, Section 4103.01.
  - 4. Calcium chloride may be used only with approval of Engineer.
  - 5. Other admixtures may be used subject to approval of Engineer in accordance with ASTM C494 or applicable standards.
- C. Fine Aggregate: Shall comply with Iowa DOT Standard Specifications, Sections 4110.01, 4110.02, 4110.03 and 4110.04.
- D. Coarse Aggregate: Shall comply with Iowa DOT Standard Specifications, Sections 4115.01, 4115.02, 4115.03, 4115.04 and 4115.05, Durability Class 3.
- E. Water: Clean and clear, free from salt, oil, acid, strong alkalis, vegetable matter, or other substances injurious to concrete; water may be heated for cold weather paving operations; anti-freezing agents not permitted.
- F. Joint Filler: Preformed expansion joint filler: asphalt saturated fiber strips; AASHTO M213; furnish in strips of plan dimensions.
- G. Liquid curing compound: Iowa DOT Standard Specifications, Section 4105.05.
- H. Plastic film: Shall comply with Iowa DOT Standard Specification, Section 4106.02.
- I. Fly ash: Meet requirements of Iowa DOT Standard Specifications, Section 2301.04E and Section 4108, Class C; use source currently approved by Iowa DOT; not acceptable for use after October 15 or prior to March 15.

- J. Burlap: AASHTO M182, Class 3.
- K. Sidewalk Joint Sealer:
  - 1. Joint sealer: Gray, one-component, non-priming, self-leveling, pour grade, polyurethane joint sealer; ASTM C920-79, Type S, Grade P, Class 25 or FS TT-5-00230C, Type 1, Class A; Sonolastic SL1, Vulkem 45 or approved equal. Use in sidewalk joints adjacent to buildings and curb and gutter.
- L. Expansion Joint Filler: 3/4 inch wide preformed expansion joint filler in accordance with Section 2511.05F of Iowa DOT Standard Specifications.

## 2.2. QUALITY CONTROL

- A. Tests on trial batches and concrete placed at project site:
  - 1. Slump: Shall comply with Iowa DOT Standard Specifications, Section 2301.04B.
  - 2. Air Entrainment: Shall comply with Iowa DOT Standard Specification, Section 2301.04C.
  - 3. Minimum compressive strength: ASTM C39; 3,000 psi when tested at 7 days and 4,000 psi when tested at 28 days.
  - 4. Quantity of compression cylinders as specified in Section 03300 - Cast-in-Place Concrete; cast, protect and cure cylinders in accordance with ASTM C31; all concrete testing performed by ACI certified field testing technician per ASTM C94, Section 14.
  - 5. Unit weight of fresh concrete.

## PART 3 - EXECUTION

### 3.1. PREPARATION

- A. In accordance with Section 2511.05:A of Iowa DOT Standard Specifications.
- B. Moisten subgrade prior to placing concrete.

### 3.2. FORMING

- A. Wood or metal, straight and sufficient length to resist springing, tipping or other displacement during process of depositing and consolidating concrete.

- B. Full depth of sidewalk 4 inch minimum or as shown on plans.
- C. Secure, stake, brace, and hold firmly to required line and grade, and sufficiently tight to prevent leakage of mortar.
- D. Clean and oil forms before placing concrete.

### 3.3. REINFORCING

- A. All sidewalks to be reinforced with ASTM C1116-89 4.1.3 Type III polypropylene fibers to concrete mix in ready-mix truck or stationary mixer at a rate of 1.5 pounds per cubic yard of concrete. Mix fibers with concrete mix for a minimum of 5 minutes.

### 3.4. INSTALLATION

- A. Forms shall be checked by Engineer before concrete is placed.
- B. Place concrete in accordance with Section 2511.05:C of Iowa DOT Standard Specifications.
- C. Consolidate, spade and/or vibrate sufficiently to bring mortar to surface. Strike off and float with wooden float.
- D. Steel trowel and brush surface before mortar is set.
- E. Before giving concrete final finish, check surface with 10-ft. straightedge. Correct variations in surface of more than 1 inch by adding or removing concrete while concrete is still plastic.
- F. Round edges of sidewalks along forms and joints with edger of 1/4 in. radius.

### 3.5. JOINTS

- A. Contraction Joints:
  - 1. Slot or groove at least 1-1/2 inches deep and 1/4 inch wide formed by inserting metal parting strip in concrete after it has been struck off and consolidated and while concrete will retain its shape and finish joint edge.
  - 2. Contraction joint may be sawed. Saw joint at least 1/3 slab thickness deep and 1/8 inch wide. Saw as soon as practicable after concrete has set sufficiently to preclude raveling during sawing and before any shrinkage cracking takes place in concrete.

3. Construct transverse joints at right angles to centerline of sidewalk and longitudinal joints parallel to sidewalk centerline.
4. Divide sidewalk into sections with contraction joints. Spacing shall be 4 feet as indicated on the plans or approved by the Engineer.
5. On slabs constructed in partial widths, place transverse joints in line with like joints in previously constructed slabs.

B. Expansion Joints:

1. Place 3/4 inch expansion joint filler between sidewalk and building or other rigid structure.
2. Extend expansion joint filler full depth of sidewalk with top slightly below finished surface of sidewalk.
3. On long lengths of sidewalk, 3/4 inch expansion joints shall be placed at minimum of 50-ft intervals.

C. Sidewalk Joint Sealer as specified under Part 2.1: Materials.

3.6. PROTECTION AND CURING

- A. Erect and maintain suitable barricades as may be necessary to exclude traffic from newly constructed sidewalk. Sidewalk damaged by traffic or otherwise damaged prior to acceptance shall be repaired or replaced at expense of Contractor.
- B. After finishing, concrete shall be cured and protected by one of the methods described in Section 2301.19 of Iowa DOT Standard Specifications.

## SECTION 32 16 40

### CRUSHED STONE BASE AND SURFACE

#### PART 1 - GENERAL

##### 1.1. DESCRIPTION

- A. This section describes construction of crushed stone base and surface for crushed stone surfaced areas.
  - 1. Section as shown on drawings.

##### 1.2. BASIC REQUIREMENTS

- A. Furnish all labor, equipment, materials, and expertise necessary to complete all work specified in this section.
  - 1. Furnishing, hauling, placing, compacting, and shaping to obtain desired cross-section and profile for crushed stone base and surface course for parking areas and for crushed stone surfaced roadways and driveways.

##### 1.3. SUBMITTALS

- A. Submit certification that aggregate source is approved by Iowa DOT for material specified.

##### 1.4. REFERENCES

- A. Iowa DOT Standard Specifications for Highway and Bridge Construction, most recent edition (Iowa DOT Standard Specifications).

##### 1.5. QUALITY ASSURANCE

- A. Provide one 30-lb representative sample of aggregate from source, if requested by Owner. Sample shall be tested by independent testing laboratory for gradation, plasticity index and liquid limit, abrasion, freeze-thaw, and absorption.
- B. In-place density tests shall be made by independent testing firm at locations chosen by Engineer.



## PART 2 - PRODUCTS

### 2.1. MATERIALS

- A. Aggregate for Crushed Stone Surfacing Surface Course: Meeting requirements of Section 4120.04 of Iowa DOT Standard Specifications (Class A Crushed Stone). Gradation shall comply with Gradation No. 11 of Section 4109.
- B. Aggregate for Gravel Surfacing Base Course: Crushed stone, clean screened, gradation shall comply with Gradation No. 4 of Iowa DOT Standard Specifications, Section 4109. Minimum Durability is Class 2.
- C. Aggregate for Construction Entrances: Meeting requirements of Section 4122 of Iowa DOT Standard Specifications (Macadam or 3" clean). Gradation shall comply with Gradation No. 13 of Section 4109.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Subgrade preparation shall be in accordance with project specifications and Iowa DOT Standard Specifications, Section 2109.05.

### 3.2 EQUIPMENT

- A. Weighing Equipment and Procedures: Iowa DOT Standard Specifications, Section 2001.07.
- B. Compaction Equipment:
  - 1. Be of such design that operation shall not disturb subgrade or subbase.
  - 2. Types of equipment used shall be in accordance with Iowa DOT Standard Specifications, Section 2001.05, except that other types of equipment may be used provided it is demonstrated that they will consistently produce specified density and gradation.
  - 3. Compaction equipment known as sheep-foot rollers shall not be used to compact base or surface material.
- C. Equipment for Applying Water: Iowa DOT Standard Specifications, Section 2001.09.
- D. Prewetting Equipment: Iowa DOT Standard Specifications, Section 2001.08.
- E. Proportioning Equipment: When base material is composed of more than one aggregate, proportioning equipment shall include system of calibrated gates.

- F. Spreading Equipment: Capable of uniformly spreading base material to required thickness.
- G. Motor Patrols: Iowa DOT Standard Specifications, Section 2001.15.

### 3.3 CONSTRUCTION

- A. Construct crushed stone base on prepared subgrade or subbase in accordance with following requirements.
  - 1. Delivery of Base Material:
    - a. Prewet aggregate before delivery of aggregate to subbase.
    - b. Engineer may control rate of delivery of aggregate to reduce time aggregate will remain on subbase in uncompacted condition to practical minimum.
  - 2. Moisture Content:
    - a. At time base material is delivered to subbase, water shall be uniformly distributed throughout material so that all particles are uniformly wetted.
    - b. Amount of water shall be within 2.0 percentage points of amount determined as field optimum to produce maximum density, together with stability with field compaction procedure. Moisture content will usually be 85 to 90 percent of optimum determined according to 1.0.05 Laboratory Test Method 103.
    - c. Maintain moisture content in aggregate until compaction of base has been completed.
  - 3. Spreading Aggregate:
    - a. Spread wetted base and surface material to width and depth that base will conform to desired profile and cross-section. Compacted thickness shall be a minimum 3 inches for base material and a minimum 3 inches for surface material with a total combined thickness of 6 inches.
    - b. Maximum compacted thickness of material which may be spread for compaction as single course will be limited to that which will be uniformly and satisfactorily compacted for full depth of such course by compaction equipment employed.

- c. Spread so that uniformity of base and surface material and its moisture content is maintained. When spreader does not spread to full design width in one operation, Engineer may require special handling of center joint to avoid segregation. Special handling may include motor patrol cut of joint after initial compaction, followed by spreading cut material in path of second spreading operation.
- d. Contractor shall be responsible for obtaining designated thickness and for application rates. Any course determined to be deficient in thickness may be corrected by increased thickness of subsequent lift of course; however, thickness of course of 1/2 or 3/8 in. mixture size shall not be increased by more than 1/4 in. to correct deficiency.

4. Compaction:

- a. Promptly after material has been spread, thoroughly and uniformly compact to not less than 95 percent of maximum density described in Laboratory Test Method 103 (Standard Proctor Test).

## SECTION 32 58 13

### TEMPORARY PROJECT SIGNAGE

#### PART 1 - GENERAL

##### 1.1. DESCRIPTION

- A. Install Contract 3 lettering including additional sign board if necessary, and maintain two project signs as described herein.
- B. One sign will be at each location as follows:
  - 1. South park entrance adjacent to the existing kiosk.
  - 2. Northeast corner of beach parking lot.
- C. Sign was constructed and installed by Contract 1A Contractor.

#### PART 2 - PRODUCTS

##### 2.1. MATERIALS

- A. Materials shall be new, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.
- B. Sign materials to be as shown on illustration and as follows:
  - 1. Project sign support posts shall be minimum 4"x 4" S4S dimension lumber treated or cedar intended for exterior use.
  - 2. Project sign shall be constructed of 4' x 8' x 3/4" APA rated A-B grade exterior plywood.
  - 3. Lettering shall be of a permanent type, suitable for outdoor use, color and size as shown on the illustration included with this Specification.

#### PART 3 - EXECUTION

##### 3.1. GENERAL

- A. Construct and install project signs in a professional manner to provide an attractive and uniform appearance.
- B. Mount sign to support posts with appropriate hardware to eliminate the possibility of damage due to wind or other hazards.

- C. Protect sign from damage by construction activities.
- D. Verify sign location with Owner prior to installation.
- E. Contractor shall be responsible for maintaining the project sign in good condition throughout the duration of the project and shall quickly repair any damage.
- F. Construct such that the bottom edge of the project sign is 4' (minimum) above the ground surface.

### 3.2. PROJECT INFORMATION

- A. Project Title: Easter Lake Watershed Restoration
- B. Sponsor/Developer: Polk County Conservation
- C. Official(s) or Sponsor Address: 11407 NW Jester Park Drive  
Granger, IA 50109
- D. Engineer: Snyder & Associates, Inc.  
Second Line: Ankeny, IA 50023
- E. Contract 1A Contractor: Previously provided by Contract 1A Contractor.  
Second Line (Contractor Information): Previously provided by Contract 1A Contractor.
- F. Contract 1B Contractor: Previously provided by Contract 1B Contractor.  
Second Line (Contractor Information): Previously provided by Contract 1B Contractor.
- G. Contract 2 Contractor: Previously provided by Contract 2 Contractor.  
Second Line (Contractor Information): Previously provided by Contract 2 Contractor.
- H. Contract 3 Contractor:  
Second Line (Contractor Information):
- I. Contract 3 Contractor shall provide and maintain sign until contract is complete.
- J. Contract 3 needs only to provide lettering for Contract 3 as indicated on sign layout.
- K. If adequate space is not available on sign, provide additional 12" tall board below sign for placement of Contract 3 information. Additional board to match existing sign in type, construction, and finish.

# Project Construction Sign

White Background



## RESTORATION

Contract 1

*Contractor 1 Info*

Contract 2

*Contractor 2 Info*

Contract 3

*Contractor 3 Info*

Contract 4

*Contractor 4 Info*

Project Engineer:

**Snyder & Associates, Inc.**

(515) 964-2020

[www.snyder-associates.com](http://www.snyder-associates.com)



**SNYDER & ASSOCIATES**  
Engineers and Planners

Cooperatively sponsored by the following agencies:



**Polk County Conservation**

(515) 323-5300

[www.leadingyououtdoors.org](http://www.leadingyououtdoors.org)



Sign Dimensions: 1200mm x 2400mm (approx. 4'x8'x3/4")

Plywood Panel (APA Rated A-B Grade-Exterior)

All logos will be multiple color.

Logos will be available as electronic format.

## **SUPPLEMENTAL INFORMATION**

**APPENDIX A**

**STORM WATER POLLUTION PREVENTION PLAN  
(SWPPP)**



**NPDES GENERAL PERMIT No. 2**  
**STORM WATER POLLUTION PREVENTION PLAN**  
**FOR**  
**EASTER LAKE RESTORATION - CONTRACT 3**  
**City of Des Moines, Polk County, Iowa**  
**Project No. 114.0546**

**NPDES Permit Discharge Authorization Number:** \_\_\_\_\_

**October 24, 2017**

Prepared by:

SNYDER & ASSOCIATES, INC.  
2727 SW Snyder Blvd  
Ankeny, Iowa 50023  
(515) 964-2020

**IMPORTANT NOTICE**

This Storm Water Pollution Prevention Plan (SWPPP) shall be retained on the construction site from the date the construction activities begin to the date of final stabilization. In addition, all contractors shall be supplied with a copy of the SWPPP and shall certify their role as co-permittee by signing the appropriate form in Part 5. It shall be the duty of the OWNER to see that these requirements are met and that the SWPPP is maintained up to date.

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<b>SWPPP-B</b>	PUBLIC NOTICES / NOTICE OF INTENT
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**PART 1**  
**SITE DESCRIPTION / SITE MAP**

**SITE INFORMATION:**

<b>Project Name</b>	<b>EASTER LAKE RESTORATION - CONTRACT 1B</b>
<b>Project Location</b> (address, latitude/longitude or Section-Township-Range)	SW & SE 1/4 Section 24, and NW & NE 1/4 Section 25 of Township 78N, Range 24 West; SW 1/4 Section 19, and NW 1/4 Section 30 of Township 78N, Range 23 West City of Des Moines, Polk County, Iowa
<b>Owner Name</b>	Polk County Conservation
<b>Representative / Title</b>	Douglas Romig, Deputy Director
<b>Owner Address/Phone</b>	11407 NW Jester Park Drive Granger, IA 50109 515.323.5300
<b>Site Area</b>	Approximately 200 acres
<b>Disturbed Area</b>	Approximately 125 acres
<b>Final Runoff Coefficient</b>	0.35
<b>Soil type / characteristics</b>	Loam, clay loam, and silty clay loam moderately susceptible to sheet and rill erosion. (per NRCS Soil Survey of Polk Co., Iowa)
<b>Receiving Waters</b>	Runoff discharged to Easter Lake and ultimately to Des Moines River.
<b>Description</b> (purpose and types of soil disturbing activities)	Project consists of dry-dredge excavation of lake bottom, fill site grading, shoreline stabilization, and fish habitat construction.  Soil disturbing activities include tree clearing, excavation, haul road use, rock revetment placement, and seedbed preparation.
<b>Expected Sequence of Major Construction Activities</b> (subject to change; any deviations shall be noted on this plan)	<ol style="list-style-type: none"> <li>1. Install stabilized construction entrance, staging area controls &amp; perimeter silt barriers</li> <li>2. Clear and grub for earthwork operations</li> <li>3. Continue grading operations (interior silt barrier installation)</li> <li>4. Stabilize denuded areas and stockpiles within 14 days of last construction activity in that area</li> <li>5. Install storm sewer where applicable</li> <li>6. Backfill / finish grading</li> <li>7. Temporary seeding / stabilization</li> <li>8. Permanent seeding/stabilization</li> <li>9. Final completion, removal of temporary erosion control measures</li> </ol>

**PART 2**  
**CONTROLS**

## A. Erosion and Sediment Controls

Measures to be used for controlling erosion and sediment throughout the construction project. Includes stabilization measures for limiting soil erosion from disturbed areas and structural controls to divert runoff and remove sediment. Contractor/subcontractor is responsible for the implementation and management of control measures specific to this site. As work progresses, field investigation may indicate additional erosion control measures may be required as determined by the contractor, owner, engineer, city or other governmentally regulated agencies.

### 1. Stabilization

- a. Preserve existing vegetation in areas not disturbed during construction.
- b. The total area of soil disturbed by construction operations at any time shall be held to a minimum.
- c. Soil Compaction – compaction of soils in areas to be seeded or sodded will be kept to a minimum to increase infiltration of storm water runoff into the groundwater, reducing the amount of runoff. Disc and scarify all haul roads and overly compacted areas prior to project completion and re-seeding.
- d. Temporary Stabilization - areas where construction activity is not planned to occur for at least 21 days will be stabilized within 14 days of ceasing construction activities in that area by one or more of the following temporary erosion control measures.
  - Topsoil stockpiles and disturbed portions of the site will be stabilized with temporary seed and mulch.
  - Frequent watering during construction in dry weather shall minimize wind erosion from exposed soil.
- e. Permanent Stabilization - areas where construction activity has permanently ended will be stabilized within 14 days of ceasing construction activities in that area by one or more of the following permanent erosion control measures.
  - Sodding or permanent seeding/mulch and mulch in all unpaved areas where final grading is complete.
  - Permanently seed drainage swales and install erosion control matting where required immediately upon reaching final grades to decrease erosion and facilitate sediment deposition in surface runoff.
- f. Protection of Trees and Natural Vegetation
  - Undisturbed areas will utilize existing vegetation as a natural buffer zone to increase infiltration and sediment deposition by reducing runoff velocity.
- g. Dust control
  - Mulch or surface watering will be utilized to control wind erosion of susceptible soils during and/or immediately after mass site grading operations.
- h. Channel Stabilization
  - Riprap and engineering fabric placed in channel to prevent erosion.
  - Erosion control mat in conjunction with seeding placed in channel to prevent erosion.

- i. Outlet Stabilization
    - Rock / riprap and engineering fabric installed at storm sewer outlets to prevent erosion.
    - Rock / riprap stilling basins installed at culvert outlets per plans.
  - j. Geotextiles
    - Erosion control matting placed over seeded areas on bare slopes where rill or gully erosion is evident or likely in order to establish vegetation growth and prevent erosion.
    - Erosion control matting placed over retention basin overflow spillways in order to stabilize overflow, establish vegetation growth and prevent erosion.
2. Structural Controls
- a. At all areas where runoff can move offsite, silt fence or approved equal will be installed along the perimeter of the project downstream of soil disturbing activities and storm water discharge points prior to site clearing and grading operations as required and/or shown on the plans.
  - b. Silt fence, sediment traps or equivalent measures for all side slopes and downslope boundaries of the disturbed area provided for disturbed areas.
  - c. Silt barrier enclosures will be installed around all area intakes and flared end section inlets to protect storm sewers from sediment immediately after construction of inlet.
  - d. Silt fence, temporary silt basins, earthen dikes and ditch checks will be installed along concentrated drainageways to control flow velocity and encourage sediment deposition.
  - e. Storm water detention/retention facilities will retain flows and act as temporary sediment basin with the installation of a temporary outlet riser.
    - Installed prior to commencing upstream grading operations and storm sewer installation.
  - f. Drainage swales
    - Permanently seeded immediately upon reaching final grade to facilitate sediment deposition in surface runoff.
    - Convey runoff to sediment basins/acceptable outlet.
    - Used in conjunction with sediment traps, ditch checks, or other control measures to trap sediment.
  - g. Earthen dike will be constructed along the downslope boundaries of undeveloped rough graded areas to divert sheet flow runoff to silt trap/storm sewer outlet.
  - h. Surface roughening – temporarily roughen the surface of graded slopes perpendicular to the slope as an end of day practice and in conjunction with other stabilization measures. Reduces runoff velocity, traps sediment, increases infiltration and aids in establishment of vegetative cover.
  - i. Additional erosion control measures may be required on embankments, stockpiles and other areas to ensure runoff control.

## **B. Other Controls**

Measures for controlling other sources of potential pollution that may exist on the construction site. During the course of construction, it is possible that situations may

arise where unknown materials will be encountered. When such situations occur, they will be handled according to all applicable federal, state, and local regulations in effect at the time.

1. Waste materials

- a. Disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.

2. Hazardous waste

- a. Hazardous waste materials will be disposed of in accordance with applicable local, State, and/or Federal regulations.
- b. Equipment refueling and maintenance operations will be carried out in such a manner so as to prevent any spills and contamination to the soil and groundwater.
- c. Potentially hazardous materials will be used with great care to prevent spillage in any volume.

3. Sanitary waste

A portable restroom facility may be located onsite at the contractor's discretion. Wastes will be collected and disposed of in complete compliance with local, state and federal regulations. This facility will be located in an area where contact with the storm water discharge is minimal.

4. Vehicle tracking

- a. Stabilized construction entrances and/or vehicle washing racks will be installed at all site access points to reduce vehicle tracking of sediment offsite.
- b. Paved streets adjacent to the site will be inspected daily and cleaned as necessary to remove any excess mud, dirt or rock tracked from the site.
- c. Dump trucks hauling material from the site will be properly covered with a tarpaulin.
- d. Dust control measures will be utilized as necessary.

5. Non-storm water discharges

- a. Expected sources of non-storm water discharges from the site during construction may include:
  - Potable water sources including water line flushings, irrigation drainage and fire fighting activities.
  - Pavement/building wash waters where no spills or leaks of toxic or hazardous materials have occurred and excluding detergents.
  - Uncontaminated groundwater from de-watering excavation.
  - Natural springs, wetland, water sources.
  - Foundation or footing drains where flows have not been exposed to solvents.
- b. Non-storm water discharges will be directed to the sediment basin or other appropriate control measure prior to discharging off-site.



## C. Storm Water Management

Post-construction storm water management will be facilitated by silt basins, culverts, and established drainage swales for the developed areas. Runoff will be directed to public storm sewer/drainage ditch to Easter Lake.

Measures implemented to control pollution of storm water after construction is complete include the following:

1. Retention Pond / Silt Basin – permanent pool of Easter Lake, including West Forebay and South Bay will provide sediment control and detention.
2. Open channels
  - a. Vegetated Swales and natural depressions will reduce storm water runoff by increasing infiltration and increase sedimentation by reducing runoff velocity.
  - b. Riprap placed as channel lining in high-flow drainage ditches to prevent erosion and increase sedimentation by reducing runoff velocity.
  - c. Permanent erosion control or turf reinforcement mats will be placed in drainage swales to prevent erosion.
3. Undeveloped areas will be graded at the slopes indicated and have permanent seeding and/or landscaping designed to reduce runoff velocities and increase infiltration.
4. Outlets of all storm sewer systems and culverts will be stabilized with riprap aprons underlain by engineering fabric or rock lined stilling basins to dissipate flow velocities and prevent erosion.

## **CONTROL MEASURE MASTER INDEX**

Use this index to track the status of all erosion & sediment control BMP's on your site as they relate to the current construction phase. Note the corresponding number of the BMP on the erosion control plan (ie: B3) and record installation and removal dates in the table. BMP's will not necessarily be removed during the same phase as their installation. Site conditions should dictate installation and removal.

NUMBER	CONTROL	DATE INSTALLED	DATE REMOVED
<b>PHASE A - DRY DREDGING, GRADING</b>			
A1			
A2			
A3			
A4			
A5			
A6			
A7			
A8			
A9			
A10			
A11			
A12			
A13			
A14			
A15			
A16			
A17			
A18			
A19			

<b>PHASE B - SHORELINE STABILIZATION</b>			
B1			
B2			
B3			
B4			
B5			
B6			
B7			
B8			
B9			
B10			
B11			
B12			
B13			
B14			
B15			
B16			
B17			
B18			

## **CONTROL MEASURE MASTER INDEX**

Use this index to track the status of all erosion & sediment control BMP's on your site as they relate to the current construction phase. Note the corresponding number of the BMP on the erosion control plan (ie: B3) and record installation and removal dates in the table. BMP's will not necessarily be removed during the same phase as their installation. Site conditions should dictate installation and removal.

NUMBER	CONTROL	DATE INSTALLED	DATE REMOVED
PHASE C - FISH HABITAT			
C1			
C2			
C3			
C4			
C5			
C6			
C7			
C8			
C9			
C10			
C11			
C12			
C13			
C14			
C15			
C16			

**PART 3**  
**CONSTRUCTION / IMPLEMENTATION**

## **A. State and Local Requirements**

1. The storm water pollution prevention plan reflects the State of Iowa requirements for storm water management and erosion and sediment control, as established in 161A.64 Code of Iowa, State of Iowa Statutory Requirements Pertaining to Erosion Control Plans.
2. Prior to initiating a land disturbing activity, a person engaged in land disturbing activity shall file a signed affidavit with the soil and water conservation district that the project will not exceed the soil loss limits.
3. All work shall be done in accordance with the 2012 edition of the Iowa DOT Standard Specifications and the project specifications.
4. Code Compliance: The contractor shall comply with the soil erosion control requirements of the Iowa Code, the Iowa DNR NPDES permit and all local ordinances.

## **B. Timing of Controls/Measures**

1. Install down-slope and side-slope perimeter silt fence prior to commencing land-disturbing activity.
2. Install construction entrance and vehicle tracking controls.
3. Construct erosion control measures at storm water discharge points – sediment traps/basins, riprap channel lining, erosion control mat.
4. Do not disturb an area until necessary for construction to proceed.
5. Install interior silt fences, earthen dikes, sediment traps, etc. as grading progresses.
6. Cover or stabilize disturbed areas and stockpiles as soon as possible and no later than 14 days after ceasing construction for more than 21 days or permanently.
7. Place swale control measures (erosion control mats, silt traps, ditch checks, seed & mulch) in drainageways as soon as final grades are achieved and before storm sewer is installed where possible.
8. Construct outlet stabilization measures at storm outlets and place silt barriers at storm sewer inlets immediately after storm sewer is installed.
9. As areas reach their final grade, provide additional silt fence, sediment traps, earthen dikes, ditch checks or filter sock as necessary.
10. Complete permanent stabilization seeding/mulch or sod stabilization as soon as possible after work is complete in an area.
11. Remove temporary sediment controls and accumulated sediment once entire site is stabilized. Re-seed/mulch any areas disturbed during removal.

**PROJECTED CONSTRUCTION SCHEDULE / CONSTRUCTION PROGRESS:**

<b>PHASE A – DRY DREDGING / GRADING</b>	Anticipated Start-End	
-----------------------------------------	-----------------------	--

<b>Initial control measure installation</b> (sediment basin, construction entrance, perimeter silt fence)			
Operator Responsible			
Anticipated Start Date		Anticipated End Date	
Actual Start Date		Actual End Date	

<b>Initial Grading Operations</b> (clearing/grubbing, topsoil stripping/stockpiling/stabilization)			
Operator Responsible			
Anticipated Start Date		Anticipated End Date	
Actual Start Date		Actual End Date	

<b>Major Grading Operations</b> (mass grading, sediment/detention basins, pond, interior silt barrier, temporary stabilization)			
Operator Responsible			
Anticipated Start Date		Anticipated End Date	
Actual Start Date		Actual End Date	

<b>Storm System</b> (storm sewer/structures, culverts, outlet structures)			
Operator Responsible			
Anticipated Start Date		Anticipated End Date	
Actual Start Date		Actual End Date	

<b>Finish Grading / Permanent Stabilization</b> (backfill, finish grading, rock / EC mat placement, seed stabilization, BMP removal)			
Operator Responsible			
Anticipated Start Date		Anticipated End Date	
Actual Start Date		Actual End Date	

<b>PHASE B – SHORELINE STABILIZATION</b>	Anticipated Start-End	
------------------------------------------	-----------------------	--

<b>Initial control measure installation</b> (sediment basin, construction entrance, perimeter silt fence)			
Operator Responsible			
Anticipated Start Date		Anticipated End Date	
Actual Start Date		Actual End Date	

<b>Initial Grading Operations</b> (clearing/grubbing, topsoil stripping/stockpiling/stabilization)			
Operator Responsible			
Anticipated Start Date		Anticipated End Date	
Actual Start Date		Actual End Date	

<b>Major Grading Operations</b> (mass grading, sediment/detention basins, pond, interior silt barrier, temporary stabilization)			
Operator Responsible			
Anticipated Start Date		Anticipated End Date	
Actual Start Date		Actual End Date	

<b>Finish Grading / Permanent Stabilization</b> (backfill, finish grading, rock / EC mat placement, seed stabilization, BMP removal)			
Operator Responsible			
Anticipated Start Date		Anticipated End Date	
Actual Start Date		Actual End Date	

<b>PHASE C – FISH HABITAT</b>	Anticipated Start-End	
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<b>Initial control measure installation</b> (construction entrance, perimeter silt fence)			
Operator Responsible			
Anticipated Start Date		Anticipated End Date	
Actual Start Date		Actual End Date	

<b>Rock Installation / Grading Operations</b> (clearing/grubbing, excavation, rock placement)			
Operator Responsible			
Anticipated Start Date		Anticipated End Date	
Actual Start Date		Actual End Date	

<b>Finish Grading / Permanent Stabilization</b> (backfill, finish grading, seed stabilization, BMP removal)			
Operator Responsible			
Anticipated Start Date		Anticipated End Date	
Actual Start Date		Actual End Date	



### C. Inspection & Maintenance

1. All documents related to the storm water discharge permit shall be kept on site at all times and must be presented to the Iowa DNR or EPA upon request. Including but not limited to the Storm Water Pollution Prevention Plan, Notice of Intent, Proof of Publication, and project inspection diary.
2. The contractor will be responsible for selecting a “qualified” inspector to conduct the inspections. “Qualified” is defined as a person knowledgeable in the principles and practices of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activity.
3. The project area and control devices will be inspected by personnel assigned by the contractor a minimum of every seven calendar days. The findings and any actions taken as a result of this inspection shall be recorded in the project diary with a copy submitted weekly to the owner or owner’s representative during the project.
  - a. Inspect silt fence for depth of sediment, tears, fabric securely attached to posts and posts firmly in the ground.
  - b. Inspect sediment basins for depth of sediment.
  - c. Inspect diversion dikes for any breaches.
  - d. Inspect seeding for bare spots, washouts and healthy growth.
  - e. Inspect site for any other conditions or deficiencies which may allow or contribute to polluted runoff discharging offsite.
4. This pollution prevention plan shall be revised as construction progresses to reflect current ownership, responsibilities, operations and findings.
  - a. The plan will be revised due to any deficiencies in the plan or changes in conditions noted during an inspection and the contractor will implement any and all revisions as soon as practical but no later than 3 business days after the inspection.
  - b. Maintain record of major construction operations start and ending dates and operators responsible for the various phases.
  - c. The plan will be modified within 14 calendar days of a hazardous condition, describing the release, the date of release and the circumstances leading to the release. Steps to prevent the reoccurrence of such releases will be identified in a plan revision and implemented.
5. Maintain all temporary and permanent erosion control measures in good working order by cleaning, repairing, replacement and sediment removal throughout the permit period. Any necessary repairs will be initiated within 24 hours of report.
  - a. Built up sediment will be removed from silt barrier or the silt barrier replaced when it has reached 1/2 the height of the barrier.
  - b. Built up sediment will be removed from sediment basins when it reaches 25% of the design capacity or at the end of the project.
  - c. Accumulation of earth, silt or debris on adjoining properties or streets will be minimized. Remove any accumulation of earth, silt or debris immediately and take remedial actions for prevention.

- d. Minor spills of potentially hazardous materials will be cleaned up by removing and disposing of contaminate soils properly. Major spills shall be reported in accordance with 455B.386 Code of Iowa with clean up procedures dependant on the severity of the spill.
6. Hazardous substance spill prevention and response
- a. The contractor is responsible for training all personnel in the proper handling and cleanup of spilled materials. No spilled hazardous materials or wastes will be allowed to come into contact with storm water discharges. If contact does occur, the storm water discharge will be contained on site until appropriate measures in compliance with all Federal, State, and local regulations are followed to dispose of the hazardous substance.
  - b. In addition to Good Housekeeping and material management practices, the following practices shall be done to minimize the potential for hazardous material spills and to reduce the risk of the spill coming in contact with storm water.
    - Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.
    - Materials and equipment necessary for spill control, containment and cleanup will be provided onsite in a material storage area. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers.
  - c. In the event of a spill, the following procedures will be followed:
    - All spills will be cleaned up immediately following discovery.
    - The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with the hazardous substance.
    - Spill of toxic or hazardous material will be reported to the appropriate state or local governmental agency and to the project manager and engineer, regardless of the size of the spill.
  - d. In the event the construction site has a release of a hazardous substance or oil in an amount which exceeds a reportable quantity (RQ) as defined at 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 then the permittee shall:
    - Person in charge of the site at the time of the spill shall call the EPA National Response Center to report the spill (800-424-8802, or 202-426-2675).
    - Modify the Pollution Prevention Plan accordingly within 14 days of the spill including the items mentioned below.
    - Within 14 days of the release, submit a written description of the release including: a description of the release, type of material, estimated amount of spill, date of release, explanation of why the spill happened, and a description of the steps taken to prevent and control future releases.

## **D. Materials Management**

Site sources of pollution generated as a result of this work related to silts and sediment which may be transported as a result of a storm event. However, this SWPPP provides conveyance for other (non-project related) operations. These other operations have storm water runoff, the regulation of which is beyond the control of this SWPPP.

1. Materials or substances expected to be present onsite during construction:
  - a. Concrete
  - b. Detergents
  - c. Paints
  - d. Tar
  - e. Soil stabilization additives
  - f. Fertilizers
  - g. Petroleum based additives
  - h. Cleaning solvents
  - i. Wood
  - j. Solids and construction wastes
  - k. Pesticides
  
2. Material Management Practices – the following is a list of practices that will be used onsite to minimize the risk of spills or other accidental exposure of materials and substances to storm water runoff.
  - a. Good Housekeeping
    - An effort will be made to store onsite only enough products required to complete the job.
    - All materials stored onsite will be kept in a neat, orderly manner and in their appropriate containers. If possible, products shall be kept under a roof or other enclosure.
    - Materials will be kept in their original containers with the original manufacturer's label.
    - Substances will not be mixed with one another unless recommended by the manufacturer.
    - Whenever possible, all of a product will be used up before disposing of the container.
    - Manufacturer's recommendations for proper use and disposal will be followed.
    - The job site superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.
  - b. Hazardous Products
    - Products will be kept in their original containers with the original manufacturer's label.
    - The original labels and material safety data will be kept for each of the materials as they contain important product information.
    - Disposal of any excess product will be done in a manner that follows all manufacturers', federal, local and state recommended methods for proper disposal.

3. Product Specific Practices – the following is a list of potential sources of pollution and specific practices to reduce pollutant discharges from materials or sources expected to be present during construction.
  - a. Petroleum Storage Tanks
    - All onsite vehicles shall be inspected and monitored for leaks and receive preventative maintenance to reduce the chance of leakage.
    - Steps will be taken by the contractor to eliminate contaminants from storage tanks from entering ground soil. Any petroleum storage tanks kept onsite will be located with an impervious surface between the tank and the ground.
  - b. Fertilizers – shall be applied in minimal amounts as recommended by the manufacturer. It shall be worked into the soil as to minimize the contact with storm water discharge.
  - c. Paints, paint solvents and cleaning solvents – Excess paints and solvents shall not be discharged into the storm sewer system. The contractor shall refer to the manufacturer’s instructions and federal regulations on the proper disposal techniques.
  - d. Concrete wastes
    - Concrete trucks will be allowed to washout or discharge excess concrete only in specifically designated areas which have been prepared to minimize contact between the concrete and storm water discharge from the site.
    - The hardened product from the concrete washout areas will be disposed of as other non-hazardous waste materials or may be broken up and used on the site for other appropriate uses.
  - e. Solid and construction wastes – All trash and construction debris shall be deposited into a dumpster that will be emptied as necessary. No construction waste materials will be buried on site. The dumpsters must be put in a location where the contact with storm water discharge is minimized.

## **PART 4**

### **FINAL STABILIZATION / DISCONTINUATION**

## **A. Final Stabilization / Discontinuation**

1. The storm water discharge from a construction activity is no longer considered to be a discharge subject to the storm water permit requirements when final stabilization has been reached and temporary erosion and sediment controls have been or will be removed. A permittee must submit a Notice of Discontinuation (NOD) to inform the IDNR that storm water discharge from the site will no longer need to be covered by the general permit.
2. “Final Stabilization” – the point at which all soil disturbing activities are complete, and a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures have been employed.
3. Notice of Discontinuation should be mailed to the following address:

Storm Water Coordinator  
Iowa Department of Natural Resources  
502 E. 9<sup>th</sup> Street  
Des Moines, Iowa 50319-0034

4. All plans, inspection reports and other related documents must be retained for a period of three years after project completion. The contractor shall retain a record copy and provide the original documents to the owner upon issuance of the NOD.

**NOTICE OF DISCONTINUATION**  
**OF A STORM WATER DISCHARGE**  
**COVERED UNDER IOWA NPDES GENERAL PERMIT NO. 2**  
**FOR CONSTRUCTION ACTIVITIES**

Name of the owner or facility to which the storm water discharge general permit coverage was issued.

\_\_\_\_\_

List the complete permit authorization number for the discharge. This number is provided on the bottom of the authorization sheet.

IA - \_\_\_\_\_ --- \_\_\_\_\_

List the date the construction site reached final stabilization.

\_\_\_\_\_

The following certification must be signed in accordance with the signatory requirements of the general permit (see back side).

I certify under penalty of law that disturbed soils at the identified facility have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time. I understand that by submitting this Notice of Discontinuation, I am no longer authorized to discharge storm water associated with industrial activity for construction activities by Iowa Department of Natural Resources NPDES General Permit No. 2 and that discharging pollutants from storm water associated with industrial activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by an NPDES permit.

I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations.

\_\_\_\_\_ Name (print) \_\_\_\_\_ Title

\_\_\_\_\_ Signature \_\_\_\_\_ Date

Return to: Storm Water Coordinator  
Department of Natural Resources  
502 E. 9th Street  
Des Moines, IA 50319-0034

**Final Stabilization** means that all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 70% for the area has been established or equivalent stabilization measures have been employed.

**SIGNATORY REQUIREMENTS** All Notices of Intent, storm water pollution prevention plans, reports, certifications or information either submitted to the Department or the operator of a large or medium municipal separate storm sewer system, or that this permit requires be maintained by the permittee, shall be signed in accordance with rule 567--64.3(8) of the Iowa Administrative Code as follows:

64.3(8) *Identity of signatories of operation permit applications.* The person who signs the application for an operation permit shall be:

- a. *Corporations.* In the case of corporations, a principal executive officer of at least the level of vice-president.
- b. *Partnerships.* In the case off a partnership, a general partner.
- c. *Sole proprietorships.* In the case of a sole proprietorship, the proprietor.
- d. *Public facilities.* In the case of a municipal, state, or other public facility, by either the principal executive officer, or the ranking elected official.
- e. *Storm water discharge associated with industrial activity from construction activity.* In the case of a storm water discharge associated with industrial activity from construction as identified in 40 CFR 122.26(b)(14)(x), either the owner of the site or the general contractor.



**PART 5**  
**CERTIFICATION**

## **A. Storm Water Pollution Prevention Plan Certification**

1. This project is subject to section 402(b) of the Clean Water Act and IAC 455 B.174 Subrule 567-64.4 (projects disturbing one or more total acres) and requires inclusion in the National Pollutant Discharge Elimination System (NPDES) General Permit No. 2 or individual NPDES Permit for storm water discharge associated with industrial activity for construction activities. The Contractor shall perform all pollution prevention measures as identified in the plans and specifications. A copy of the Storm Water Pollution Prevention Plan (SWPPP) must be kept at the construction site from the time construction begins until the site has reached final stabilization.
2. The owner and prime contractor must sign the NPDES Certification Statement. The prime contractor must identify which contracting entity will be responsible for each portion of the pollution prevention plan and maintain the site in compliance with the SWPPP, Pollution Prevention Plan drawings and NPDES Permit. The certification must be signed in accordance with the signatory requirements found in the general permit; i.e., principal executive officer, vice president, general partner, proprietor, elector official, and will be incorporated into the pollution prevention plan.
3. All subcontractors, including short-term contractors and subcontractors, prior to approval, must sign the NPDES Certification Statement before conducting any work at the site. The certification must be signed in accordance with the signatory requirements found in the general permit; i.e., principal executive officer, vice president, general partner, proprietor, elector official, and will be incorporated into the pollution prevention plan.
4. Upon signing the certification, the contractor or subcontractor becomes a co-permittee with the owner and other co-permittee contractors. In signing the plan, the authorized representative certifies that the information is true and assumes liability for the plan and its implementation. Note that Section 309 of the Clean Water Act provides for significant penalties where information is false or the permittee violates, either knowingly or negligently, the permit requirements.
5. A copy of the NPDES Certification Statement of the Owner, Prime Contractor and all Subcontractors shall be filed in and become a part of the project SWPPP.

**NPDES CERTIFICATION STATEMENT**  
(Owner certification)

Project	<b>EASTER LAKE RESTORATION - CONTRACT 3</b>
Project Location (address, lat./long., Sec.-T-R)	SW & SE 1/4 Section 24, and NW & NE 1/4 Section 25 of Township 78N, Range 24 West; SW 1/4 Section 19, and NW 1/4 Section 30 of Township 78N, Range 23 West City of Des Moines, Polk County, Iowa

I certify under penalty of law that this document and all attachments were prepared under my direction of supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site as part of this certification. Further, by my signature, I understand that I am becoming a co-permittee, along with the owner(s) and other contractors and subcontractors signing such certifications, to the Iowa Department of Natural Resources NPDES General Permit No. 2 for “Storm Water Discharge Associated with Industrial Activity for Construction Activities” at the identified site. As a co-permittee, I understand that I, and my company, are legally required under the Clean Water Act and the Code of Iowa, to ensure compliance with the terms and conditions of the storm water pollution prevention plan developed under this NPDES permit and the terms of this NPDES permit.

Owner	Polk County Conservation	
Address	11407 NW Jester Park Drive Granger, IA 50109	Phone 515.323.5300
Representative	Douglas Romig	Title Deputy Director
Signature	Date	

**NPDES CERTIFICATION STATEMENT**  
**(for contractors with authority to modify SWPPP)**

Project	<b>EASTER LAKE RESTORATION - CONTRACT 3</b>
Project Location (address, lat./long., Sec.-T-R)	SW & SE 1/4 Section 24, and NW & NE 1/4 Section 25 of Township 78N, Range 24 West; SW 1/4 Section 19, and NW 1/4 Section 30 of Township 78N, Range 23 West City of Des Moines, Polk County, Iowa

I certify under penalty of law that this document and all attachments were prepared under my direction of supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site as part of this certification. Further, by my signature, I understand that I am becoming a co-permittee, along with the owner(s) and other contractors and subcontractors signing such certifications, to the Iowa Department of Natural Resources NPDES General Permit No. 2 for “Storm Water Discharge Associated with Industrial Activity for Construction Activities” at the identified site. As a co-permittee, I understand that I, and my company, are legally required under the Clean Water Act and the Code of Iowa, to ensure compliance with the terms and conditions of the storm water pollution prevention plan developed under this NPDES permit and the terms of this NPDES permit.

Contractor / Sub-contractor	
Responsible for	
Address	Phone
Representative	Title
Signature	Date

**NPDES CERTIFICATION STATEMENT**  
 (for contractors with NO authority to modify SWPPP)

Project	<b>EASTER LAKE RESTORATION - CONTRACT 3</b>
Project Location (address, lat./long., Sec.-T-R)	SW & SE 1/4 Section 24, and NW & NE 1/4 Section 25 of Township 78N, Range 24 West; SW 1/4 Section 19, and NW 1/4 Section 30 of Township 78N, Range 23 West City of Des Moines, Polk County, Iowa

I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site as part of this certification. Further, by my signature, I understand that I am becoming a co-permittee, along with the owner(s) and other contractors and subcontractors signing such certifications, to the Iowa Department of Natural Resources NPDES General Permit No. 2 for “Storm Water Discharge Associated with Industrial Activity for Construction Activities” at the identified site. As a co-permittee, I understand that I, and my company, are legally required under the Clean Water Act and the Code of Iowa, to ensure compliance with the terms and conditions of the storm water pollution prevention plan developed under this NPDES permit and the terms of this NPDES permit.

Contractor / Sub-contractor	
Responsible for	
Address	Phone
Representative	Title
Signature	Date

**APPENDIX SWPPP-A**  
**NPDES GENERAL PERMIT No. 2**

**IOWA DEPARTMENT OF NATURAL RESOURCES**

**NATIONAL POLLUTANT DISCHARGE ELIMINATION  
SYSTEM (NPDES)**

**GENERAL PERMIT NO. 2**

**EFFECTIVE DATES  
OCTOBER 1, 2012 THROUGH OCTOBER 1, 2017**

**FOR**

**STORM WATER DISCHARGE ASSOCIATED WITH  
CONSTRUCTION ACTIVITIES**





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**PART I. COVERAGE UNDER THIS PERMIT**

A. **PERMIT AREA** This permit covers all areas of the State of Iowa.

B. **ELIGIBILITY**

1. A. Except for discharges identified under Parts I.B.2. and I.B.3., this permit may authorize the discharge of storm water associated with industrial activity from construction sites, (those sites or common plans of development or sale that will result in the disturbance of one or more acres total land area), (hereafter referred to as storm water discharge associated with industrial activity for construction activities) occurring after the effective date of this permit (including discharges occurring after the effective date of this permit where the construction activity was initiated before the effective date of this permit), including storm water discharge associated with industrial activity from areas that are dedicated to producing earthen materials, such as soils, sand and gravel, for use at a single construction site.

B. This permit may authorize storm water discharge from a construction site that is mixed with storm water discharge associated with industrial activity from sources other than construction activities provided that the storm water discharge from the industrial (non-construction) source is in compliance with the terms of a NPDES general permit, other than this general permit, or individual permit authorizing such discharge. In addition, the storm water other than from construction, shall be in compliance with Part IV.D.6. of this permit.

2. **LIMITATIONS ON COVERAGE** The following storm water discharges associated with industrial activity for construction activities are **not** authorized by this permit:

A. storm water discharges that are mixed with sources of non-storm water other than discharges identified in Part III.A.2. of this permit;

B. storm water discharges associated with industrial activity for construction activities which are covered by an existing individual NPDES permit or which are issued a permit in accordance with Part I.C. of this permit.

Storm water discharges authorized by an existing individual NPDES permit will be eligible to apply for coverage under this general permit as the existing individual permit expires; and

C. storm water discharges associated with industrial activity for construction activities that the Iowa Department of Natural Resources has determined to be or may reasonably be expected to be contributing to a violation of a water quality standard.

D. new or expanded “storm water discharge associated with industrial activity” that discharges to Outstanding Iowa Waters or to Outstanding National Resource Waters.

3. **EXCLUSIONS** The following “storm water discharges associated with industrial activity” from construction activities do not require a NPDES permit:

discharges from agricultural and silvicultural activities including storm water runoff from orchards, cultivated crops, pastures, range lands, and forest lands, but not discharges from concentrated animal feeding operations as defined in 40 CFR 122.23, concentrated aquatic production facilities as defined in 40 CFR 122.24, discharges to aquaculture projects as defined in 40 CFR 122.25, and discharges from silvicultural point sources as defined in 40 CFR 122.27.

C. **REQUIRING AN INDIVIDUAL PERMIT**

1. The Department may require any person authorized by this permit to apply for and obtain an individual NPDES permit. The Department may require any owner or operator authorized to discharge under this permit to apply for an individual NPDES permit only if the owner or operator has been notified in writing that a permit application is required. This notice shall include a brief

statement of the reasons for this decision, an application form, a statement setting a deadline for the owner or operator to file the application, and a statement that on the effective date of the individual NPDES permit, coverage under this general permit shall automatically terminate. If an owner or operator fails to submit an individual NPDES permit application required by the Department under this paragraph, coverage of this general permit automatically is terminated at the end of the day specified for submittal of the individual NPDES application.

2. Any person authorized to discharge under this permit may apply for an individual NPDES permit. In such cases, the discharger shall submit the following in accordance with the requirements of subrule (567)--64.3(4) in the Iowa Administrative Code:
  - A. an individual application, using DNR Form 1 and EPA Form 2F, and,
  - B. all applicable fees identified in rule (567)--64.16 in the Iowa Administrative Code.
3. When an individual NPDES permit is issued to a discharger covered under this general permit, the applicability of this general permit to the individual NPDES permittee is automatically terminated on the effective date of the individual NPDES permit.

When an individual NPDES permit is denied to a discharger otherwise subject to this permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the date of such denial, unless otherwise specified by the Department.

**D. AUTHORIZATION**

A discharger must submit a Notice of Intent (NOI) in accordance with the requirements of Part II of this permit in order for storm water discharge associated with industrial activity for construction activities pursuant to Part I.B. of this permit to be authorized to discharge under this general permit.

**PART II. NOTICE OF INTENT (NOI) REQUIREMENTS**

**A. DEADLINES FOR FILING A NOTICE OF INTENT**

For storm water discharge associated with industrial activity for construction activities where construction begins after October 1, 1992, construction activities shall not commence until an authorization has been issued for the project by the Department.

- B. FAILURE TO NOTIFY** Dischargers who fail to notify the Department of their intent to be covered, and discharge pollutants to water of the United States within Iowa, without an NPDES permit, are in violation of the Clean Water Act and the Code of Iowa.

- C. CONTENTS OF THE NOTICE OF INTENT** A complete Notice of Intent shall include the items described in Parts II.C.1., II.C.2., and II.C.3. of this permit.

1. A completed Notice of Intent (NOI) form, DNR Form 542-1415, signed in accordance with Part VI.G. of this permit. The information on the form shall include the following:

**A.** Name, address, and location of the construction site for which this notification is submitted. The location should be provided as the 1/4 section, township, range, and the county in which the storm water discharge is located.

**B.** The owner's name, address, telephone number, and status (federal, state, private, public or other entity).

**C.** The name, address and telephone number of any operator (contractor) that has been identified as having a role in the storm water pollution prevention plan for the site required under Part IV.D.7. of this permit. Contractors (operators) identified after the submittal of the completed Notice of Intent shall be identified in the pollution prevention plan.

**IOWA DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 2**  
**STORM WATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR CONSTRUCTION ACTIVITIES**  
**EFFECTIVE DATE - OCTOBER 1, 2007 TO OCTOBER 1, 2012**

**D.** The type of discharge (new or existing as related to October 1, 1992); whether or not the discharge is to a municipal separate storm sewer system; the date the discharge is to commence; the permit status of the discharge; and, the name of the receiving waters.

**E.** An indication if any existing quantitative data is available describing the concentration of pollutants in storm water discharges and a summary of available existing data. (Existing data should not be included as part of the NOI, it should retained as part of the Pollution Prevention Plan).

**F.** A brief description of the project; an estimated timetable for major activities; and, an estimate of the number of acres of the site on which soil will be disturbed.

**G.** A certification that compliance with **G.(1).** through **G.(4).** are met:

**G.(1).** the pollution prevention plan has been developed before this Notice of Intent is submitted to the Department;

**G.(2).** the pollution prevention plan will be implemented on October 1, 1992 for any existing storm water discharge associated with industrial activity for construction activities. For a storm water discharge associated with industrial activity for construction activities that commence after October 1, 1992, the pollution prevention plan shall be implemented with the start of construction activities;

**G.(3).** this Notice of Intent will be included and incorporated into the pollution prevention plan and will be updated as required; and,

**G.(4).** the storm water pollution prevention plan provides compliance with section 467A.64 of the Code of Iowa and local sediment and erosion plans and are consistent with the requirements of Part IV of this general permit.

**2.** **APPLICABLE FEES** The applicable fees specified in Iowa Administrative Code 567 -- 64.16(455B).

**3.** **PUBLIC NOTIFICATION** A demonstration that the public notice specified in Iowa Administrative Code 567--64.6(1)"c"(2) was published at least one day, in at least two newspapers with the largest circulation in the area in which the facility is located or the activity will occur.

**D.** **WHERE TO SUBMIT** Facilities which discharge storm water associated with industrial activity for construction activities must submit items described in Parts II.C.1., 2., and 3. of this permit to the Department at the following address:

Storm Water Coordinator  
Iowa Department of Natural Resources  
502 E. 9th St.  
Des Moines, IA 50319-0034

**E.** **RENOTIFICATION** Prior to the expiration of an authorization issued under this general permit, the permittee is required to resubmit a Notice of Intent (no additional public notices are required) with the Department for coverage under the new general permit. If a new general permit has not been reissued prior to the expiration of the current permit, the provisions and coverage of the current permit are extended until replaced by the adoption of a new general permit.

**F.** **TRANSFER OF COVERAGE UNDER THIS PERMIT** For storm water discharge associated with industrial activity for construction activities where the ownership changes, the Department must be notified of the title transfer within 30 days. Both the previous owner(s) and the new owner(s) are responsible for notifying the Department of the transfer and the new owner's name and contact information. This requirement shall be satisfied upon the Department's receipt of the notification of this information by either the previous owner(s) or the new owner(s). If a storm water discharge associated with industrial activity for construction activities is covered by this general permit, the new

owner(s) shall be subject to all terms and conditions of this general permit. A copy of the notice of transfer that was sent to the Department shall be included in the pollution prevention plan. For construction activity which is part of a larger common plan of development such as a housing or commercial development project, if a permittee transfers ownership of all or any part of property subject to this permit, both the permittee and transferee shall be responsible for compliance with the provisions of this permit for that portion of the project which has been transferred including when the transferred property is less than one acre in area. If the new owner(s) agree in writing to be solely responsible for compliance with the provisions of this permit for the property which has been transferred, then the existing permittee(s) shall be relieved of responsibility for compliance with this permit for the transferred property, from and after the date the Department receives written notice of transfer of responsibility. A copy of the notice of transfer of responsibility shall be included in the pollution prevention plan.

**G. NOTICE OF DISCONTINUATION**

1. Within 30 days after final stabilization at a construction site (as defined in Part VIII of this permit), the operator or owner of the facility shall submit a Notice of Discontinuation to the Department.
2. The Notice of Discontinuation shall include the following information:
  - A. the name of the owner/operator to which the permit was issued;
  - B. the general permit number and permit authorization number;
  - C. the date the construction site reached final stabilization; and,
  - D. the following certification signed in accordance with Part VI.G. of this permit:

"I certify under penalty of law that disturbed soils at the identified facility have been finally stabilized and temporary erosion and sediment

control measures have been removed or will be removed at an appropriate time. I understand that by submitting this Notice of Discontinuation, that I am no longer authorized to discharge storm water associated with industrial activity for construction activities by Iowa Department of Natural Resources General NPDES Permit No. 2. and that discharging pollutants from storm water associated with industrial activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit."

**PART III. SPECIAL CONDITIONS, MANAGEMENT PRACTICES, AND OTHER NON-NUMERIC LIMITATIONS**

**A. PROHIBITION ON NON-STORM WATER DISCHARGES**

1. All discharges authorized by this permit shall be composed entirely of storm water except for non-storm discharges listed in Part III.A.2.
2. Discharges from fire fighting activities; fire hydrant flushings; waters used to wash vehicles in accordance with Part IV.D.2.C.(2).; potable water sources including waterline flushings; irrigation drainage; routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; uncontaminated groundwater; and foundation or footing drains where flows are not contaminated with process materials such as solvents; may be authorized by this permit provided the non-storm water component of the discharge is in compliance with Part IV.D.5. of this permit.

**B. RELEASES IN EXCESS OF REPORTABLE QUANTITIES**

Any owner or operator identified in the pollution prevention plan is subject to the spill notification requirements as specified in 455B.386 of the Iowa Code. Iowa law requires that as soon as possible but not more than six hours after the onset of

a "hazardous condition" the Department and local sheriff's office or the office of the sheriff of the affected county be notified.

The storm water pollution prevention plan described in Part IV of this permit must be modified within 5 calendar days of knowledge of the release to provide a description of the release and the circumstances leading to the release and to identify and provide for the implementation of steps to prevent the reoccurrence of such releases and to respond to such releases.

#### **PART IV. STORM WATER POLLUTION PREVENTION PLANS**

A storm water pollution prevention plan shall be developed for each construction site covered by this permit. Storm water pollution prevention plans shall be prepared in accordance with good engineering practices. The plan shall identify potential sources of pollution which may reasonably be expected to affect the quality of the storm water discharge from the construction activities. In addition, the plan shall describe and ensure the implementation of practices which will be used to reduce the pollutants in storm water discharge associated with industrial activity for construction activities at the construction site and to assure compliance with the terms and conditions of this permit. Facilities must implement the provisions of the storm water pollution prevention plan required under this part as a condition of this permit.

##### **A. DEADLINES FOR POLLUTION PREVENTION PLAN PREPARATION AND COMPLIANCE**

1. **POLLUTION PREVENTION PLAN PREPARATION DEADLINE** The pollution prevention plan shall be completed prior to the submittal of an NOI to the Department to be covered under this permit and shall be updated as appropriate.
2. **POLLUTION PREVENTION PLAN COMPLIANCE DEADLINE** The pollution prevention plan shall provide for compliance with the terms and schedule of the plan prior to the initiation of construction activities.

##### **B. SIGNATURE AND PLAN REVIEW**

1. The plan shall be signed in accordance with Part VI.G., and be retained at the construction site from the date construction activities begin to the date of final stabilization.
  2. The permittee shall make plans available to the Department upon request, or in the case of a storm water discharge associated with industrial activity for construction activities which discharge through a municipal separate storm sewer system with an NPDES permit, to the municipal operator of the system.
  3. The Department may notify the permittee at any time that the plan does not meet one or more of the minimum requirements of this Part. After such notification from the Department, the permittee shall make changes to the plan and shall submit to the Department a written certification that the requested changes have been made. Unless otherwise provided by the Department, the permittee shall have 3 business days after such notification to make the necessary changes.
  4. All storm water pollution prevention plans received by the Department from the permittee are considered reports that shall be available to the public under Section 308(b) of the CWA and Chapter 22 of the Code of Iowa. However, the permittee may claim any portion of a storm water pollution plan as confidential in accordance with Chapter 22 of the Code of Iowa and Iowa Administrative Code (561)--2.5.
- ##### **C. KEEPING PLANS CURRENT**
- The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not been addressed in the plan or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified in Part IV.D.2. of this permit, or in otherwise achieving the general objectives of controlling pollutants in storm water discharge associated

with industrial activity for construction activities. In addition, the pollution prevention plan shall be updated to: expeditiously change the site map to include changes at the site, include contractors identified after the submittal of the Notice of Intent as Co-permittees, described in Part IV.D.7. of this permit; identify any change in ownership or transference of the permit and permit responsibilities; or, if required, by the occurrence of a hazardous condition (as defined in Part VIII of this permit). Amendments to the plan may be reviewed by the Department of Natural Resources in the same manner as Part IV.B.2.

**D. CONTENTS OF THE POLLUTION PREVENTION PLAN.** The storm water pollution prevention plan shall include the following items:

**1. SITE DESCRIPTION** Each plan shall provide a description of the following:

**A.** a description of the nature of the construction activity;

**B.** estimates of the total area of the site and the area of the site that is expected to be disturbed by excavation, grading, or other activities;

**C.** an estimate of the runoff coefficient of the site after construction activities are completed and existing data describing the soil or the quality of any discharge from the site;

**D.** a site map indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, the location of structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands), and locations where storm water is discharged to a surface water; and

**E.** the name of the receiving water(s) and the ultimate receiving water(s).

**2. CONTROLS** Each plan shall include a description of controls that will be implemented at the construction site. The plan will clearly describe the intended sequence of major activities and for each activity, the appropriate control measures and the timing during the construction process that the measures will be implemented. (For example, perimeter controls for one portion of the site will be installed after the clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. Perimeter controls will be actively maintained until final stabilization of those portions of the site upward of the perimeter control. Temporary perimeter controls will be removed after final stabilization). The description of controls shall address the following minimum components:

**A. EROSION AND SEDIMENT CONTROLS**

**A.(1). STABILIZATION PRACTICES** A description of temporary and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans should ensure that existing vegetation is preserved where attainable and that disturbed areas are stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as precluded by snow cover, stabilization measures shall be initiated on all disturbed areas as soon as practical but in no case where construction activity will not occur for a period of 21 or more calendar days later than the 14th day after no construction activity has occurred on such area. Where the initiation of stabilization measures by the 14th day after no construction activity occurs is precluded by snow cover, then stabilization measures shall be initiated as soon as practicable thereafter.

**A.(2). STRUCTURAL PRACTICES** A description of structural practices to the degree attainable, to divert flows from



exposed soils, store flows or otherwise limit runoff from exposed areas of the site. Such practices may include silt fences, earth dikes, brush barriers, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. Structural practices should be placed on upland soils to the degree attainable. The installation of these devices may be subject to Section 404 of the CWA.

**A.(2).(a).** For common drainage locations that serve an area with more than 10 disturbed acres at one time, a temporary or permanent sediment basin providing 3,600 cubic feet of storage per acre drained shall be provided where attainable until final stabilization of the site has been achieved. The 3,600 cubic feet of storage area per acre drained does not apply to flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around the sediment basin. For drainage locations which serve more than 10 disturbed acres at one time and where a temporary sediment basin providing 3,600 cubic feet of storage per acre drained is not attainable, sediment traps, silt fences, or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area.

**A.(2).(b).** For drainage locations serving 10 or fewer acres, sediment traps, silt fences or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area or a sediment basin providing for 3,600 cubic feet of storage per acre drained.

**A.(2).(c).** Unless infeasible, the following measures shall be implemented at all sites: utilize outlet structures that withdraw water from the surface when discharging from basins, provide and maintain natural buffers around surface waters, direct storm water to vegetated areas to increase sediment removal and maximize storm water infiltration and minimize soil compaction. Topsoil shall be

preserved at all construction sites unless land use precludes the practice. The requirement to preserve topsoil shall be met only when the depth of topsoil after soil disturbing activities have been completed and final stabilization achieved for the permitted activity is equal to, or greater than, 4.0 inches, including soil contained in sod, on all areas of the site where the surface of the ground disturbed for the permitted construction activities is exposed and not covered by concrete, asphalt, gravel or other such material and where 4.0 inches or more of topsoil existed prior to the commencement of soil disturbing activities that are permitted under the current permit authorization for the site. On areas where less than 4.0 inches of topsoil existed prior to the commencement of soil disturbing activities that are permitted under the current permit authorization for the site, the minimum depth of topsoil after soil disturbing activities have been completed and final stabilization achieved for the permitted activity shall be equal to, or greater than, the depth of topsoil that existed prior to the commencement of soil disturbing activities that are permitted under the current permit authorization for the site.

The final topsoil depth is to be measured after the soil has been compacted in a fashion generally considered adequate for an established lawn and so that the expected settling that will occur after measurement will be minimal and shall include the soil contained in any sod that has been placed on the site. The type of topsoil at the site after soil disturbing activities have been completed and final stabilization achieved for the permitted activity shall be similar to that which exists or existed in the general area of the site.

For construction activity which is part of a larger common plan of development, such as a housing or commercial development project, in which a new owner agrees in writing to be solely responsible for compliance with the provisions of this permit for the property which has been transferred or in which the new owner has obtained authorization under this permit for a lot or lots (as specified in subrule 567-64.6(6) of the Iowa Administrative Code), the topsoil preservation

requirements described above must be met no later than at the time the lot or lots have reached final stabilization as described in this permit.

For sites where less than 4.0 inches of topsoil is to be in place after soil disturbing activities have been completed and final stabilization achieved for the permitted activity, a soil survey conducted by properly qualified personnel who regularly conduct soil surveys as part of their normal job duties must be conducted prior to commencement of soil disturbing activities that are permitted under the current permit authorization for the site. The results of the soil survey shall become part of the Pollution Prevention Plan and shall indicate the depth of topsoil at a suitable number of points on the site commensurate with standard engineering practices established for the size of the site.

The topsoil preservation requirement described above shall be implemented for projects that have not received an authorization under this permit prior to October 1, 2012. The topsoil preservation requirements are not required to be implemented for projects that have been authorized prior to October 1, 2012. In residential and commercial developments, a plat is considered a project. For other large areas that have been authorized for multiple construction sites, including those to be started at a future date, such as those located at industrial facilities, military installations and universities, a new construction project not yet surveyed and platted out is considered a project. This stipulation is intended to be interpreted as requiring the topsoil preservation requirements on development plats and construction activities on other extended areas that may have several construction projects permitted under the same authorization to be implemented on those projects not yet surveyed and platted out prior to October 1, 2012 even if other plats and construction activities in the same development or other extended area were authorized prior to October 1, 2012.

**B. STORM WATER MANAGEMENT** A description of measures that will be installed during construction to control pollutants in

storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404 of the CWA. This permit only addresses the installation of storm water management measures, and not the ultimate operation and maintenance of such structures after the construction activities have been completed and the site has undergone final stabilization. Permittees are only responsible for the installation and maintenance of storm water management measures prior to final stabilization of the site, and are not responsible for maintenance after storm water discharges associated with industrial activity have been eliminated from the site.

**B.(1).** Such practices may include: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; and infiltration of runoff onsite; and sequential systems (which combine several practices). A goal of 80 percent removal of total suspended solids from those flows which exceed predevelopment levels should be used in designing and installing storm water management controls (where practicable). Where this goal is not met, the permittee shall provide justification for rejecting each practice based on site conditions.

**B.(2).** Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g. maintenance of hydrologic conditions present prior to the initiation of construction activities).

**C. OTHER CONTROLS**

**C.(1). WASTE DISPOSAL** All wastes composed of building materials must be removed from the site for disposal in permitted disposal facilities. No building material wastes or unused building materials

shall be buried, dumped, or discharged at the site.

C.(2). Off-site vehicle tracking of sediments shall be minimized.

C.(3). The plan shall ensure and demonstrate compliance with applicable State or local waste disposal, sanitary sewer or septic system regulations.

**D. APPROVED STATE OR LOCAL PLANS**

Facilities which discharge storm water associated with industrial activity for construction activities must include in their storm water pollution prevention plan procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by State or local officials. Applicable requirements specified in sediment and erosion plans, site permits or storm water management plans approved by State or local officials that are applicable to protecting surface water resources are, upon submittal of an NOI to be authorized to discharge under this permit, incorporated by reference and are enforceable under this permit even if they are not specifically included in a storm water pollution prevention plan required under this permit.

Operators of facilities seeking alternative permit requirements shall submit an individual permit application in accordance with Part I.C.2. of this permit along with a description of why requirements in approved State or local plans should not be applicable as a condition of an NPDES permit.

3. **MAINTENANCE** A description of procedures to maintain in good and effective operating conditions vegetation, erosion and sediment control measures and other protective measures identified in the site plan.
4. **INSPECTIONS** Qualified personnel (provided by the discharger) shall inspect disturbed areas of the construction site that have not been stabilized with a perennial, vegetative cover of sufficient density to preclude erosion at least once every seven calendar days. Unless erosion is evident or other conditions

warrant them, regular inspections are not required on areas that have been stabilized with a perennial, vegetative cover of sufficient density to preclude erosion.

A. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

B. Based on the results of the inspection, the description of potential pollutant sources identified in the plan in accordance with paragraph IV.D.1. of this permit and pollution prevention measures identified in the plan in accordance with paragraph IV.D.2. of this permit shall be revised as appropriate as soon as practicable after such inspection. Such modifications shall provide for implementation of any changes to the plan within 7 calendar days following the inspection.

C. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with paragraph IV.D.4.B. of the permit shall be made and retained as part of the storm water pollution prevention plan for at least three years after final stabilization has been achieved and a Notice of Discontinuation has been submitted to the Department. The report shall be signed in accordance with Part VI.G. of this permit.

5. **NON-STORM WATER DISCHARGES** Except for flows from fire fighting activities, sources of non-storm water listed in Part III.A.2. of this permit that are combined with storm

water discharges associated with industrial activity from construction activities must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

6. **ADDITIONAL REQUIREMENTS FOR STORM WATER DISCHARGE FROM INDUSTRIAL ACTIVITIES OTHER THAN CONSTRUCTION, INCLUDING DEDICATED ASPHALT PLANTS, AND DEDICATED CEMENT PLANTS** This permit may only authorize a storm water discharge associated with industrial activity from a construction site that is mixed with a storm water discharge from an industrial source other than construction, where:

A. the industrial source other than construction is located on the same site as the construction activity;

B. storm water discharges associated with industrial activity from the areas of the site where construction activities are occurring are in compliance with the terms of this permit; and,

C. storm water discharges associated with industrial activity from the areas of the site where industrial activity other than construction are occurring (including storm water discharges from dedicated asphalt plants and dedicated cement plants) are in compliance with the terms and conditions, including applicable NOI or application requirements, of a different NPDES general permit or individual permit authorizing such discharges.

7. **CONTRACTORS**

A. The storm water pollution prevention plan must clearly identify for each measure in the plan, the contractor(s) and/or subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the plan must sign a copy of the certification statement in Part IV.D.7.B. of this permit in accordance with Part VI.G. of this permit. Upon signing the certification, the contractor or sub-contractor is a co-permittee with the

owner and other co-permittee contractors. All certifications must be included in the storm water pollution prevention plan.

**B. CERTIFICATION STATEMENT** All contractors and subcontractors identified in a storm water pollution prevention plan in accordance with Part IV.D.7.A. of this permit shall sign a copy of the following certification statement before conducting any professional service at the site identified in the storm water pollution prevention plan:

"I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site as part of this certification. Further, by my signature, I understand that I am becoming a co-permittee, along with the owner(s) and other contractors and subcontractors signing such certifications, to the Iowa Department of Natural Resources NPDES General Permit No. 2 for "Storm Water Discharge Associated with Industrial Activity for Construction Activities" at the identified site. As a co-permittee, I understand that I, and my company, are legally required under the Clean Water Act and the Code of Iowa, to ensure compliance with the terms and conditions of the storm water pollution prevention plan developed under this NPDES permit and the terms of this NPDES permit."

The certification must include the name and title of the person providing the signature; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

**PART V. RETENTION OF RECORDS**

A. The permittee shall retain copies of storm water pollution prevention plans and all reports required by this permit, and records of all data used to complete the Notice of Intent to be covered by this permit, for a period of at

least three years from the date that the site is finally stabilized and a Notice of Discontinuation has been submitted to the Department.

- B. If there is a construction trailer, shed or other covered structure located on the property the permittee shall retain a copy of the storm water pollution prevention plan required by this permit at the construction site from the date of project initiation to the date of final stabilization. If there is no construction trailer, shed or other covered structure located on the property, the permittee shall retain a copy of the plan at a readily available alternative site approved by the Department and provide it for inspection upon request. If the plan is maintained at an off-site location such as a corporate office, it shall be provided for inspection no later than three hours after being requested.
- C. **ADDRESSES** All written correspondence to the Department should be sent to the following address:

Storm Water Coordinator  
Iowa Department of Natural Resources  
502 E. 9th St.  
Des Moines, IA 50319-0034

## PART VI. STANDARD PERMIT CONDITIONS

### A. **DUTY TO COMPLY**

1. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Code of Iowa and the Clean Water Act and is grounds for enforcement action; for termination of coverage under this general permit; or, for denial of a request for coverage under a reissued general permit.
2. **TOXIC POLLUTANTS** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act (CWA) for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even

if this permit has not yet been modified to incorporate the requirement.

- B. **CONTINUATION OF THE EXPIRED GENERAL PERMIT** This permit expires on October 1, 2017. An expired general permit continues in force until replaced by adoption of a new general permit.
- C. **NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. **DUTY TO MITIGATE** The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
- E. **DUTY TO PROVIDE INFORMATION** The permittee shall furnish to the Department, within three hours, any information which the Department may request to determine compliance with this permit. The permittee shall also furnish to the Department upon request copies of records required to be kept by this permit.
- F. **OTHER INFORMATION** When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the Notice of Intent or in any other report to the Department, he or she shall promptly submit such facts or information.
- G. **SIGNATORY REQUIREMENTS** All Notices of Intent, storm water pollution prevention plans, reports, certifications or information either submitted to the Department or the operator of a municipal separate storm sewer system, or that this permit requires be maintained by the permittee, shall be signed in accordance with rule 567--64.3(8) of the Iowa Administrative Code as follows:

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64.3(8) *Identity of signatories of operation permit applications.* The person who signs

the application for an operation permit shall be:

- a. *Corporations.* In the case of corporations, a principal executive officer of at least the level of vice-president.
- b. *Partnerships.* In the case off a partnership, a general partner.
- c. *Sole proprietorships.* In the case of a sole proprietorship, the proprietor.
- d. *Public facilities.* In the case of a municipal, state, or other public facility, by either the principal executive officer, or the ranking elected official.
- e. *Storm water discharge associated with industrial activity from construction activity.* In the case of a storm water discharge associated with industrial activity from construction as identified in 40 CFR 122.26(b)(14)(x), either the owner of the site or the general contractor.

The person who signs NPDES reports shall be the same, except that in the case of a corporation or a public body, monitoring reports required under the terms of the permit may be submitted by the person who is responsible for the overall operation of the facility from which the discharge originated.

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**H. CERTIFICATION** Any person signing documents under paragraph VI.G. shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are

significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

- I. **OIL AND HAZARDOUS SUBSTANCE LIABILITY** Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under section 311 of the Clean Water Act.
- J. **PROPERTY RIGHTS** The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.
- K. **SEVERABILITY** The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.
- L. **TRANSFERS** This permit is not transferable to any person except after notice to the Department. The Department may require the discharger to apply for and obtain an individual NPDES permit as stated in Part I.C.
- M. **PROPER OPERATION AND MAINTENANCE** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions or this permit.

N. **INSPECTION AND ENTRY** The permittee shall allow the Department or an authorized representative of EPA, the State, or, in the case of a facility which discharges through a municipal separate storm sewer, an authorized representative of the municipal operator or the separate storm sewer receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and,
3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

O. **PERMIT ACTIONS** Coverage under this permit may be terminated for cause. The filing of a request by the permittee for a permit discontinuance, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

P. **ENVIRONMENTAL LAWS** No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

## PART VII. REOPENER CLAUSE

If there is evidence indicating potential or realized impacts or water quality due to any storm water discharge associated with industrial activity for construction activities covered by this permit, the owner or operator of such discharge may be required to obtain individual permit in accordance with Part I.C of this permit.

## PART VIII. DEFINITIONS

**"Best Management Practices"** ("BMPs") means schedules of activities, prohibitions of

practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

**"Construction site"** means a site or common plan of development or sale on which construction activity, including clearing, grading and excavating, results in soil disturbance. A construction site is considered one site if all areas of the site are contiguous with one another and one entity owns all areas of the site.

**"CWA" or "Clean Water Act"** means the Federal Water Pollution Control Act.

**"Dedicated portable asphalt plant"** means a portable asphalt plant that is located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to.

**"Dedicated portable concrete plant"** means a portable concrete plant that is located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

**"Dedicated sand or gravel operation"** means an operation that produces sand and/or gravel for a single construction project.

**"Department"** means the Iowa Department of Natural Resources.

**"Final Stabilization"** means that all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 70% for the area has been established or equivalent stabilization measures have been employed or which has been returned to agricultural production.

**"Hazardous condition"** means any situation involving the actual, imminent, or probable spillage, leakage, or release of a hazardous substance on to the land, into a water of the state, or into the atmosphere, which creates an immediate or potential danger to the

public health or safety or to the environment.  
455B.381(2) 1991, Code of Iowa

**"Hazardous substance"** means any substance or mixture of substances that presents a danger to the public health or safety and includes, but is not limited to, a substance that is toxic, corrosive, or flammable, or that is an irritant or that, in confinement, generates pressure through decomposition, heat, or other means. The following are examples of substances which, in sufficient quantity may be hazardous: acids; alkalis; explosives; fertilizers; heavy metals such as chromium, arsenic, mercury, lead and cadmium; industrial chemicals; paint thinners; paints; pesticides; petroleum products; poisons, radioactive materials; sludges; and organic solvents. "Hazardous substances" may include any hazardous waste identified or listed by the administrator of the United State Environmental Protection Agency under the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976, or any toxic pollutant listed under section 307 of the federal Water Pollution Control Act as amended to January 1, 1977, or any hazardous substance designated under section 311 of the federal Water Pollution Control Act as amended to January 1, 1977, or any hazardous material designated by the secretary of transportation under the Hazardous Materials Transportation Act (49 CFR 172.101). 455B.381(1), 1991 Code of Iowa

**"Municipality"** means a city, town, borough, county, parish, district, association, or other public body created by or under State law.

**"NOI"** means Notice of Intent to be covered by this permit (see Part II of this permit.)

**"Outstanding Iowa Waters"** means those waters which constitute an outstanding state resource such as waters of exceptional recreational or ecological significance. These waters are identified in Appendix B of the Iowa Antidegradation Implementation Procedure manual.

**"Outstanding National Resource Waters"** means those waters which constitute an outstanding national resource such as waters of national and state parks and wildlife refuges and also waters of exceptional recreational or ecological significance. These waters are identified in Appendix B of the

Iowa Antidegradation Implementation Procedure manual.

**"Permittee"** means the owner of the facility or site.

**"Qualified personnel"** means those individuals capable enough and knowledgeable enough to perform the required functions adequately well to ensure compliance with the relevant permit conditions and requirements of the Iowa Administrative Code.

**"Runoff coefficient"** means the fraction of total rainfall that will appear at the conveyance as runoff.

**"Storm Water"** means storm water runoff, snow melt runoff, and surface runoff and drainage.

**"Storm water discharge associated with industrial activity"** means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under 40 CFR part 122. For the categories of industries identified in paragraphs (i) through (x) of this definition, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at 40 CFR part 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water.

For the categories of industries identified in paragraph (xi) of this definition, the term includes only storm water discharges from all the areas (except access roads and rail lines) that are listed in the previous sentence where material handling



IOWA DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 2  
STORM WATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR CONSTRUCTION ACTIVITIES  
EFFECTIVE DATE - OCTOBER 1, 2007 TO OCTOBER 1, 2012

equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water. For the purposes of this paragraph, material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are Federally, State, or municipally owned or operated that meet the description of the facilities listed in these paragraphs (i)-(xi) of the definition) include those facilities designated under 40 CFR 122.26(a)(1)(v). The following categories of facilities are considered to be engaging in "industrial activity" for purposes of this definition;

(i) Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR Subchapter N (except facilities with toxic pollutant effluent standards which are exempted under category (xi) of this definition);

(ii) Facilities classified as Standard Industrial Classifications 24 (except 2434), 26 (except 265 and 267), 28 (except 283 and 285), 29, 311, 32 (except 323), 33, 3441, 373;

(iii). Facilities classified as Standard Industrial Classifications 10 through 14 (mineral industry) including active or inactive mining operations (except for areas of coal mining operations no longer meeting the definition of a reclamation area under 40 CFR 434.11(1) because the performance bond issued to the facility by the appropriate SMCRA authority has been released, or except for areas of non-coal mining operations which have been released from applicable State or Federal reclamation requirements after December 17, 1990) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with, any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations; (inactive mining

operations are mining sites that are not being actively mined, but which have an identifiable owner/operator; inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined materials, nor sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim);

(iv) Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA;

(v) Landfills, land application sites, and open dumps that receive or have received any industrial wastes (waste that is received from any of the facilities described under this subsection) including those that are subject to regulation under Subtitle D of RCRA;

(vi) facilities involved in the recycling of materials, including metal scrap yards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093;

(vii) Steam electric power generating facilities, including coal handling sites;

(viii) Transportation facilities classified as Standard Industrial Classifications 40, 41, 42 (except 4221-4225), 43, 44, 45 and 5171 which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or which are otherwise identified under paragraphs (i)-(vii) or (ix)-(xi) of this definition are associated with industrial activity;

(ix) Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under 40 CFR 403. Not

included are farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with 40 CFR 503;

(x) Construction activity including clearing, grading and excavation activities except: operations that result in the disturbance of less than one acre of total land area which are not part of a larger common plan of development or sale;

(xi) Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, 4221-4225, (and which are not otherwise included within categories (ii)-(x));

***"Storm water discharge associated with industrial activity for construction activities"*** means activities that fall under subparagraph (x) in the definition of storm water discharge associated with industrial activity.

***"Topsoil"*** means the fertile, uppermost part of the soil containing significant organic matter largely devoid of debris and rocks and often disturbed in cultivation.

***"Uncontaminated groundwater"*** means water that is potable for humans, meets the narrative water quality standards in subrule 567-61.3(2) of the Iowa Administrative Code, contains no more than half the listed concentration of any pollutants in subrule 567-61.3(3) of the IAC, has a pH of 6.5-9.0 and is located in soil or rock strata.

**APPENDIX SWPPP-B**  
**PUBLIC NOTICE / NOTICE OF INTENT**

## **PUBLIC NOTICE OF STORM WATER DISCHARGE**

**Polk County Conservation** plans to submit a Notice of Intent to the Iowa Department of Natural Resources to be covered under NPDES General Permit No. 2 "Storm Water Discharge Associated with Industrial Activity for Construction Activities".

The storm water discharge will be from construction of Contract 3 of the Easter Lake Restoration project located in the SW & SE ¼ of Section 24, NW & NE ¼ of Section 25, Township 78 North, Range 24 West; SW ¼ of Section 19, NW ¼ of Section 30, Township 78 North, Range 23 West, Polk County.

Storm water will be discharged from 1 point source(s) and will be discharged to the following streams: Easter Lake to Des Moines River.

Comments may be submitted to the Storm Water Discharge Coordinator, Iowa Department of Natural Resources, Environmental Protection Division, 502 E. 9th Street, Des Moines, IA 50319-0034. The public may review the Notice of Intent from 8 a.m. to 4:30 p.m., Monday through Friday, at the above address after it has been received by the department.



**IOWA DEPARTMENT OF NATURAL RESOURCES  
ENVIRONMENTAL PROTECTION DIVISION  
NOTICE OF INTENT FOR NPDES COVERAGE UNDER  
GENERAL PERMIT**

<b>CASHIER'S USE ONLY</b> 0253-542-SW08-0581  Name
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**No. 1 FOR "STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY"**

or

**No. 2 FOR "STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR CONSTRUCTION ACTIVITIES"**

or

**No. 3 FOR "STORM WATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR ASPHALT PLANTS, CONCRETE BATCH PLANTS, ROCK CRUSHING PLANTS, AND CONSTRUCTION SAND AND GRAVEL FACILITIES."**

**PERMIT INFORMATION**

Has this storm water discharge been previously permitted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, please list authorization number _____
Under what General Permit are you applying for coverage?
General Permit No. 1 <input type="checkbox"/> General Permit No. 2 <input checked="" type="checkbox"/> General Permit No. 3 <input type="checkbox"/>

**PERMIT FEE OPTIONS**

For coverage under the NPDES General Permit the following fees apply:
<input type="checkbox"/> Annual Permit Fee \$175 (per year) Maximum coverage is one year.
<input checked="" type="checkbox"/> 3-year Permit Fee \$350 Maximum coverage is three years.
<input type="checkbox"/> 4-year Permit Fee \$525 Maximum coverage is four years.
<input type="checkbox"/> 5-year Permit Fee \$700 Maximum coverage is five years.
Checks should be made payable to: Iowa Department of Natural Resources.

**FACILITY OR PROJECT INFORMATION**

Enter the name and full address/location (not mailing address) of the facility or project for which permit coverage is requested.

NAME: Easter Lake Restoration - Contract 3		STREET ADDRESS OF SITE: 2830 Easter Lake Drive	
CITY: Des Moines	COUNTY: Polk	STATE: Iowa	ZIP CODE: 50320

**CONTACT INFORMATION**

Give name, mailing address and telephone number of a contact person (Attach additional information on separate pages as needed). This will be the address to which all correspondence will be sent and to which all questions regarding your application and compliance with the permit will be directed.

NAME: Douglas Romig, Polk County Conservation Deputy Director		ADDRESS: 11407 NW Jester Park Drive	
CITY: Granger	STATE: Iowa	ZIP CODE: 50109	TELEPHONE: ( 515 ) 323-5300

Check the appropriate box to indicate the legal status of the operator of the facility.

Federal  State  Public  Private  Other (specify) \_\_\_\_\_

SIC CODE (General Permit No. 1 & 3 Applicants Only)

SIC code refers to Standard Industrial Classification code number used to classify establishments by type of economic activity.

**FACILITY LOCATION OR LOCATION OF CONSTRUCTION SITE**

Give the location by ¼ section, section, township, range, (e.g., NW, 7, T78N, R3W).

1/4 SECTION	SECTION	TOWNSHIP	RANGE
SW & SE / NW & NE	24 / 25	78N	24W
SW / NW	19 / 30	78N	23W

<b>MAIL TO:</b>  STORM WATER COORDINATOR IOWA DEPARTMENT OF NATURAL RESOURCES 502 E 9 <sup>TH</sup> ST DES MOINES IA 50319-0034
---------------------------------------------------------------------------------------------------------------------------------------------------

**OWNER INFORMATION**

Enter the name and full address of the owner of the facility.

NAME: Polk County Conservation		ADDRESS: 11407 NW Jester Park Drive	
CITY: Granger	STATE: Iowa	ZIP CODE: 50109	TELEPHONE: ( 515 ) 323-5300

**OUTFALL INFORMATION**

Discharge start date, i.e., when did/will the site begin operation or 10/1/92, whichever is later: January 2018

Is any storm water monitoring information available describing the concentration of pollutants in storm water discharges?  
 Yes  No

**NOTE:** Do not attach any storm water monitoring information with the application.

Receiving water(s) to the first uniquely named waterway in Iowa (e.g., road ditch to unnamed tributary to Mud Creek to South Skunk River):  
**Easter Lake to Des Moines River**

Compliance With The Following Conditions:	Yes	No
Has the Storm Water Pollution Prevention Plan been developed prior to the submittal of this Notice of Intent and does the plan meet the requirements of the applicable General Permit? (do not submit the SWPPP with the application)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Will the Storm Water Pollution Prevention Plan comply with approved State (Section 161A.64, Code of Iowa) or local sediment and erosion plans? (for General Permit 2 only)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Has a public notice been published for at least one day, in the newspaper with the largest circulation in the area where the discharge is located, and is the proof of notice attached? (new applications only)	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**GENERAL PERMIT NO. 2 AND GENERAL PERMIT NO. 3 APPLICANTS COMPLETE THIS SECTION.**

Description of Project (describe in one sentence what is being constructed):  
 Dry-dredge excavation of lake bottom and construction of fill areas adjacent to lake and possible offsite fill areas; shoreline stabilization; construction of fish habitat structures..

For General Permit No. 3 - Is this facility to be moved this year?  Yes  No

Number of Acres of Disturbed Soil: 125  
 (Construction Activities Only)

Estimated Timetable For Activities / Projects, i.e., approximately when did/will the project begin and end:

**January 2018 - March 2019****CERTIFICATION – ALL APPLICATIONS MUST BE SIGNED**

**Only the following individuals may sign the certification:** owner of site, principal executive officer of at least the level of vice-president of the company owning the site, a general partner of the company owning the site, principal executive officer or ranking elected official of the public entity owning the site, any of the above of the general contracting company for construction sites.

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified people properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, this information is to the best of my knowledge and belief, true, accurate, and complete. I further certify that the terms and conditions of the general permit will be met. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME: (print or type) Douglas Romig	TITLE AND COMPANY NAME OF SIGNATORY: Polk County Conservation Deputy Director
SIGNATURE:	DATE:

**APPENDIX SWPPP-C**  
**CHECKLISTS**

## EPA BASELINE CONSTRUCTION GENERAL PERMIT REQUIREMENTS PRE- CONSTRUCTION CHECKLIST

### Storm Water Pollution Prevention Plans

1. A site description, including:
  - The nature of the activity?
  - Intended sequence of major construction activities
  - The total area of the site
  - The area of the site that is expected to undergo excavation
  - The runoff coefficient of the site after construction is complete
  - Existing soil or storm water data
  - A site map with:
    - Drainage patterns
    - Approximate slopes after major grading
    - Area of soil disturbance
    - Outline of areas which won't be disturbed
    - Location of major structural and non-structural controls
    - Areas where stabilization practices are expected to occur
    - Surface waters
    - Storm water discharge locations
  - The name of the receiving water(s)
2. A description of controls:
  - 2.1 Erosion and sediment controls, including:
    - Stabilization practices for all areas disturbed by construction
    - Structural practices for all drainage/discharge locations
  - 2.2 Storm water management controls, including:
    - Measures used to control pollutants occurring in storm water discharges after construction activities are complete.
    - Velocity dissipation devices to provide nonerosive flow conditions from the discharge point along the length of any outfall channel.
  - 2.3 Other controls including:
    - Waste disposal practices which prevent discharge of solid materials to waters of the U.S.?
    - Measures to minimize offsite tracking of sediments by construction vehicles
    - Measures to ensure compliance with State or local waste disposal, sanitary sewer, or septic system regulations
  - 2.4  Description of the timing during the construction when measures will be implemented.
3.  Are State or local requirements incorporated into the plans?
4.  Are maintenance procedures for control measures identified in the plan?
5.  Identification of allowable non-storm water discharges and pollution prevention measures.
6.  Contractor certification.
7.  Plan certification.



**EPA BASELINE CONSTRUCTION GENERAL PERMIT CHECKLIST**

**Storm Water Pollution Prevention Plan  
Construction/Implementation Checklist**

1. Maintain Records of Construction Activities, including:
  - Dates when major grading activities occur
  - Dates when construction activities temporarily cease on a portion of the site
  - Dates when construction activities permanently cease on a portion of the site
  - Dates when stabilization measures are initiated on the site
2. Prepare Inspection reports summarizing:
  - Name of inspector
  - Qualifications of inspector
  - Measures/areas inspected
  - Observed conditions
  - Changes necessary to the SWPPP
3. Report Releases of Reportable Quantities of Oil or Hazardous Materials (if they occur):
  - Notify National Response Center 800/424-8802 immediately
  - Notify permitting authority in writing within 14 days
  - Modify the pollution prevention plan to include:
    - the date of release
    - circumstances leading to the release
    - steps taken to prevent reoccurrence of the release
4. Modify Pollution Prevention Plan as necessary to:
  - Comply with minimum permit requirements when notified by EPA that the plan does not comply
  - Address a change in design, construction operation or maintenance which has an effect on the potential for discharge of pollutants
  - Prevent reoccurrence of reportable quantity releases of a hazardous material or oil

**EPA BASELINE CONSTRUCTION GENERAL PERMIT CHECKLIST**

**Storm Water Pollution Prevention Plan  
Final Stabilization/Termination Checklist**

1.  All soil disturbing activities are complete
2.  Temporary erosion and sediment control measures have been removed or will be removed at an appropriate time
3.  All areas of the construction site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 70% or equivalent measures have been employed

**POLLUTION PREVENTION PLAN FOR STORM WATER DISCHARGE ASSOCIATED WITH  
CONSTRUCTION ACTIVITIES  
EROSION AND SEDIMENT CONTROL SELECTION CHECKLIST**

**INSTRUCTIONS: THIS CHECKLIST LISTS THE MINIMUM SEDIMENT EROSION CONTROL REQUIREMENTS UNDER THE USEPA GENERAL PERMIT. CHECK [✓] EACH ITEM AND FILL IN THE BLANKS BELOW TO EVALUATE COMPLIANCE FOR EACH DRAINAGE AREA AND LOCATION. NOTE: THIS CHECKLIST WAS PREPARED FOR THE USEPA GENERAL PERMIT. REQUIREMENTS FOR STATE GENERAL PERMITS MAY VARY.**

**Stabilization Practices**

- Stabilization will be initiated on all disturbed areas where construction activity will not occur for a period of more than 21 calendar days by the 14th day after construction activity has permanently or temporarily ceased.

Stabilization measures to be used include:

- |                                            |                                            |
|--------------------------------------------|--------------------------------------------|
| <input type="checkbox"/> Temporary Seeding | <input type="checkbox"/> Sod Stabilization |
| <input type="checkbox"/> Permanent Seeding | <input type="checkbox"/> Geotextiles       |
| <input type="checkbox"/> Mulching          | <input type="checkbox"/> Other _____       |

**Structural Practices**

- Flows from upstream areas will be diverted from exposed soils. Measures to be used include:

- |                                                     |                                           |
|-----------------------------------------------------|-------------------------------------------|
| <input type="checkbox"/> Earth Dike                 | <input type="checkbox"/> Pipe Slope Drain |
| <input type="checkbox"/> Drainage Swale             | <input type="checkbox"/> Other            |
| <input type="checkbox"/> Interceptor Dike and Swale |                                           |

Drainage locations serving less than 10 disturbed acres	Drainage locations serving 10 or more disturbed acres
<input type="checkbox"/> Sediment controls will be installed Sediment controls include: <ul style="list-style-type: none"> <li><input type="checkbox"/> Sediment Basin</li> <li><input type="checkbox"/> Sediment Trap</li> <li><input type="checkbox"/> Silt Fence or equivalent controls along all sideslope and downslope boundaries</li> </ul>	<input type="checkbox"/> A Sediment Basin will be installed <input type="checkbox"/> A Sediment Basin is not attainable on the site; therefore, the following sediment controls will be installed: <ul style="list-style-type: none"> <li>Sediment Trap</li> <li>Silt Fence or equivalent controls along the sideslope and downslope boundaries</li> </ul>

**Sediment Basin Runoff Storage Calculation**

\_\_\_\_\_ acres area draining to the sediment basin  
 X  
 3,600 cubic feet of storage/acre  
 =  
 \_\_\_\_\_ cubic feet of storage required for the basin.

**APPENDIX SWPPP-D**  
**INSPECTION REPORTS**

## EROSION AND SEDIMENT CONTROL MONITORING REPORT

Project: Easter Lake Restoration - Contract 3 Date of Inspection: \_\_\_\_\_  
 Prime Contractor: \_\_\_\_\_ Permit No: \_\_\_\_\_  
 Inspector: \_\_\_\_\_ Project No: \_\_\_\_\_  
 Reason for Inspection:  Weekly  Rainfall Event (\_\_\_\_ in.)  Other \_\_\_\_\_

### EROSION AND SEDIMENT CONTROL MONITORING

Area Inspected: \_\_\_\_\_

Inspection of Best Management Practices:

BMP	Control Practice Effective			Maintenance/Modification Required			BMP	Control Practice Effective			Maintenance/Modification Required		
	Y	N	N/A	Y	N	N/A		Y	N	N/A	Y	N	N/A
	Silt Fencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Stockpile Stabilization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ditch Checks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mulching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rip Rap	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Erosion Matting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inlet Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temporary Seeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drainage Swales	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Permanent Seeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Construction Site Exits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sodding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Project Schedule	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Staging Area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grading Practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good Housekeeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### OBSERVATION COMMENTS / RECOMMENDATIONS

Note: Any 'Control Practice Effective' box checked 'N' or 'Maintenance/Modification Required' box checked 'Y' must have comments, recommended improvements, and date implemented. Any modifications must be sketched, described, dated, and initialed on the drawing included with the Pollution Prevention Plan.

ITEM	COMMENTS / RECOMMENDED IMPROVEMENTS	DATE IMPLEMENTED
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

See reverse side for sketches or additional comments/recommendations

### CERTIFICATION

Copy to:  Onsite Pollution Prevention Plan  Owner  Project Engineer  Project Observer

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations"

\_\_\_\_\_  
Signature of Monitor

**APPENDIX SWPPP-E**  
**GRADING & EROSION CONTROL PLAN**

**INSERT FULL SIZE COPY OF GRADING AND EROSION CONTROL PLAN**

**APPENDIX B**

**GEOTECHNICAL ENGINEERING REPORT**

# ALLENDER BUTZKE ENGINEERS INC.

GEOTECHNICAL • ENVIRONMENTAL • CONSTRUCTION Q. C.



May 13, 2013

Snyder & Associates, Inc.  
2727 SW Snyder Boulevard  
Ankeny, Iowa 50023

RE: Geotechnical Exploration  
Easter Lake Trail Bridges  
Evergreen Drive and Easter Lake Drive  
Des Moines, Iowa  
PN 131215

Attn: Jennifer Bates, P.E.

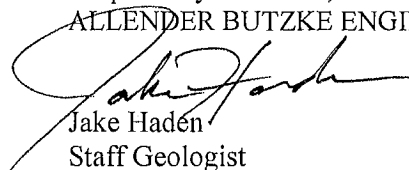
Dear Ms. Bates:

As authorized by you, Allender Butzke Engineers Inc. (ABE) has completed the geotechnical exploration for the above referenced project. With this letter, we are transmitting a copy of each boring conducted at each of the trail bridges as well as Site Plans showing the approximate boring locations. The boring surface elevations, indicated on the enclosed boring logs, were interpolated from the preliminary plans provided by Snyder & Associates, Inc. Methods of drilling, sampling, standard laboratory testing, and classifying of subsurface materials are discussed in the Boring Log Description/Legend pages of the Appendix.

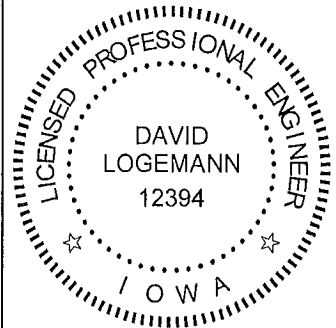
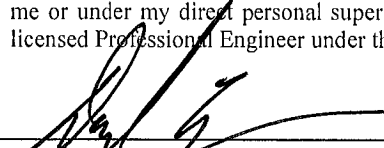
In order to aid in the design of the driven piles, we have classified the soil layers, as shown on the Boring Logs, utilizing the description shown on the IDOT "LRFD Driven Pile Foundation Geotechnical Resistance Chart." The soils at this site would be categorized as cohesive based on IDOT criteria (BDM 6.2.8). In addition to friction of the overburden soils, HP steel piling driven 4 to 8 feet into bedrock (about 20 to 30 feet below existing elevations) would develop a nominal geotechnical resistance of 12 kips per square inch (ksi) end bearing. Based on soil and bedrock conditions at the site, designing for SRL-1 with an allowable pile stress of 6 ksi would be appropriate. Actual capacities of the driven piles should be evaluated by measuring driving resistance during installation and utilizing appropriate empirical pile driving formulas. Design of this project will require careful field observations and evaluation during construction. To avoid reduced skin friction, we recommend that tips and/or driving shoes not be utilized during pile installation. Since the overburden soils are compressible, pile design should include down drag within the upper 15 feet if more than 5 feet of fill is expected at the bridge abutments.

We appreciate the opportunity to provide our geotechnical engineering services for this project. If you have any questions or need further assistance, please contact us at your convenience.

Respectfully submitted,  
ALLENDER BUTZKE ENGINEERS INC.

  
Jake Haden  
Staff Geologist

  
David Logemann, P.E.  
Principal Engineer

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.
	 5/13/13 David Logemann, P.E. License Number 12394 Date My license renewal date is December 31, 2013. Pages covered by this seal: <u>All Pages</u>

2 PC and 1 Email Above



**APPENDIX**

## BORING LOG DESCRIPTION/LEGEND

(page 1 of 3)

The material types encountered during the drilling operations were recorded on field logs. The profile represented on the Boring Log is based on final classification performed by a geotechnical engineer using the field logs, laboratory observation and testing. The material stratigraphy demarcation lines shown on the Boring Logs indicate changes in soil characteristics, however, actual soil changes or variations may occur as a gradual transition. Soil profile discussion, Log Boring information, water levels and recommendations presented in this report are based upon measured depths below ground levels existing at time of the field exploration, unless otherwise specified.

### DRILLING AND SAMPLING

The borings were conducted with either a truck or all-terrain rotary drill rig using the drilling methods indicated on each Boring Log. Soil sampling and/or in-situ testing such as Shelby Tube (ST), split-spoon (SS), drive cone (DC), or core (C) was conducted at depth intervals which were selected in consideration of the characteristics of the proposed construction. Generally undisturbed soil samples are taken at 5 foot depth intervals or change in soil types. Disturbed soil samples from the auger, either jar size or bulk size samples, may be taken at intermediate intervals for the purpose of soil classification or laboratory testing. Borings conducted for soil classification only, will show no designation of sampling although disturbed sampling is performed. Soil samples obtained in the field were identified and sealed for transportation to the laboratory for performance of pertinent physical testing and engineering classification.

#### Drilling Methods

- CFA - Continuous Flight Auger: 4, 6, or 8-inch diameter (ASTM D1452).
- RD - Rotary Drilling: Using drilling fluid in cased or uncased boring (ASTM D2113).
- HSA - Hollow Stem Auger: 6 or 8-inch diameter, continuous flight auger remains in boring with soil removed from the hollow stem through which undisturbed sampling is conducted.
- HA - Hand Auger: 4-inch or less diameter.

#### Sample Types

- ST - Shelby Tube: Thin-walled tube samples of cohesive soils (ASTM D1587).
- SS - Split Spoon with 140 lb. manual hammer: Standard penetration test and split-barrel samples (ASTM D1586).
- SSA - Split Spoon with 140 lb. automatic hammer: Standard penetration test and split-barrel samples (ASTM D1586).
- DC - Drive Cone: Dynamic in-place testing of soil using a 2-inch diameter cone with a 60 degree point driven into the soil for continuous 1-foot intervals in the same manner as Split Spoon, no sample is obtained.
- C - Core: Sampling hard soil or bedrock with a diamond core barrel in a rotary drill boring (ASTM D2113).
- SPT - Standard Penetration Test: Number of blows required to drive sampler (split spoon or drive cone) into the soil with a 140-pound weight dropping a distance of 30-inches (ASTM D1586), number of blows recorded for each 6-inch interval in an 18-inch (or more) penetration depth, values shown are for each 6-inch interval (if series of number sets are shown) or a total of the last two 6-inch intervals (if only one number is shown) which is commonly referred to as "N" in blows per foot. High resistance is indicated by a high number of blows for a lesser penetration depth listed in inches.
- BS - Bulk Sample: Disturbed.
- CPT - Cone Penetration Test: Quasi-static in-place testing of soils using a 60 degree cone and friction sleeve which are steadily pushed into the soil and measure skin friction and end bearing (ASTM D3441).

### STANDARD LABORATORY TESTING

Representative undisturbed soil samples obtained by the Shelby Tube sampler were tested for moisture content (ASTM D2216), density (dry) and unconfined compressive strength (ASTM D2116) in the laboratory. Results of these tests appear on the respective Boring Logs. Additional soil testing including particle size analysis (ASTM D422) and Atterberg Limits (ASTM D4318) may be conducted, if necessary, to define in more detail pertinent soil characteristics for classification in accordance with the Unified Soil Classification System. Specialized laboratory tests (if conducted) to determine pertinent soil characteristics are discussed in the "Laboratory Testing" section of the report.

### WATER LEVEL MEASUREMENT

Water levels indicated on the Boring Logs are the levels measured in the borings at the times indicated. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels is not possible with short term observations.

## BORING LOG DESCRIPTION/LEGEND

(page 2 of 3)

### DESCRIPTIVE SOIL CLASSIFICATION

Soil description is based on the Unified Classification System as outlined in ASTM Designations D-2487 and D-2488. This classification is primarily based upon visual and apparent physical soil characteristics, comparison with other soil samples, and our experience with the soil. Additional laboratory testing may be conducted, if necessary to define in more detail pertinent soil characteristics. The Unified Soil Classification group symbol shown on the boring logs corresponds with the group names listed below. The description includes soil constituents, moisture conditions, color and any other appropriate descriptive terms.

Group Symbol	Group Name	Group Symbol	Group Name	Group Symbol	Group Name	Group Symbol	Group Name
GW	Well-Graded Gravel	SW	Well-Graded Sand	CL	Lean Clay	CH	Fat Clay
GP	Poorly-Graded Gravel	SP	Poorly-Graded Sand	ML	Silt	MH	Elastic Silt
GM	Silty Gravel	SM	Silty Sand	OL	Organic Clay Organic Silt	OH	Organic Clay Organic Silt
GC	Clayey Gravel	SC	Clayey Sand			PT	Peat

RELATIVE PROPORTIONS			GRAIN SIZE TERMINOLOGY	
Descriptive Term(s) (Of components also present in sample)	Sand and Gravel % of Dry Weight	Fines % of Dry Weight	Major Component of Sample	Size-Range
Trace	<15	<5	Cobbles	12 in. to 3 in. (300mm to 75mm)
With	15-30	5-12	Gravel	3 in. to #4 sieve (75mm to 4.75mm)
Modifier	>30	>12	Sand	#4 to #200 sieve (4.75mm to 0.074mm)
			Silt or Clay	Passing #200 sieve (.074 mm)

CONSISTENCY OF FINE-GRAINED SOILS			RELATIVE DENSITY OF COARSE-GRAINED SOILS	
Unconfined Compressive Strength, Qu, psf	Consistency	SPT, bpf	SPT, bpf	Relative Density
< 500	Very Soft	0-2	0-4	Very Loose
500-1,000	Soft	2-4	4-10	Loose
1,000-2,000	Medium Stiff	4-8	10-30	Medium Dense
2,000-4,000	Stiff	8-15	30-50	Dense
4,000-8,000	Very Stiff	15-30	50-80	Very Dense
8,000-16,000	Hard	30-100	80+	Extremely Dense
> 16,000	Very Hard	>100		

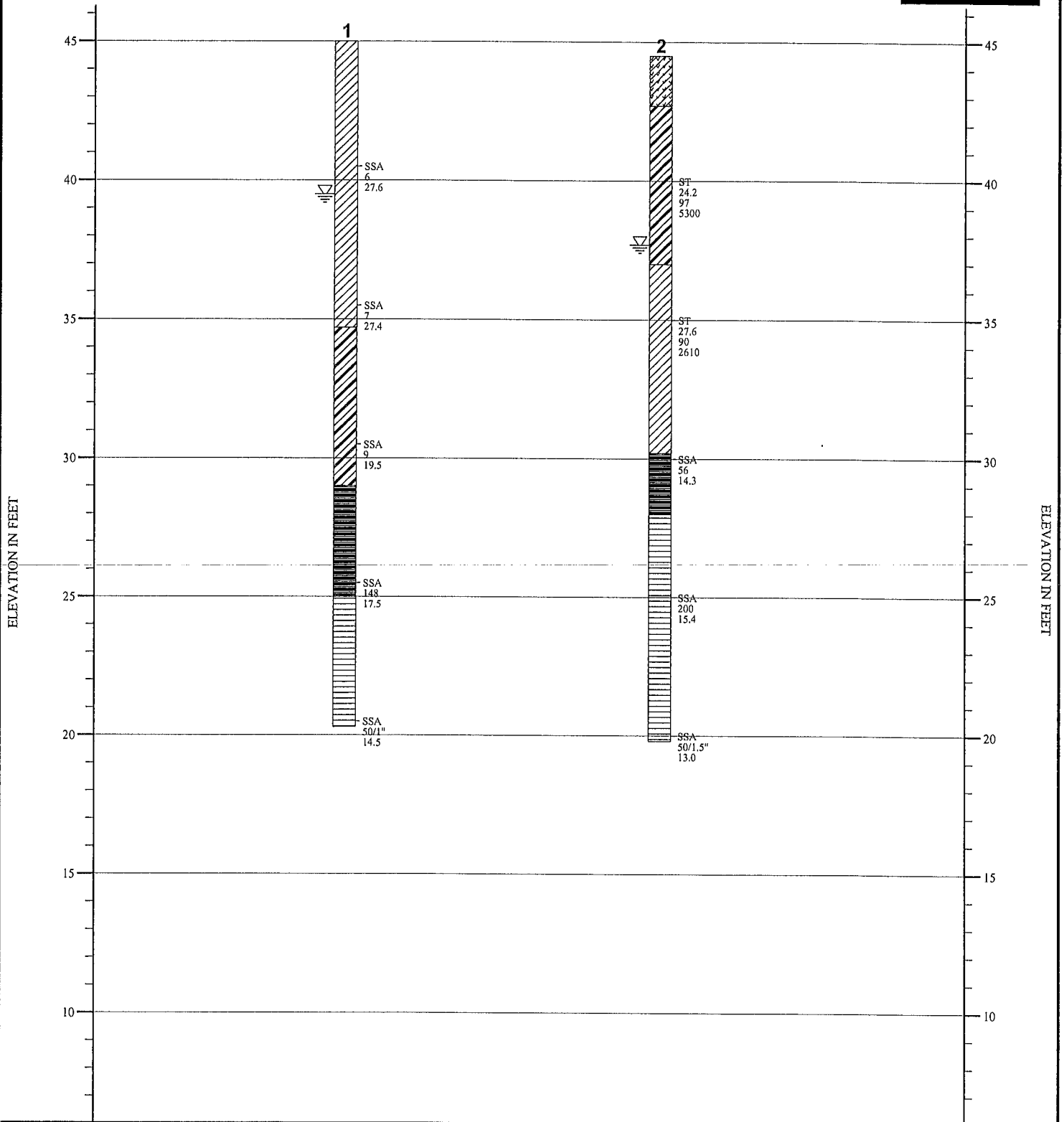
# BORING LOG DESCRIPTION/LEGEND

(page 3 of 3)

## ABBREVIATIONS

COMMONLY USED ABBREVIATIONS	
ft. or ' - feet	elev. - Elevation
in. or " - inches	% - Percent
psf - pounds per square foot	No. - Number
plf - pound per lineal foot	TB - Test Boring
pcf - pounds per cubic feet	N - blow count (SPT, bpf)
kip - 1000 pounds	USCS - Unified Soil Classification System
ksf - 1000 pounds per square foot	LL - Liquid Limit
klf - 1000 pounds per lineal foot	PL - Plastic Limit
tsf - tons per square foot	PI - Plasticity Index
bpf - blows per foot (SPT, N)	

# PROFILE OF BORINGS



- Lean Clay
- Lean Clay Topsoil
- Lean to Fat Clay
- Water table at completion
- Weathered Clay Shale
- Clay Shale

PROJECT NO.: 131215	DATE: 5/9/2013
PROJECT: Easter Lake Trail Bridges Evergreen Drive and Easter Lake Drive Des Moines, Iowa	
PLATE: A-1	SCALE: 5 feet/in.
<b>ALLENDER BUTZKE ENGINEERS, INC.</b>	

**BORING LOG NO.** 1      **STATION** Phase 2 Bridge, West Abutment      Project No.: 131215

**Project:** Easter Lake Trail Bridges  
Evergreen Drive and Easter Lake Drive  
Des Moines, Iowa

**Client:** Snyder & Associates, Inc.  
2727 SW Snyder Blvd.  
Ankeny, Iowa 50023



Surface Elevation: 45'±  
 Datum: Site Datum

Date Drilled: 4/29/2013  
 Drilling Depth, ft.: 24.7

Drilling Method: HSA  
 Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth	Elevation ft.
45	0							Brown lean clay, moist to very moist		CL			
40	5	1	SSA	6	27.6			<b>COHESIVE ALLUVIUM</b> (Stiff Silty Clay)					
35	10	2	SSA	7	27.4								
								Gray-brown lean to fat clay with sand, moist to very moist		CL-CH			34.7
								Moisture seepage near and very sandy after 12'					
								<b>COHESIVE ALLUVIUM</b> (Stiff Sandy Clay)					
30	15	3	SSA	9	19.5								16
								Very dark gray weathered shale, moist to damp					29
25	20	4	SSA	148	17.5			Hard after 20'					
								<b>BEDROCK</b>					
20	25	5	SSA	50/1"	14.5			End of Boring					24.7
													20.3
15	30												

\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

**Water Level Observation**  
 Time: at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
 Depth to water: 5.5 ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS INC.**  
 Geotechnical | Environmental | Construction Q.C.

**BORING LOG NO.** 2      **STATION** Phase 2 Bridge, East Abutment      Project No.: 131215

**Project:** Easter Lake Trail Bridges  
Evergreen Drive and Easter Lake Drive  
Des Moines, Iowa

**Client:** Snyder & Associates, Inc.  
2727 SW Snyder Blvd.  
Ankeny, Iowa 50023



Surface Elevation: 44.5'±  
Datum: Site Datum

Date Drilled: 4/29/2013  
Drilling Depth, ft.: 24.7

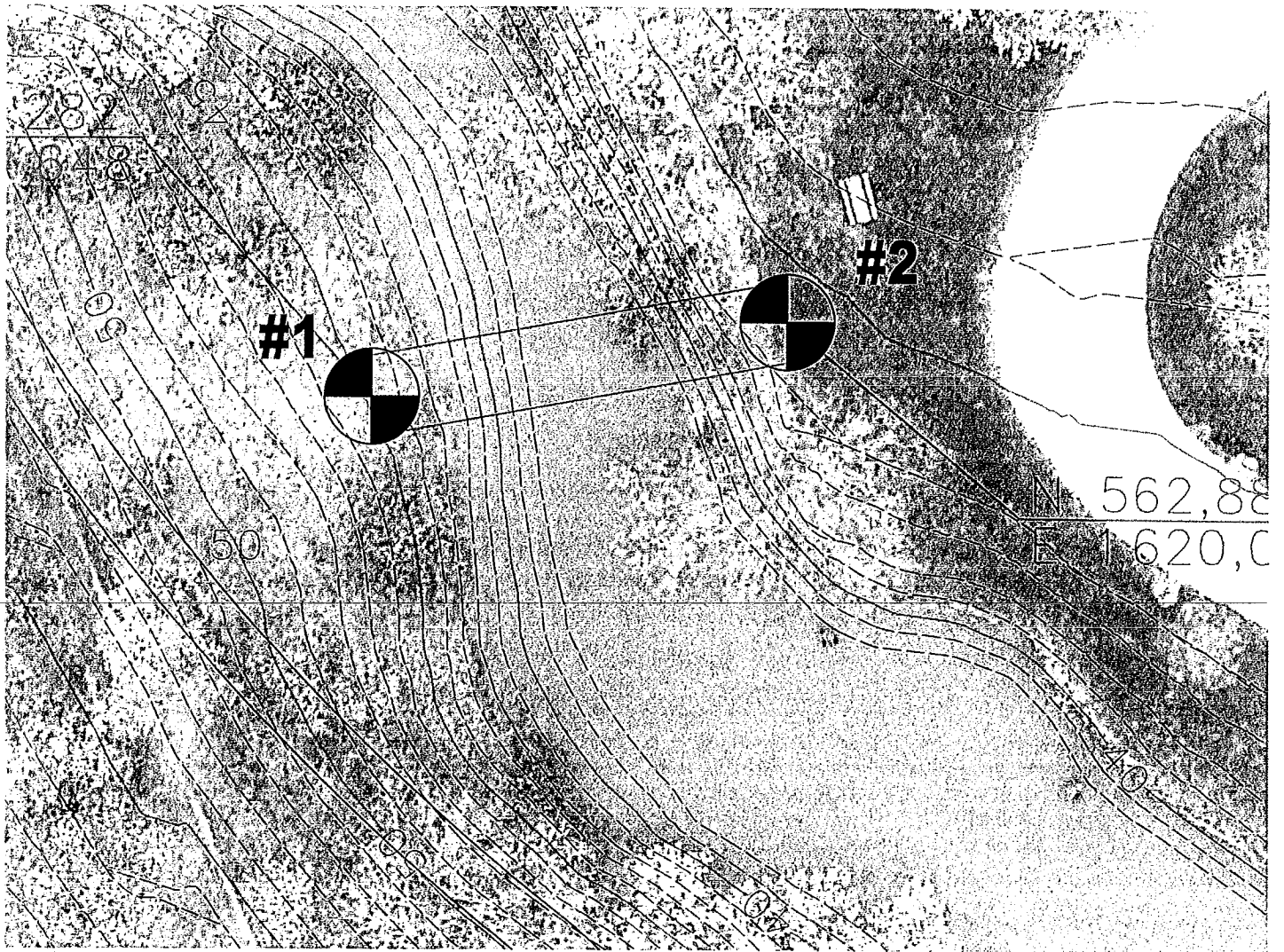
Drilling Method: HSA  
Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth	Elevation ft.
	0							Dark brown lean clay with sand, moist <b>TOPSOIL</b>		CL		1.8	
								Brown lean to fat clay, moist		CL-CH		42.7	
40	5	1	ST		24.2	97	5300	Brown-gray after 4' <b>COHESIVE ALLUVIUM</b> (Firm Silty Clay)				7.5	
								Gray-brown lean clay, moist to very moist		CL		37	
35	10	2	ST		27.6	90	2610	<b>COHESIVE ALLUVIUM</b> (Stiff Silty Clay)					
								Moisture seepage near 12'				14.3	
30	15	3	SSA	56	14.3			Very dark gray weathered shale, damp				30.2	
								Hard after 16.5'					
25	20	4	SSA	200	15.4			<b>BEDROCK</b>					
20	25	5	SSA	50/1.5"	13.0			End of Boring				24.7	
												19.8	
15	30												

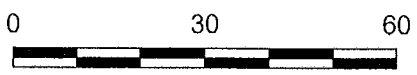
\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

**Water Level Observation**  
Time: at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
Depth to water: 6.8 ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS INC.**  
Geotechnical | Environmental | Construction Q.C.



562,88  
1620,0



SB #

**Approximate Soil Boring Location**

**Base Plan by Snyder & Associates**

**ALLENDER BUTZKE ENGINEERS INC.**  
3660 - 109th Street  
Urbandale, IA 50322

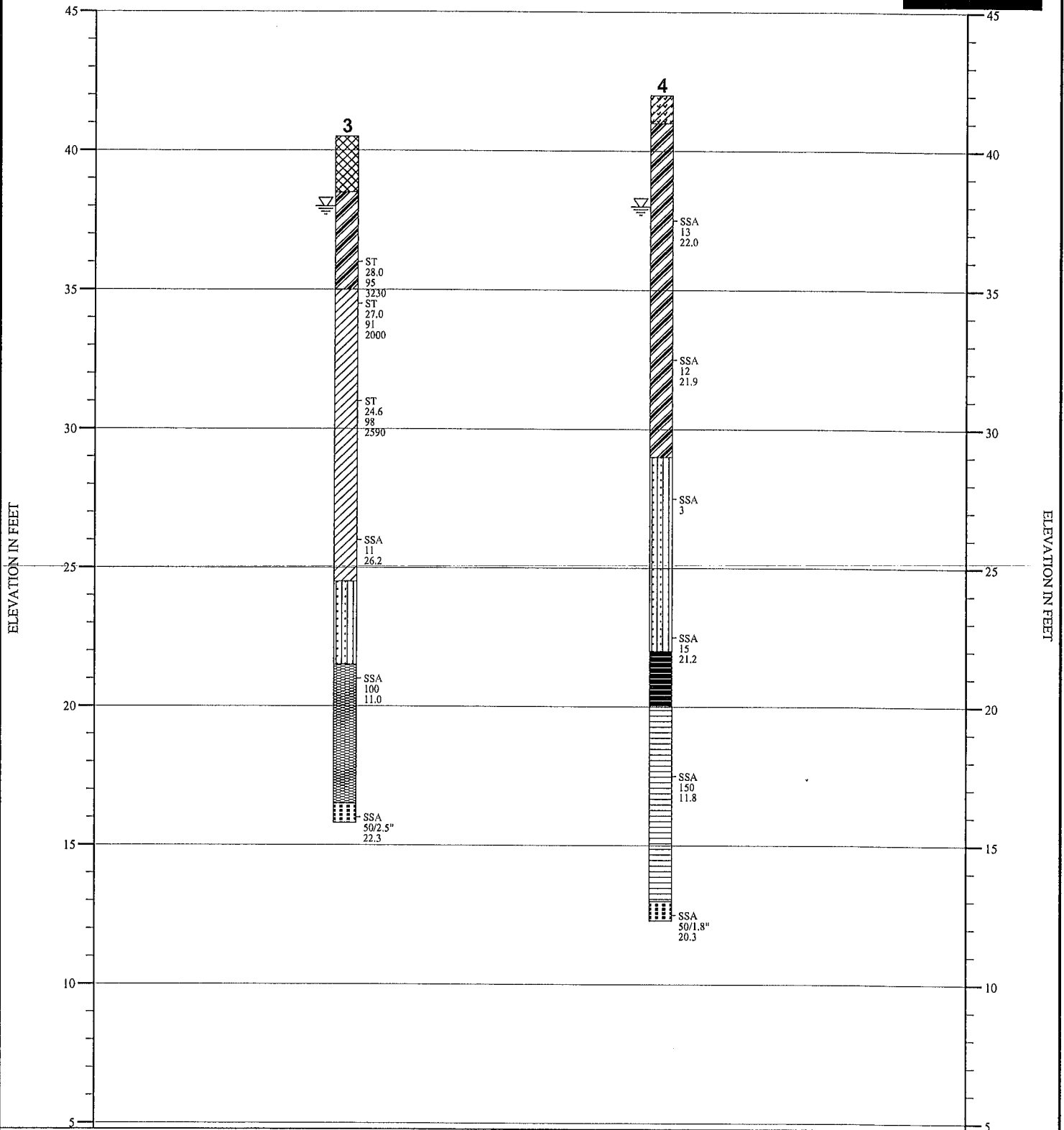


**Easter Lake Trail Bridge (Phase 2)**  
T-78N, R-24W, Section 24  
Polk County, Iowa

**PN 131215**  
**Site Plan**



# PROFILE OF BORINGS



Lean Clay Fill	Sandstone	Water table at completion
Lean to Fat Clay	Lean Clay Topsoil	
Lean Clay	Weathered Clay Shale	
Silty Sand	Clay Shale	
Siltstone		

PROJECT NO.: 131215	DATE: 5/9/2013
PROJECT: Easter Lake Trail Bridges Evergreen Drive and Easter Lake Drive Des Moines, Iowa	
PLATE: A-2	SCALE: 5 feet/in.
<b>ALLENDER BUTZKE ENGINEERS, INC.</b>	

**BORING LOG NO.** 3      **STATION** Phase 1 Bridge, West Abutment      Project No.: 131215

**Project:** Easter Lake Trail Bridges  
Evergreen Drive and Easter Lake Drive  
Des Moines, Iowa

**Client:** Snyder & Associates, Inc.  
2727 SW Snyder Blvd.  
Ankeny, Iowa 50023



**Surface Elevation:** 40.5'±  
**Datum:** Site Datum

**Date Drilled:** 4/29/2013      **Drilling Method:** HSA  
**Drilling Depth, ft.:** 24.7      **Page:** 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth	Elevation ft.
40	0							Brown lean clay, very moist <b>FILL</b>		CL		2	
								Very dark gray, very moist 1.3' to 2' Gray-brown lean to fat clay, moist to very moist <b>COHESIVE ALLUVIUM</b> (Firm Silty Clay)		CL-CH		38.5	
35	5	1	ST		28.0	95	3230					5.5	
		2	ST		27.0	91	2000					35	
30	10	3	ST		24.6	98	2590	With sand after 9' <b>COHESIVE ALLUVIUM</b> (Stiff Silty Clay)		CL			
25	15	4	SSA	11	26.2							16	
								Gray-brown silty to clayey fine sand, saturated <b>GRANULAR ALLUVIUM</b> (Silty Sand)		SM		24.5	
20	20	5	SSA	100	11.0			Gray siltstone, moist  <b>BEDROCK</b>				19	
												21.5	
15	25	6	SSA	50/2.5"	22.3			Brown fine sandstone after 24'				24.7	
								End of Boring				15.8	

\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

**Water Level Observation**  
**Time:** at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
**Depth to water:** 2.5 ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS INC.**  
 Geotechnical | Environmental | Construction Q.C.

**BORING LOG NO.** 4

**STATION** Phase 1 Bridge, East Abutment

Project No.: 131215

Project: Easter Lake Trail Bridges  
Evergreen Drive and Easter Lake Drive  
Des Moines, Iowa

Client: Snyder & Associates, Inc.  
2727 SW Snyder Blvd.  
Ankeny, Iowa 50023



Surface Elevation: 42'±  
 Datum: \_\_\_\_\_

Date Drilled: 4/29/2013  
 Drilling Depth, ft.: 29.7

Drilling Method: HSA  
 Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth	Elevation ft.
0								Dark brown lean clay, moist <b>TOPSOIL</b>		CL		1	
40								Brown-gray lean to fat clay, moist		CL-CH		41	
5		1	SSA	13	22.0			With sand after 4'					
35								<b>COHESIVE ALLUVIUM</b> (Firm Silty Clay)					
10		2	SSA	12	21.9								
30													
15		3	SSA	3				Gray-brown silty to clayey fine sand, very moist Moisture seepage near 14'		SM		13 29	
25								Possible fine to medium sand after 16' <b>GRANULAR ALLUVIUM</b> (Silty Sand)					
20		4	SSA	15	21.2							20	
20								Very dark gray to gray weathered shale, moist				22	
25		5	SSA	150	11.8			<b>BEDROCK</b>					
15													
30		6	SSA	50/1.8"	20.3			Brown fine sandstone, after 29'				29.7	
10								End of Boring				12.3	

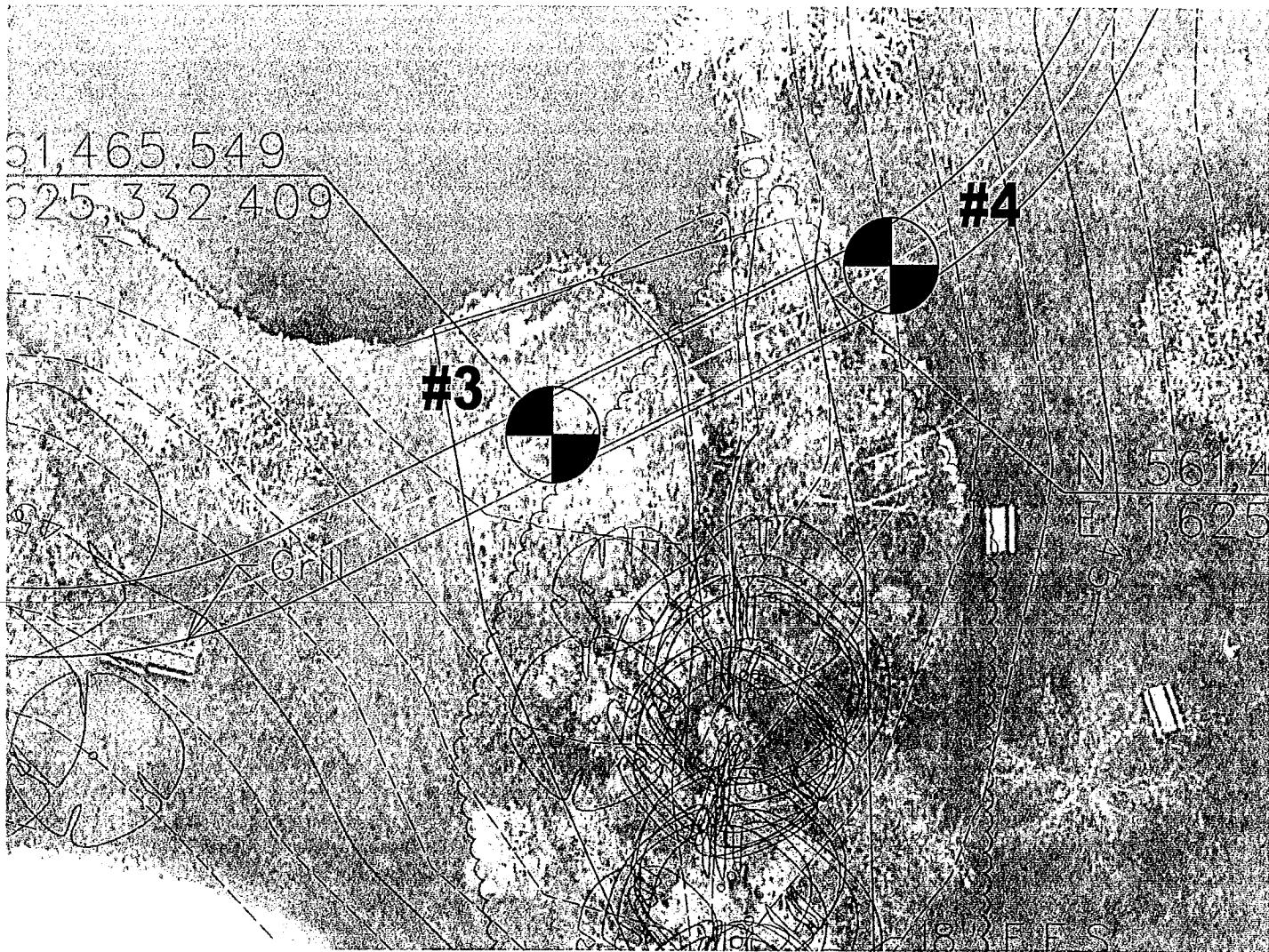
\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation

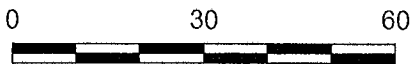
Time: at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
 Depth to water: 4 ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS INC.**

Geotechnical | Environmental | Construction Q.C.



N



SB #

**Approximate Soil Boring Location**

Base Plan by Snyder & Associates

**ALLENDER BUTZKE ENGINEERS INC.**

3660 - 109th Street  
Urbandale, IA 50322



**Easter Lake Trail Bridge (Phase 1)**

T-78N, R-23W, Section 19

Polk County, Iowa

PN 131215

Site Plan

**NOTES**

# ALLENDER BUTZKE ENGINEERS INC.

GEOTECHNICAL • ENVIRONMENTAL • CONSTRUCTION Q. C.



August 13, 2013

Snyder & Associates, Inc.  
2727 SW Snyder Boulevard  
Ankeny, Iowa 50023

RE: Geotechnical Exploration  
Easter Lake Trail Bridges  
Evergreen Drive and Easter Lake Drive  
Des Moines, Iowa  
PN 131215A

Attn: Jennifer Bates, P.E.

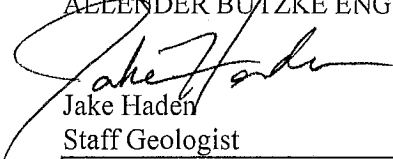
Dear Ms. Bates:

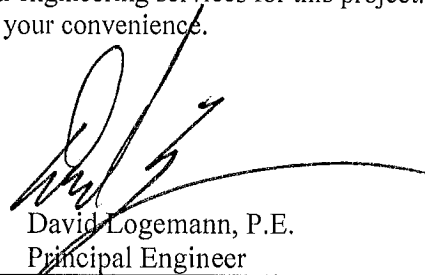
As authorized by you, Allender Butzke Engineers Inc. (ABE) has completed the geotechnical exploration for the above referenced project. With this letter, we are transmitting a copy of the boring conducted at the Trail Bridge as well as a Site Plan showing the approximate boring location. The boring surface elevation, indicated on the enclosed Boring Log, was determined by differential leveling and referenced to the existing east bridge abutment, given an elevation of 100 feet for purposes of this letter. Methods of drilling, sampling, standard laboratory testing, and classifying of subsurface materials are discussed in the Boring Log Description/Legend pages of the Appendix.

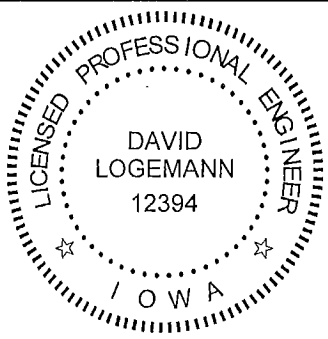
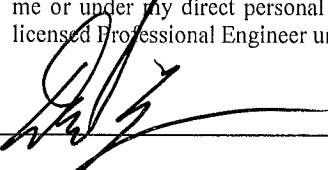
In order to aid in the design of the driven piles, we have classified the soil layers, as shown on the Boring Log, utilizing the description shown on the IDOT "LRFD Driven Pile Foundation Geotechnical Resistance Chart." The soils at this site would be categorized as cohesive based on IDOT criteria (BDM 6.2.8). In addition to friction of the overburden soils, HP steel piling driven 4 to 8 feet into bedrock (about 35 to 39 feet below existing elevations) would develop a nominal geotechnical resistance of 12 kips per square inch (ksi) end bearing. Based on soil and bedrock conditions at the site, designing for SRL-1 with an allowable pile stress of 6 ksi would be appropriate. Actual capacities of the driven piles should be evaluated by measuring driving resistance during installation and utilizing appropriate empirical pile driving formulas. Design of this project will require careful field observations and evaluation during construction. To avoid reduced skin friction, we recommend that tips and/or driving shoes not be utilized during pile installation. Since the overburden soils are compressible, pile design should include down drag within the upper 15 feet if more than 5 feet of fill is expected at the bridge abutments.

We appreciate the opportunity to provide our geotechnical engineering services for this project. If you have any questions or need further assistance, please contact us at your convenience.

Respectfully submitted,  
ALLENDER BUTZKE ENGINEERS INC.

  
Jake Haden  
Staff Geologist

  
David Logemann, P.E.  
Principal Engineer

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.
	 David Logemann, P.E. License Number 12394 Date 8/13/13 My license renewal date is December 31, 2013. Pages covered by this seal: <u>          All Pages          </u>

2 PC and 1 Email Above

**APPENDIX**

## BORING LOG DESCRIPTION/LEGEND

(page 1 of 3)

The material types encountered during the drilling operations were recorded on field logs. The profile represented on the Boring Log is based on final classification performed by a geotechnical engineer using the field logs, laboratory observation and testing. The material stratigraphy demarcation lines shown on the Boring Logs indicate changes in soil characteristics, however, actual soil changes or variations may occur as a gradual transition. Soil profile discussion, Log Boring information, water levels and recommendations presented in this report are based upon measured depths below ground levels existing at time of the field exploration, unless otherwise specified.

### DRILLING AND SAMPLING

The borings were conducted with either a truck or all-terrain rotary drill rig using the drilling methods indicated on each Boring Log. Soil sampling and/or in-situ testing such as Shelby Tube (ST), split-spoon (SS), drive cone (DC), or core (C) was conducted at depth intervals which were selected in consideration of the characteristics of the proposed construction. Generally undisturbed soil samples are taken at 5 foot depth intervals or change in soil types. Disturbed soil samples from the auger, either jar size or bulk size samples, may be taken at intermediate intervals for the purpose of soil classification or laboratory testing. Borings conducted for soil classification only, will show no designation of sampling although disturbed sampling is performed. Soil samples obtained in the field were identified and sealed for transportation to the laboratory for performance of pertinent physical testing and engineering classification.

#### Drilling Methods

- CFA - Continuous Flight Auger: 4, 6, or 8-inch diameter (ASTM D1452).
- RD - Rotary Drilling: Using drilling fluid in cased or uncased boring (ASTM D2113).
- HSA - Hollow Stem Auger: 6 or 8-inch diameter, continuous flight auger remains in boring with soil removed from the hollow stem through which undisturbed sampling is conducted.
- HA - Hand Auger: 4-inch or less diameter.

#### Sample Types

- ST - Shelby Tube: Thin-walled tube samples of cohesive soils (ASTM D1587).
- SS - Split Spoon with 140 lb. manual hammer: Standard penetration test and split-barrel samples (ASTM D1586).
- SSA - Split Spoon with 140 lb. automatic hammer: Standard penetration test and split-barrel samples (ASTM D1586).
- DC - Drive Cone: Dynamic in-place testing of soil using a 2-inch diameter cone with a 60 degree point driven into the soil for continuous 1-foot intervals in the same manner as Split Spoon, no sample is obtained.
- C - Core: Sampling hard soil or bedrock with a diamond core barrel in a rotary drill boring (ASTM D2113).
- SPT - Standard Penetration Test: Number of blows required to drive sampler (split spoon or drive cone) into the soil with a 140-pound weight dropping a distance of 30-inches (ASTM D1586), number of blows recorded for each 6-inch interval in an 18-inch (or more) penetration depth, values shown are for each 6-inch interval (if series of number sets are shown) or a total of the last two 6-inch intervals (if only one number is shown) which is commonly referred to as "N" in blows per foot. High resistance is indicated by a high number of blows for a lesser penetration depth listed in inches.
- BS - Bulk Sample: Disturbed.
- CPT - Cone Penetration Test: Quasi-static in-place testing of soils using a 60 degree cone and friction sleeve which are steadily pushed into the soil and measure skin friction and end bearing (ASTM D3441).

### STANDARD LABORATORY TESTING

Representative undisturbed soil samples obtained by the Shelby Tube sampler were tested for moisture content (ASTM D2216), density (dry) and unconfined compressive strength (ASTM D2166) in the laboratory. Results of these tests appear on the respective Boring Logs. Additional soil testing including particle size analysis (ASTM D422) and Atterberg Limits (ASTM D4318) may be conducted, if necessary, to define in more detail pertinent soil characteristics for classification in accordance with the Unified Soil Classification System. Specialized laboratory tests (if conducted) to determine pertinent soil characteristics are discussed in the "Laboratory Testing" section of the report.

### WATER LEVEL MEASUREMENT

Water levels indicated on the Boring Logs are the levels measured in the borings at the times indicated. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels is not possible with short term observations.



## BORING LOG DESCRIPTION/LEGEND

(page 2 of 3)

### DESCRIPTIVE SOIL CLASSIFICATION

Soil description is based on the Unified Classification System as outlined in ASTM Designations D-2487 and D-2488. This classification is primarily based upon visual and apparent physical soil characteristics, comparison with other soil samples, and our experience with the soil. Additional laboratory testing may be conducted, if necessary to define in more detail pertinent soil characteristics. The Unified Soil Classification group symbol shown on the boring logs corresponds with the group names listed below. The description includes soil constituents, moisture conditions, color and any other appropriate descriptive terms.

Group Symbol	Group Name	Group Symbol	Group Name	Group Symbol	Group Name	Group Symbol	Group Name
GW	Well-Graded Gravel	SW	Well-Graded Sand	CL	Lean Clay	CH	Fat Clay
GP	Poorly-Graded Gravel	SP	Poorly-Graded Sand	ML	Silt	MH	Elastic Silt
GM	Silty Gravel	SM	Silty Sand	OL	Organic Clay Organic Silt	OH	Organic Clay Organic Silt
GC	Clayey Gravel	SC	Clayey Sand			PT	Peat

RELATIVE PROPORTIONS			GRAIN SIZE TERMINOLOGY	
Descriptive Term(s) (Of components also present in sample)	Sand and Gravel % of Dry Weight	Fines % of Dry Weight	Major Component of Sample	Size Range
Trace	<15	<5	Cobbles	12 in. to 3 in. (300mm to 75mm)
With	15-30	5-12	Gravel	3 in. to #4 sieve (75mm to 4.75mm)
Modifier	>30	>12	Sand	#4 to #200 sieve (4.75mm to 0.074mm)
			Silt or Clay	Passing #200 sieve (.074 mm)

CONSISTENCY OF FINE-GRAINED SOILS			RELATIVE DENSITY OF COARSE-GRAINED SOILS	
Unconfined Compressive Strength, Qu, psf	Consistency	SPT, bpf	SPT, bpf	Relative Density
< 500	Very Soft	0-2	0-4	Very Loose
500-1,000	Soft	2-4	4-10	Loose
1,000-2,000	Medium Stiff	4-8	10-30	Medium Dense
2,000-4,000	Stiff	8-15	30-50	Dense
4,000-8,000	Very Stiff	15-30	50-80	Very Dense
8,000-16,000	Hard	30-100	80+	Extremely Dense
> 16,000	Very Hard	>100		

# BORING LOG DESCRIPTION/LEGEND

(page 3 of 3)

## ABBREVIATIONS

COMMONLY USED ABBREVIATIONS	
ft. or ' - feet	elev. - Elevation
in. or " - inches	% - Percent
psf - pounds per square foot	No. - Number
plf - pound per lineal foot	TB - Test Boring
pcf - pounds per cubic feet	N - blow count (SPT, bpf)
kip - 1000 pounds	USCS - Unified Soil Classification System
ksf - 1000 pounds per square foot	LL - Liquid Limit
klf - 1000 pounds per lineal foot	PL - Plastic Limit
tsf - tons per square foot	PI - Plasticity Index
bpf - blows per foot (SPT, N)	

**BORING LOG NO.**

**5**

Project No.: **131215A**

Project: Easter Lake Trail Bridge  
Evergreen Drive and Easter Lake Drive  
Des Moines, Iowa

Client: Snyder & Associates, Inc.  
2727 SW Snyder Boulevard  
Ankeny, Iowa 50023



Surface Elevation: 100.1'  
 Datum: BM - Existing E. Abutment @ Elev= 100.0'

Date Drilled: 7/30/2013 Drilling Method: HSA  
 Drilling Depth, ft.: 40 Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth Elevation ft.
0								2' CRUSHED ROCK				2
96		1	SSA	3	33.9			Gray lean clay, very moist FILL		CL		98.1
8		2	SSA	2	41.0			Sand seam near 3.8' Moisture seepage near 4' Very dark gray lean clay, very moist		CL		95.1
88		3	SSA	3	35.1			Dark gray after 12'				
16		4	SSA	4	37.5			COHESIVE ALLUVIUM (Soft Silty Clay)				
80		5	SSA	6	31.2 22.6			Gray fine to medium sand with gravel, saturated GRANULAR ALLUVIUM (Silty Sand)		SP		25.8 74.3
24		6	SSA	11	25.4 17.7			Gray sandstone, moist				31.3 68.8
64		7	SSA	40	11.0			WEATHERED BEDROCK				
40		8	SSA	50/1"				End of Boring				40 60.1
56												
48												
48												

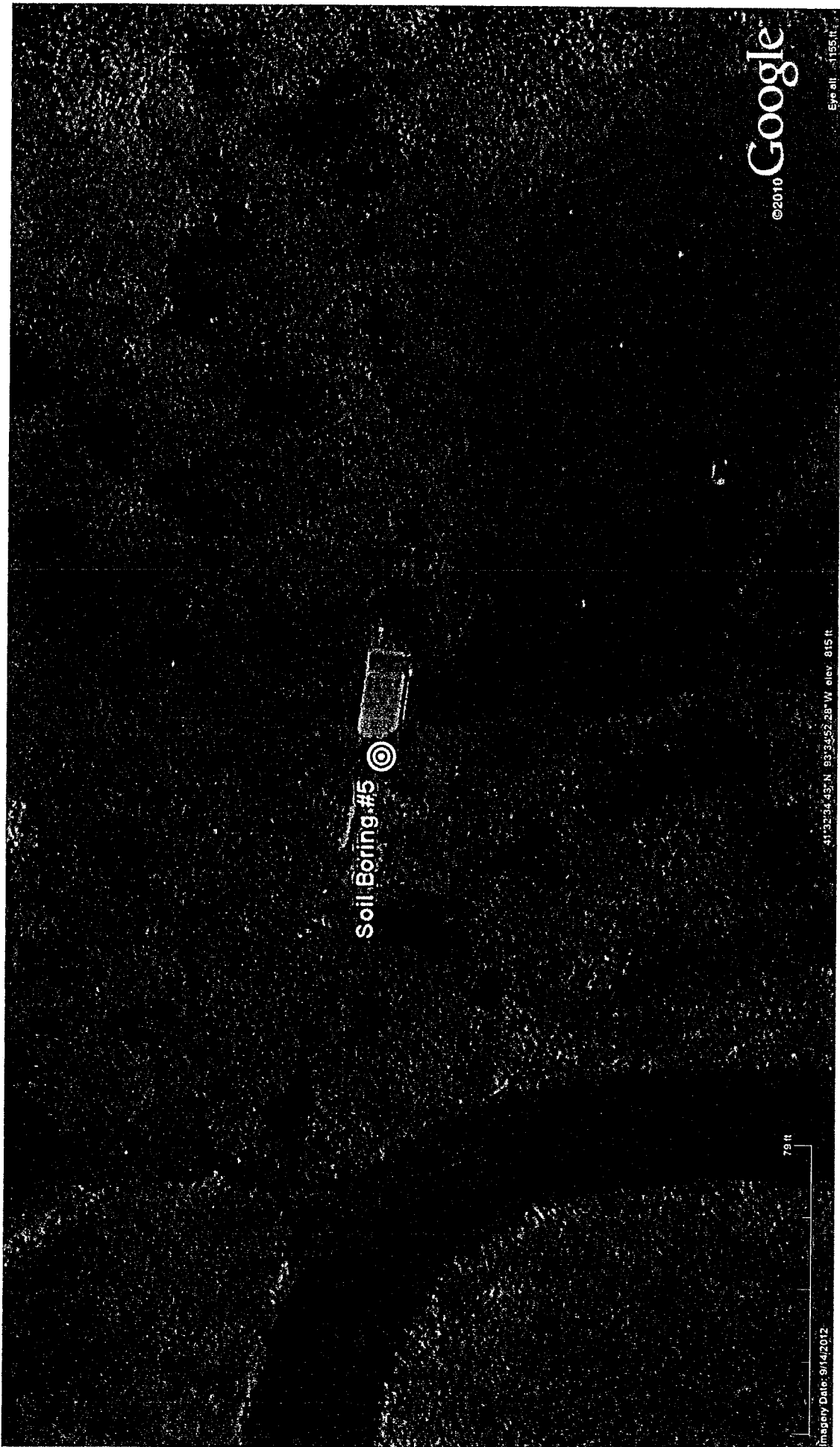
\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

**Water Level Observation**

Time: at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
 Depth to water: \_\_\_\_\_ ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS, INC.**

Geotechnical | Environmental | Construction Q.C.



Soil Boring #5

©2010 Google

41°32'34.43"N 88°34'52.28"W elev: 815 ft

Imagery Date: 9/14/2012

79 ft

# EASTER LAKE TRAIL BRIDGE

APPROXIMATE BORING LOCATION

PN 131215A

# NOTES



**February 10, 2015**

**PN 141336**

**GEOTECHNICAL EXPLORATION**

**EASTER LAKE RESTORATION  
EVERGREEN DRIVE AND EASTER LAKE DRIVE  
DES MOINES, IOWA**

**PERFORMED FOR**

**POLK COUNTY CONSERVATION  
C/O SNYDER & ASSOCIATES INC.  
2727 SW SNYDER BOULEVARD  
ANKENY, IOWA 50023**

# ALLENDER BUTZKE ENGINEERS INC.

GEOTECHNICAL • ENVIRONMENTAL • CONSTRUCTION Q. C.



February 10, 2015

Polk County Conservation  
c/o Snyder & Associates Inc.  
2727 SW Snyder Boulevard  
Ankeny, Iowa 50023  
Attn: Darin Jacobs, P.E.

RE: Geotechnical Exploration  
Easter Lake Restoration  
Evergreen Drive and Easter Lake Drive  
Des Moines, Iowa  
PN 141336

Dear Mr. Jacobs:

As authorized by Jim Cataldo, PCCB Chair, Allender Butzke Engineers Inc. (ABE) has completed the geotechnical exploration for the above referenced project. The geotechnical exploration was conducted to evaluate physical characteristics of subsurface conditions with respect to design and construction of this project. The enclosed report summarizes the project characteristics as we understand them, presents the findings of the borings and laboratory tests, discusses the observed subsurface conditions, and provides geotechnical engineering recommendations for this project.

We appreciate the opportunity to provide our geotechnical engineering services for this project. If you have any questions or need further assistance, please contact us at your convenience. We are also staffed and equipped to provide construction testing and inspection services on this project as well as environmental site assessments.

Respectfully submitted,  
ALLENDER BUTZKE ENGINEERS INC.

Andrew Lee, E.I.  
Staff Engineer

Isaac Drew, P.E.  
Project Engineer

	<p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.</p>
	<p> 2/10/15 David Logemann, P.E. License Number 12394 Date My license renewal date is December 31, 2015. Pages covered by this seal: <u>    All Pages    </u></p>

2 PC and 1 Email Above

**GEOTECHNICAL EXPLORATION**

**EASTER LAKE RESTORATION  
EVERGREEN DRIVE AND EASTER LAKE DRIVE  
DES MOINES, IOWA**

**PN 141336**

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## EXECUTIVE SUMMARY

A geotechnical exploration has been conducted for the proposed Easter Lake Restoration project in southeast Des Moines, Iowa. Five test borings were conducted around the lake for the proposed improvements which include dredging several feet out of each end of the lake; construction of weirs, forebay dikes, fishing piers, and a trail bridge; and shoreline shaping and protection. In addition to these recent test borings the analysis included review of borings for several past projects around Easter Lake including borings for 3 trail bridges and widening of the Easter lake Drive bridge. The following executive summary is provided for overview and omits details which are necessary for proper implementation of our geotechnical engineering recommendations. We recommend the report be read in its entirety for comprehensive understanding of the items contained herein.

- Subsurface conditions in the lowlying areas around Easter Lake generally consisted of topsoil over predominantly cohesive (clay and silt) soils which typically become wetter and softer with depth. Below depths of about 20 to 40 feet, the overburden soils are underlain by weathered bedrock consisting predominantly of clay shale.
- In addition to removing all vegetation, trees and rootballs, a minimum stripping depth of 12 inches will be required for lower areas near the lake prior to filling.
- Except the upper organic topsoil, the natural cohesive alluvial soils in or adjacent to Easter Lake would generally be suitable soil types for fill applications but in-situ moisture contents were generally several percent above the optimum moisture content for compaction.
- Grain size analysis indicate representative soils which are likely to be dredged will consist predominately of silt (65-80%) and clay (20-35%) with a small amount of sand (<10%).
- A bridge lift of geogrid and a minimum 2 feet of clean 1 ½ inch crushed rock could be provided where filling or construction traffic is necessary over wet very soft unstable conditions.
- Soil and revetment embankment fills of 10 to 15 feet could experience settlement on the order of 4 to 8 inches. The majority of settlement will likely occur within 1 to 2 months after the fill has been placed.
- Finish side slopes of 3:1 (horizontal: vertical) or flatter are recommended for soil embankments and shorelines slopes above the water level. If shale soils are encountered a slope configuration of 4:1 or flatter is recommended.

- Slope stability analysis indicates that the proposed weirs, dikes and fishing piers with Class E revetment slopes at 2:1 would be stable during construction and under long term conditions. Steeper slope configurations up to 1.5:1 would be possible but would require construction staging and monitoring.
- Dredged slopes of 3:1 (horizontal: vertical) or flatter would be preferred but steeper slopes up to 2:1 should only be considered in less critical areas due to more potential for sloughing especially during lake draw down or in areas of seepage. Slowly drawing the lake down over a few months would reduce the risk of instability.
- To reduce the risk of slope instability, dredging along both sides of the Easter Lake Drive roadway embankment should be restricted to slopes of 3:1 or flatter and allow for a minimum 10 feet wide bench to be left in place near or slightly above normal pool elevation.
- The trail bridge abutments should be filled and allowed to settle, for a period on the order of 2 months, prior to driving piles. Alternatively, the piles could be designed for downdrag (negative skin friction).
- HP steel piling driven 8 to 12 feet into the shale bedrock would develop a nominal geotechnical resistance of 12 kips per square inch end bearing.

## **GEOTECHNICAL EXPLORATION**

### **EASTER LAKE RESTORATION EVERGREEN DRIVE AND EASTER LAKE DRIVE DES MOINES, IOWA**

**PN 141336**

**February 10, 2015**

#### **PROJECT INFORMATION**

Polk County Conservation is planning a multi-contract restoration to Easter Lake, including the extension of the Easter Lake Trail along the north and south shores. Construction of the extension will include a trail bridge connecting the north and south shore trails over the western finger of the lake. Fills on the order of 10 feet will be required for approaches at the bridge abutments. A submerged weir and forebay dike will be constructed adjacent to the eastern side of the bridge to serve as a sediment trap and fishing pier. Restoration will also include dredging and excavation for a majority of the western half of Easter Lake. In addition, the south forebay of Easter Lake enclosed by Easter Lake Drive is planned to be dredged. A submerged weir is also proposed at the mouth of the south forebay where it connects to Easter Lake. We understand that the submerged weirs and fishing piers are currently planned to be constructed entirely of Class E rip-rap.

A grading plan shows the depths of dredging to be 801, 803, and 805 feet, with 801 feet being the maximum desired depth if achievable and stable during construction conditions. Slopes near shorelines are proposed to be dredged at a 3:1 (horizontal: vertical) configuration with the normal water level near 813.5 feet. We should be given the opportunity to review the final plans, when available, to evaluate compatibility with our geotechnical recommendations.

#### **FIELD EXPLORATION**

Five borings were conducted at this site to depths of 20 to 50 feet below existing grades on October 20<sup>th</sup> through 22<sup>nd</sup>, 2014. Approximate locations and surface elevations for Boring Nos. 11, 12, 14, 15, and 16 are indicated on the enclosed Boring Logs and Site Plan. Boring Nos. 1 through 5, included in the Site Plan and Appendix, reference previous reports for various trail bridges completed by ABE in 2013. The boring surface elevations and locations were surveyed by Snyder & Associates Inc. Methods of drilling, sampling, standard laboratory testing, and classifying of subsurface materials are discussed in the Boring Log Description/Legend pages of the Appendix.

**SUBSURFACE CONDITIONS**

**Soil Profile**

The borings conducted within the winding western portion of Easter Lake (Boring Nos. 11, 12, 14, and 16) generally encountered topsoil with organics approximately 1 to 3 feet thick. The topsoil was underlain by low plasticity lean clay (CL) to highly plastic fat clay (CH) cohesive alluvium. The stiff cohesive alluvium was generally less plastic, softer, and wetter with depth and was variable in color and sand content throughout. Nearly 3.5 feet of brown and gray sand (SW) granular alluvium was encountered within the cohesive alluvium in Boring No. 11. Boring No. 12 encountered a layer of moist gray sandy lean clay (CL) glacial till underlain by saturated clayey sand (SC) glacial outwash between depths of 6.5 and 17 feet. All the borings in the western portion transitioned from the cohesive alluvium to light gray to gray with some brown and yellow clay shale (CH) weathered bedrock at depths of 17 to 35.5 feet. Boring Nos. 11, 12, 14, and 16 terminated in this weathered bedrock near depths of 20 to 50 feet below existing grades.

The south forebay of Easter Lake (Boring No. 15) encountered similar topsoil over cohesive alluvium. The cohesive alluvium transitioned from lean clay (CL) to fat clay (CH) near a depth of 18.5 feet. Boring No. 15 terminated in this fat clay (CH) portion of the cohesive alluvium near a depth of 20 feet below existing grades.

Detailed descriptions of soils encountered by this exploration are provided on the Boring Logs enclosed in the Appendix. The Profile of Borings (Plate A-1) presented in the Appendix depicts the relative deposit elevations in the borings.

**Groundwater Level Observations**

The borings were monitored during and shortly after drilling operations to detect moisture seepage and groundwater accumulation. The results of our water level observations are noted on the Boring Logs enclosed in the Appendix.

During drilling operations, moisture seepage was noted in the borings in the western portion of Easter Lake between depths of 9 and 17 feet below existing grades. Groundwater accumulation was observed between depths of 3.8 and 17 feet. Boring No. 15 encountered moisture seepage and groundwater accumulation at respective depths of 3.5 and 4 feet. It should be recognized that these short-term water levels are not necessarily a true indication of the groundwater table. Long-term observations would be necessary to accurately define the groundwater variations at this site.

Brown-gray coloring of the cohesive alluvium soils is an indication of past fluctuations of the groundwater in this zone. Therefore, we interpret that past seasonal high water tables have been within a few feet of existing grades. Fluctuation of groundwater levels can occur due to seasonal variations in the amount of rainfall, surface drainage, subsurface drainage, site topography, irrigation practices, and ground cover (pavement or vegetation) as well as levels of Easter Lake.

**ANALYSIS AND RECOMMENDATIONS**

**Site Preparation**

Cut-and-fill on the order of 10 feet will be performed at this site to achieve the desired final grades for the bridge approach embankments. Prior to any fill being placed, the organic and loose materials in addition to all vegetation, trees, and rootballs must be stripped. We expect that a minimum stripping depth of 12 inches will be required for lower areas near the lake. The stripping depths may vary due to localized variations in vegetation cover and subgrade stability. Deeper stripping depths on the order of 1 to 2 feet or more may be required in low lying ditches to remove organics or softer sediments. Tree removal will be required to clear the site along the shoreline near both the bridge abutments. Any trees and/or large rootballs from mature trees and shrubs should be completely removed from beneath structures and pavements. The strippings could be used for landscaping purposes in non-critical areas where future support for foundations is not required. The subgrade should then be proof-rolled to delineate zones of soft soils present near the surface which may require additional removal or compaction. Existing slopes to receive fill during construction should be adequately benched and deeply scarified to integrate the new fill sections with the existing slope. Typical benches wide enough to accommodate earth moving equipment are limited to 3 to 5 feet in height and 10 feet in width.

**Potential Borrow Suitability**

The results of Standard Proctor tests conducted on representative samples of the cohesive alluvial soils encountered in Boring Nos. 14 and 15 are presented in the Appendix (Figure Nos. PR-1 through PR-3). We expect the cohesive alluvial soils, below the organic topsoil, in or adjacent to Easter Lake to be generally suitable soil types for embankment fill applications. However, in-situ moisture contents of the cohesive alluvium were generally several percent above the optimum moisture content for compaction. Therefore, for construction, discing, aeration or chemical stabilization will likely be necessary to moisture condition the soils for use as structural fill.

**Sediment Analysis**

Five sediment samples, collected by Snyder & Associates Inc., were tested for grain size analysis and results are presented in the Appendix as GS-ALL and GS-1A through GS-5A. Three additional grain size sample test were conducted on representative topsoil and cohesive alluvium from the upper 5 feet of Boring Nos. 11 and 15 and results are presented in the Appendix as GS-1 through GS-3. The grain size analysis indicate that representative soils which are likely to be dredged as part of lake restoration will consist predominately of silt (65-80%) and clay (20-35%) with a small amount of sand (<10%).

**Fill Construction**

We recommend cohesive or cohesionless soils, free of rubble and organics, be used as compacted fill. The suitability of offsite borrow materials should be approved by ABE prior to use onsite. The following Table A lists recommended minimum compaction requirements for cohesive and cohesionless fill materials in specific applications. For cohesive soils, moisture contents within a range of -1 to +4 percent of the material's optimum moisture content are necessary to achieve the desired fill qualities.

**TABLE A  
RECOMMENDED DEGREE OF COMPACTION GUIDELINES**

<b>Construction Application</b>	<b>Standard Proctor (ASTM D698) Cohesive Soil</b>	<b>Standard Proctor (ASTM D698) Cohesionless Soil</b>	<b>*Relative Density (D4253 &amp; D4254) Cohesionless Soil</b>
Class 1	95%	98%	70%
Class 2	90%	93%	45%
Class 3	85%	88%	20%

Class 1 - Subgrade for building foundations, slabs-on-grade, pavements and other critical backfill areas.

Class 2 - Backfill adjacent to structures not supporting other structures - Minor subsidence possible.

Class 3 - Backfill in non-critical areas - Moderate subsidence possible.

\*Use Relative Density technique (ASTM D4253 & D4254) where Standard Proctor technique (ASTM D698) does not result in a definable maximum dry density and optimum moisture content.

At the time of this geotechnical exploration, moisture content of soils encountered were generally near or above the recommended moisture content range for compaction. Adjustment of soil moisture content may be required in order to lower or raise the moisture to within the recommended moisture content range. Discing and aeration is generally the most economical method to lower soil moisture content, if climatic conditions allow. Chemical modification or stabilization of very moist soils can be accomplished with quicklime or Class C fly ash if construction scheduling does not permit field drying or if greater stability is required.

Granular soils can generally be suitably compacted with vibratory compaction equipment whereas cohesive soils are more suitable for compaction with sheepsfoot or pneumatic type compactors. Care should be exercised in properly backfilling and compacting all trenches, especially utility trenches under or adjacent to the pavement. Loosely compacted or sand backfilled trenches can collect surface water and inadvertently direct it to the pavement subgrade and cause softening of the soil as well as increasing frost heave potential.

**West Trail Bridge or other Deep Embankment Fills**

Deep embankment fill sections will consolidate underlying soils, resulting in general settlement of bridge abutment and approach fills. We estimate fill sections on the order of 10 feet high will consolidate the natural soils and result in settlements on the order of 3 to 4 inches. Depending upon the rate of fill placement, we would expect that the majority (75% or more) of the settlement would occur within 1 to 2 months of completing the filling operations. Therefore, we recommend that the new deep fill sections be allowed to consolidate for 1 month or more before constructing settlement sensitive structures, such as pavements.

Based on the anticipated embankment heights and the subsurface conditions encountered at the site, we expect that the finish side slopes of 3:1 (horizontal: vertical) or flatter for the slopes will be stable when constructed of well compacted suitable soils. It is not uncommon to encounter weathered clay shale soil (natural and fill) above the water line around the lake. In our experience, shale slopes can be subject to shallow sloughing/creep and we recommend these areas, if encountered, be flattened to 4:1 or flatter.

**Excavation, Stability and Dewatering**

The on-site soils can be excavated utilizing conventional excavation equipment. However, the contractor should be aware that in deeper excavations, 5 feet or more in some areas, the moist to very moist cohesive alluvium soils may not provide adequate support for heavy construction equipment, especially under repeat traffic loading. Therefore, low impact excavation methods, such as top loading with excavators, may be required in cut areas encountering these very moist softer soils to allow construction equipment to grade the site. Where softer wetter soils are encountered at the excavation bottom a bridge lift of clean coarse crushed rock may be required prior to placing and compacting backfill in lifts. Provisions should be made in the contract to allow for a bridge lift of geogrid and a minimum 2 feet of clean 1 ½ inch crushed rock, where filling or construction traffic is necessary over wet very soft unstable conditions,

Where excavations encounter only cohesive soils with no wet sand seams or layers, it is expected that the water seepage can be controlled by permitting it to drain into temporary construction sumps and be pumped outside the perimeter of the excavations. More extensive dewatering such as sand points, wells and sump pumps will be required for excavations which would extend down into water bearing sand layers. We recommend that prior to excavating in saturated sand, water levels be lowered and maintained 2 feet or more below the bottom of excavations in saturated sand to prevent upward seepage forces which could reduce subgrade support.

The extent of bracing or sloping of open cut excavations will be dependent upon depth of cut, ground water conditions, soils encountered, length of time the excavation will be open, area available for excavation and local governing regulations. Predominately cohesive soils may appear to stand nearly vertical in shallow excavations for short periods of time. However, soil creep, surcharge loads, precipitation, subsurface moisture seepage, construction activity vibrations and other factors may cause these soils to cave within an unpredictable period of time. Excavations encountering sand may tend to cave rapidly, especially if water is flowing through the sand. Unstable granular

excavation walls may also cause surrounding cohesive soils to become unstable. Temporary shoring, flattening of the excavation slopes or use of trench boxes may be required to maintain a safe condition. It is to be noted that provisions for shoring and bracing of deep excavations are required of the contractor by OSHA.

**Submerged Weirs and Forebay Dikes**

Two submerged weirs, one east of the proposed bridge near Boring Nos. 11 and 12 (western Easter Lake finger) and the other near Boring No. 15 at the mouth of the south forebay, are proposed to span opposite shorelines and will control the lake inflow to trap sediment at each of their locations. The western finger submerged weir will also be purposed as a forebay dike with a 10 foot wide flattened top that can serve as a platform to be walked or waded on by lake visitors. Comprised of Class E rip-rap, the submerged weirs will slope at 2:1 (horizontal: vertical) with the top of each weir positioned near respective elevations of 815.5 and 811.5 feet for the west and south weirs. Each submerged weir will extend to the bottom of proposed dredging, which could be near 801 feet, if achievable. We estimate rip-rap fill sections on the order of 10 to 15 feet deep will consolidate the natural soils and result in settlements on the order of 6 to 8 inches. Depending upon the rate of fill placement, we would expect that the majority of the settlement would occur within 1 to 2 months of completing the filling operations.

Slope stability analysis indicates that the proposed revetment slopes at 2:1 would be stable during construction and under long term conditions based on the test boring data and groundwater level observations encountered at Boring Nos. 11 and 12. A steeper slope configuration of 1.5:1 was also analyzed and was determined to have adequate long term stability. However, for short term conditions during construction this steeper configuration was marginally stable due to potential pore water pressure development. Therefore, if it is desired to construct steeper revetment embankments, we recommend staging the rip-rap fill placement. Staging would consist of constructing about half of the embankment and allowing pore water pressures to dissipate for 1 month prior to completing the embankment construction. Monitoring of pore water pressure development is recommended if a shorter construction schedule is required.

**Dredging Slope Stability**

Based on the dredging depths of as much as 10 to 12 feet and the subsurface conditions encountered at the site, we anticipate dredged slopes of 3:1 (horizontal: vertical) or flatter will be stable, if not subject to seepage. The most critical period for stability of dredged slopes will be during the period of lake draw down after dredging. Therefore, consideration should be given to slowly drawing down lake levels over a period of a few months. It should be noted that prior to the lake refilling, areas of seepage may also cause sloughing of the side slopes. If desired, areas subject to sloughing could be repaired by reconstructing and flattening slopes and/or providing drainage prior to the lake refilling with water. At the owner's risk, steeper slopes of 2:1 could be considered in areas along the shoreline where the risk of sloughing is not a critical issue.



The roadway embankments on both the north and south sides of Easter Lake Drive and around the bridge are areas where slope instability could be a significant issue. Therefore, slopes of 3:1 or flatter are recommended for dredging in this area. Additionally, we recommend leaving a bench 10 feet or wider near or slightly above normal water levels to improve stability and provide further protection for the Easter Lake Drive roadway embankment. These slope stability recommendations were based on modeling of soil conditions from ABE boring data (PN 091243) conducted for widening the Easter Lake Drive Bridge in 2009.

**Driven Pile Foundation Design**

In order to aid in the design of the driven piles, we have classified the soil layers, as shown on the Boring Logs, utilizing the description shown on the IDOT “LRFD Driven Pile Foundation Geotechnical Resistance Chart.” The overburden soils at this site would likely be categorized as cohesive based on IDOT criteria (BDM 6.2.8). In addition to friction of the overburden soils, HP steel piling driven 4 to 8 feet near Boring No. 12 (north abutment near or below elevation 775 feet) and 8 to 12 feet near Boring No. 11 (south abutment near or below elevation 770 feet) into the weathered bedrock would develop a nominal geotechnical resistance of 12 kips per square inch (ksi) end bearing. Based on soil and bedrock conditions at the site, designing for SRL-1 with an allowable pile stress of 6 ksi would be appropriate.

Actual capacities of driven piles should be evaluated by measuring driving resistance during installation utilizing wave equation analysis or appropriate empirical pile driving formulas. Design of this project will require careful field observations and evaluation during construction. The foundation penetration depths may require adjustment in the field depending upon conditions encountered at the time of construction. Pile lengths may vary according to currently unknown subsurface conditions (such as sloping bedrock) that are different from that encountered in the borings. Intermittent high driving resistances may be encountered in dense sand/gravel seams and cobble/boulder zones within the alluvium soils causing early pile refusal. Pile tips and/or driving shoes should not be utilized for pile installation since they would likely reduce skin friction support.

Due to the proposed deep fill sections on the order of 10 feet, softer underlying soils will be compressed and cause embankment settlement. Therefore, the piles could either be designed for down drag above elevation 792 feet or a waiting period of 2 months could be implemented to allow the embankment settlement to occur before the piles are driven. If the construction schedule requires, settlements could be monitored using survey monuments in the deeper fill areas during the waiting period following fill placement to determine the rate of settlement for further evaluation of when installation of piles can proceed.

GENERAL

The analyses and recommendations in this report are based in part upon the data obtained from the soil borings performed at the indicated locations and from any other information discussed in this report. This report does not reflect any variations which may occur between borings or across the site. The nature and extent of such variations may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

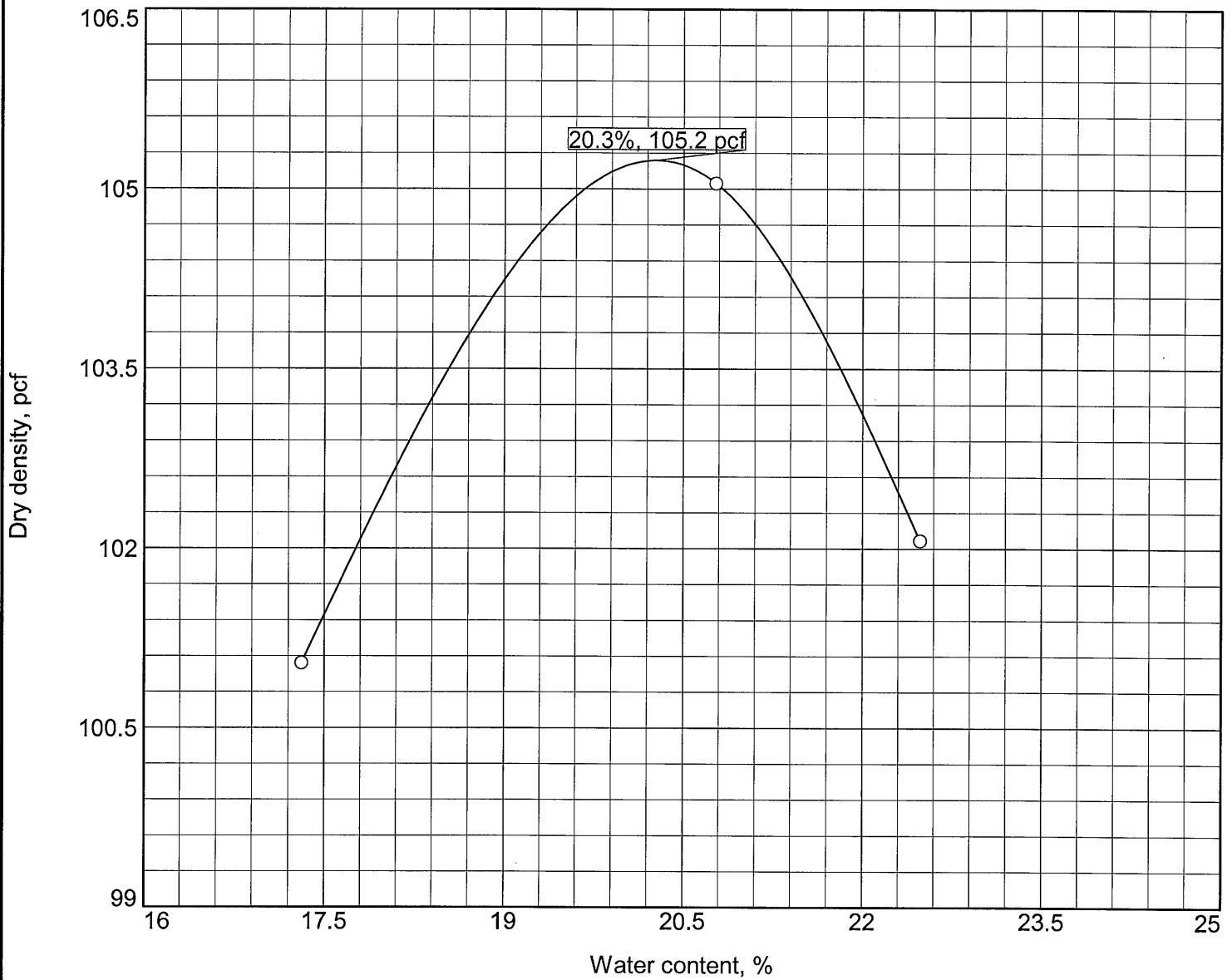
It is recommended that the geotechnical engineer be provided the opportunity to review the plans and specifications so that comments can be made regarding the interpretation and implementation of our geotechnical recommendations in the design and specifications. It is further recommended that the geotechnical engineer be retained for testing and observation during earthwork and foundation construction phases to help determine that the design requirements are fulfilled.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranty, expressed or implied, is made. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by the geotechnical engineer.

The scope of our service was not intended to include any environmental assessment or exploration for the presence of hazardous or toxic materials in the soil, surface water, groundwater or air on, below or adjacent to this site.

# APPENDIX

# PROCTOR TEST RESULTS



Test specification: ASTM D 698-00a Method A Standard

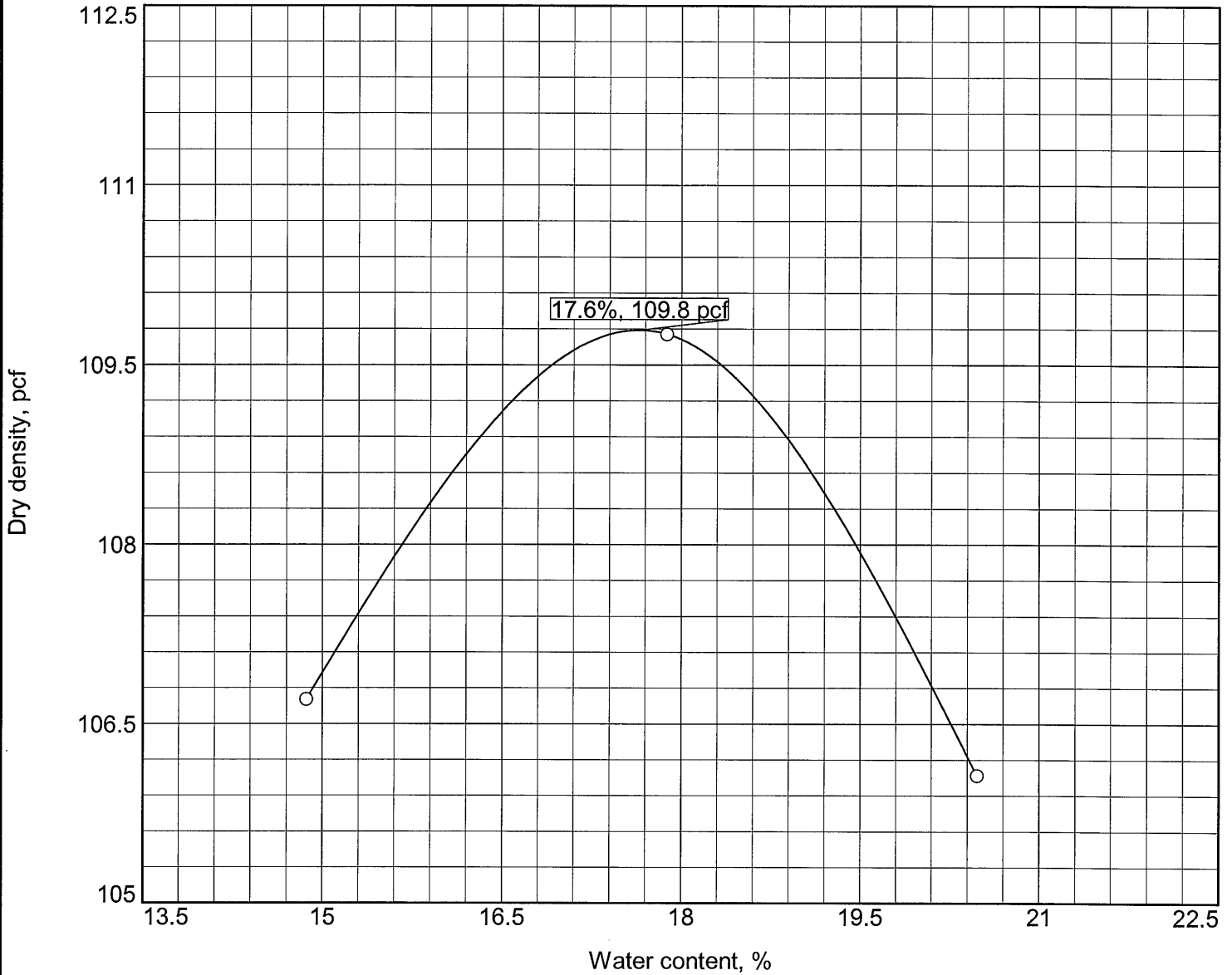
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
4' - 10.5'	CH							

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 105.2 pcf Optimum moisture = 20.3 %	Gray fat clay

<b>Project No.</b> 141336 <b>Client:</b> Polk County Conservation, c/o Snyder & <b>Project:</b> Easter Lake Restoration  ○ <b>Location:</b> Boring No. 14	<b>Remarks:</b> COHESIVE ALLUVIUM
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**ALLENDER BUTZKE ENGINEERS, INC.**

# PROCTOR TEST RESULTS



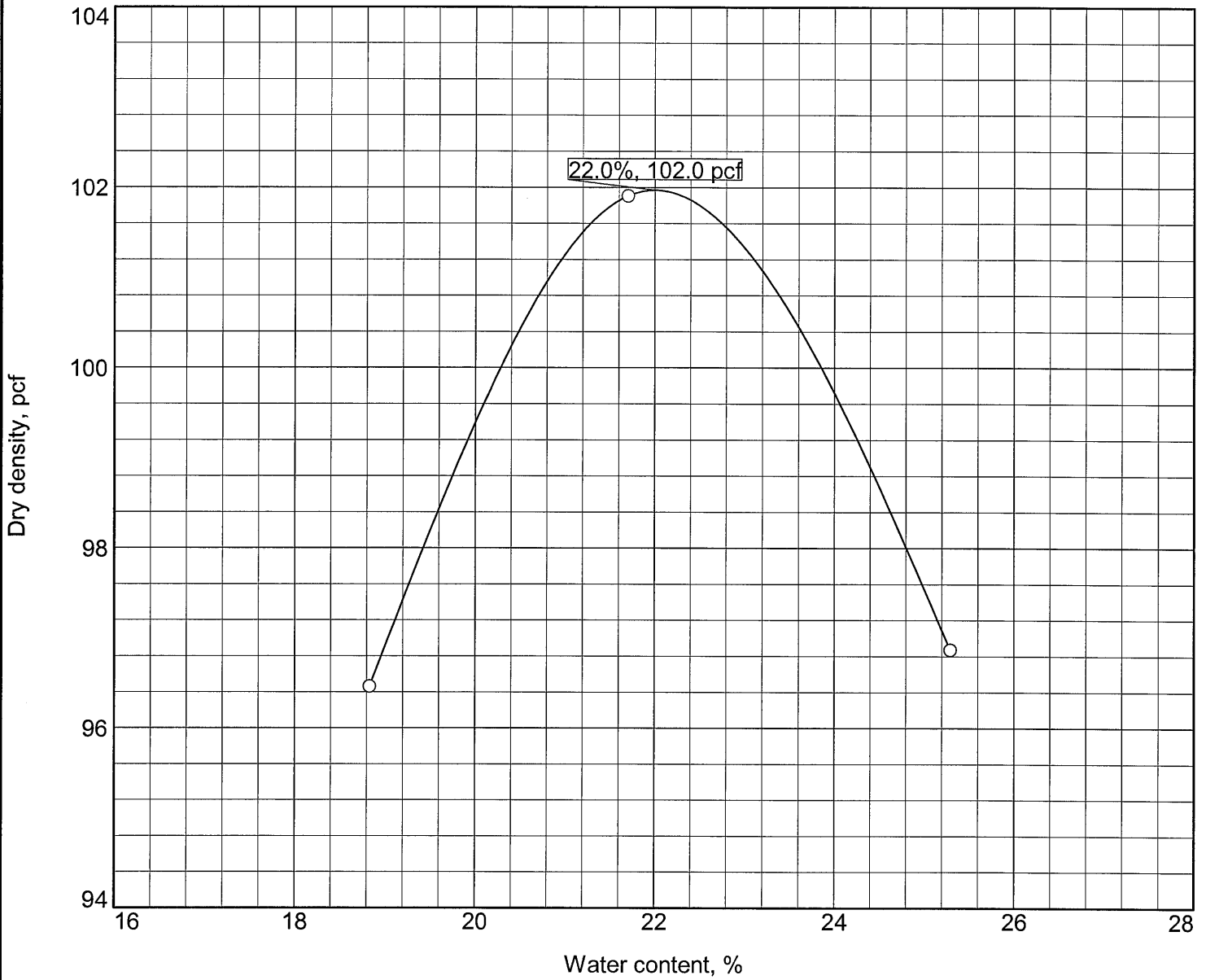
Test specification: ASTM D 698-00a Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
14' - 20'	CL							

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 109.8 pcf Optimum moisture = 17.6 %	Gray lean clay
<b>Project No.</b> 141336 <b>Client:</b> Polk County Conservation, c/o Snyder & <b>Project:</b> Easter Lake Restoration  ○ <b>Location:</b> Boring No. 14	<b>Remarks:</b> COHESIVE ALLUVIUM

**ALLENDER BUTZKE ENGINEERS, INC.**

# PROCTOR TEST RESULTS



Test specification: ASTM D 698-00a Method A Standard

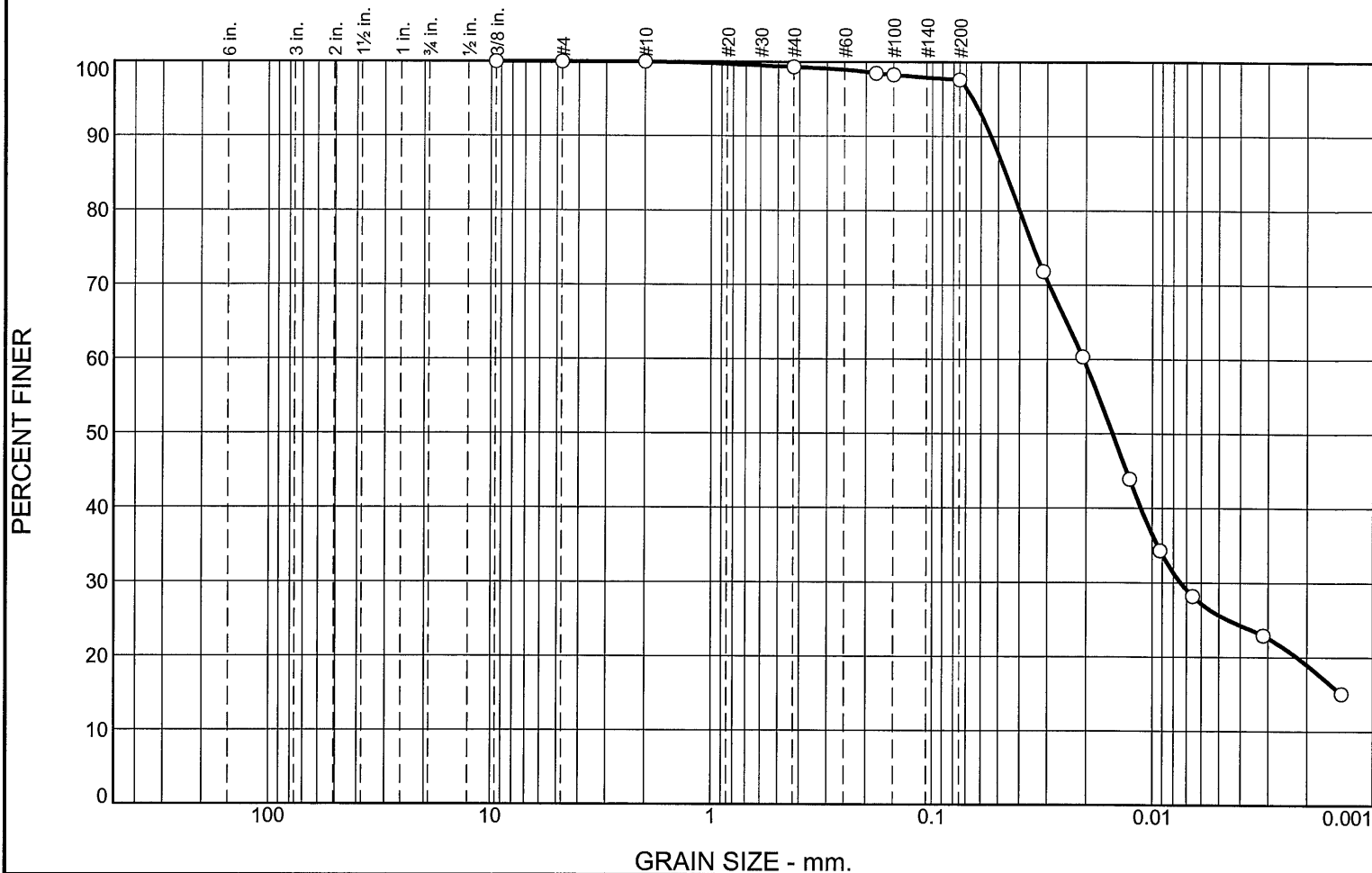
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
1.5' - 6'	CL						0.0	

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 102.0 pcf Optimum moisture = 22.0 %	Dark gray to brown-gray lean clay

<b>Project No.</b> 141336 <b>Client:</b> Polk County Conservation, c/o Snyder & <b>Project:</b> Easter Lake Restoration  ○ <b>Location:</b> Boring No. 15	<b>Remarks:</b> COHESIVE ALLUVIUM
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**ALLENDER BUTZKE ENGINEERS, INC.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.7	1.7	78.6	19.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#40	99.3		
#80	98.5		
#100	98.3		
#200	97.6		
0.0313 mm.	71.8		
0.0207 mm.	60.3		
0.0127 mm.	43.9		
0.0092 mm.	34.3		
0.0066 mm.	28.2		
0.0032 mm.	22.9		
0.0014 mm.	15.1		

**Soil Description**

Very dark brown lean clay, trace organics

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.0540      D<sub>85</sub>= 0.0463      D<sub>60</sub>= 0.0205  
D<sub>50</sub>= 0.0152      D<sub>30</sub>= 0.0075      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= CL                      AASHTO=

**Remarks**

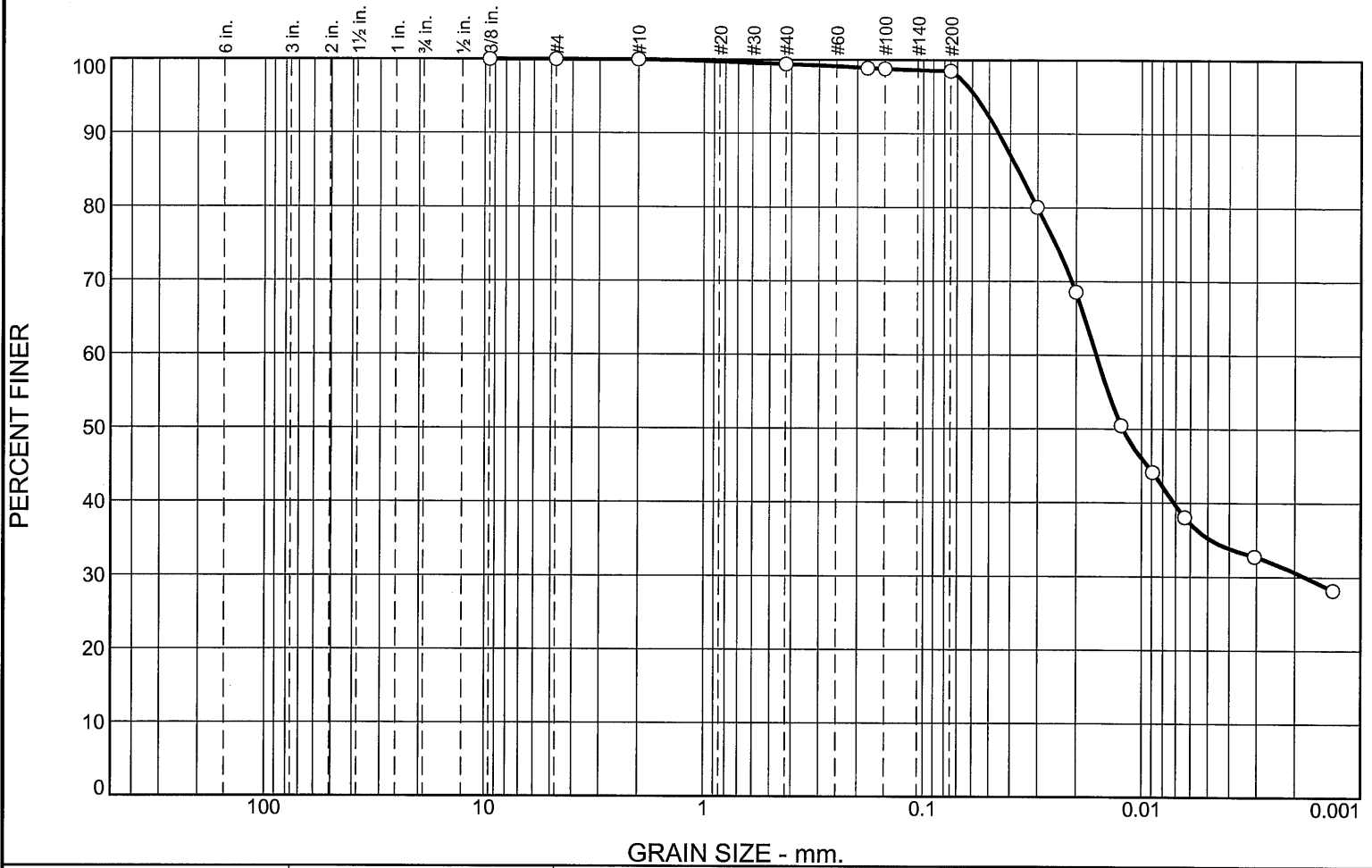
TOPSOIL

\* (no specification provided)

**Location:** Boring No. 11  
**Depth:** 9" - 2'

**Date:**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.6	0.9	67.9	30.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#40	99.4		
#80	98.9		
#100	98.8		
#200	98.5		
0.0302 mm.	80.0		
0.0201 mm.	68.5		
0.0124 mm.	50.5		
0.0089 mm.	44.2		
0.0064 mm.	38.1		
0.0031 mm.	32.8		
0.0013 mm.	28.2		

\* (no specification provided)

**Soil Description**

Very dark gray-brown fat clay

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.0451      D<sub>85</sub>= 0.0367      D<sub>60</sub>= 0.0162

D<sub>50</sub>= 0.0122      D<sub>30</sub>= 0.0018      D<sub>15</sub>=

D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= CH                      AASHTO=

**Remarks**

COHESIVE ALLUVIUM

**Location:** Boring No. 11  
**Depth:** 3.5' - 5.5'

**Date:**

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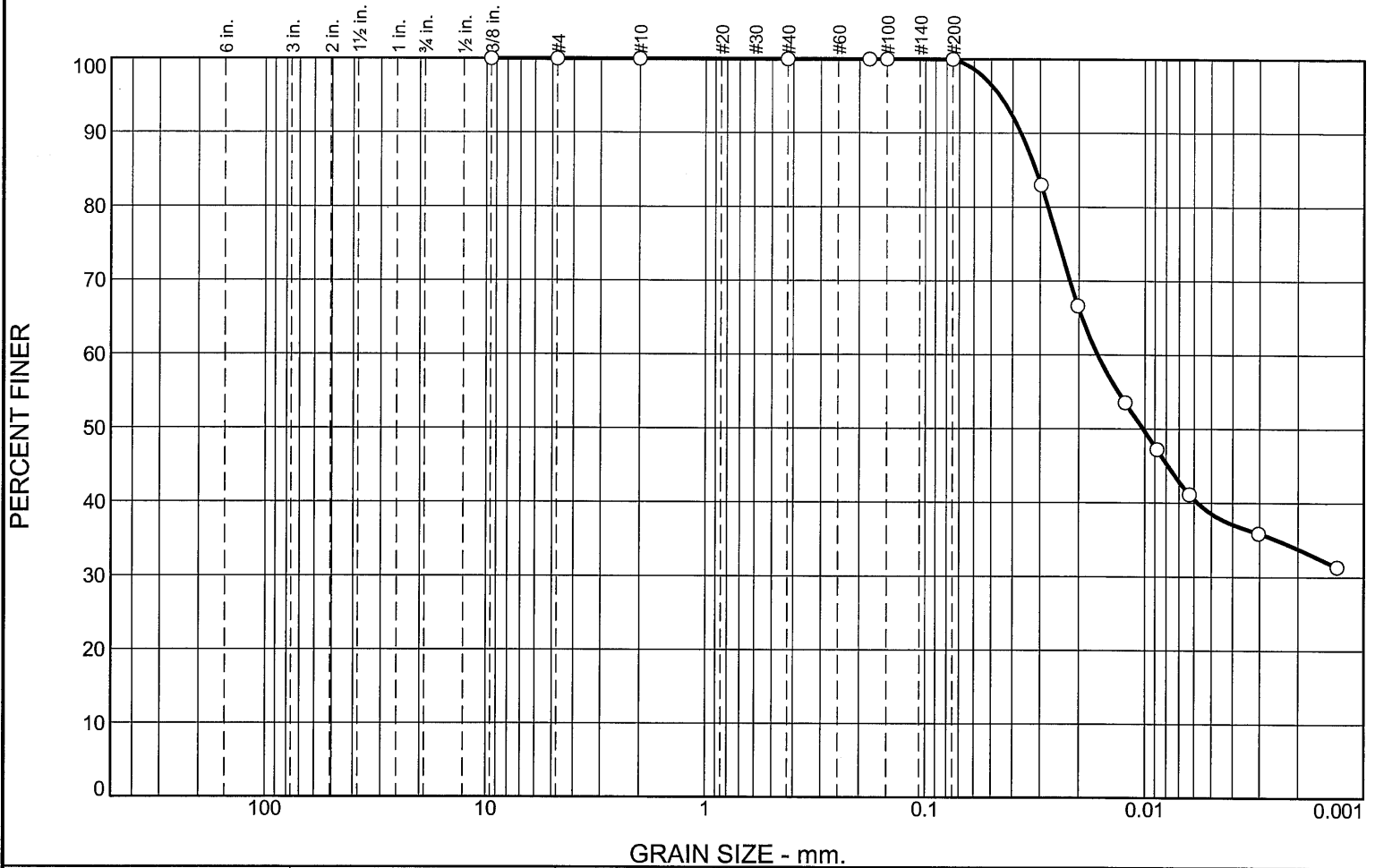
**Client:** Polk County Conservation, c/o Snyder & Associates, Inc.  
**Project:** Easter Lake Restoration

**Project No:** 141336

**Figure**      GS-2



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.0	66.2	33.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#40	100.0		
#80	100.0		
#100	100.0		
#200	100.0		
0.0297 mm.	83.0		
0.0202 mm.	66.6		
0.0123 mm.	53.6		
0.0088 mm.	47.3		
0.0063 mm.	41.2		
0.0030 mm.	35.9		
0.0013 mm.	31.4		

\* (no specification provided)

**Soil Description**

Dark gray and gray lean clay, trace organics

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.0367      D<sub>85</sub>= 0.0314      D<sub>60</sub>= 0.0164  
D<sub>50</sub>= 0.0102      D<sub>30</sub>=                      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= CL                      AASHTO=

**Remarks**

COHESIVE ALLUVIUM

**Location:** Boring No. 15  
**Depth:** 1' - 3'

**Date:**

**ALLENDER  
 BUTZKE  
 ENGINEERS, INC.**

**Client:** Polk County Conservation, c/o Snyder & Associates, Inc.  
**Project:** Easter Lake Restoration

**Project No:** 141336

**Figure** GS-3

# Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.2	1.0	75.5	23.3
□	0.0	0.0	0.0	0.2	0.2	0.7	75.3	23.6
△	0.0	0.0	0.0	0.1	0.1	0.4	73.8	25.6
◇	0.0	0.0	0.0	0.0	0.1	1.1	76.2	22.6
▽	0.0	0.0	0.0	0.1	1.6	7.4	66.1	24.8

## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	AASHTO
○		1A		Sediment	
□		2A		Sediment	
△		3A		Sediment	
◇		4A		Sediment	
▽		5A		Sediment	

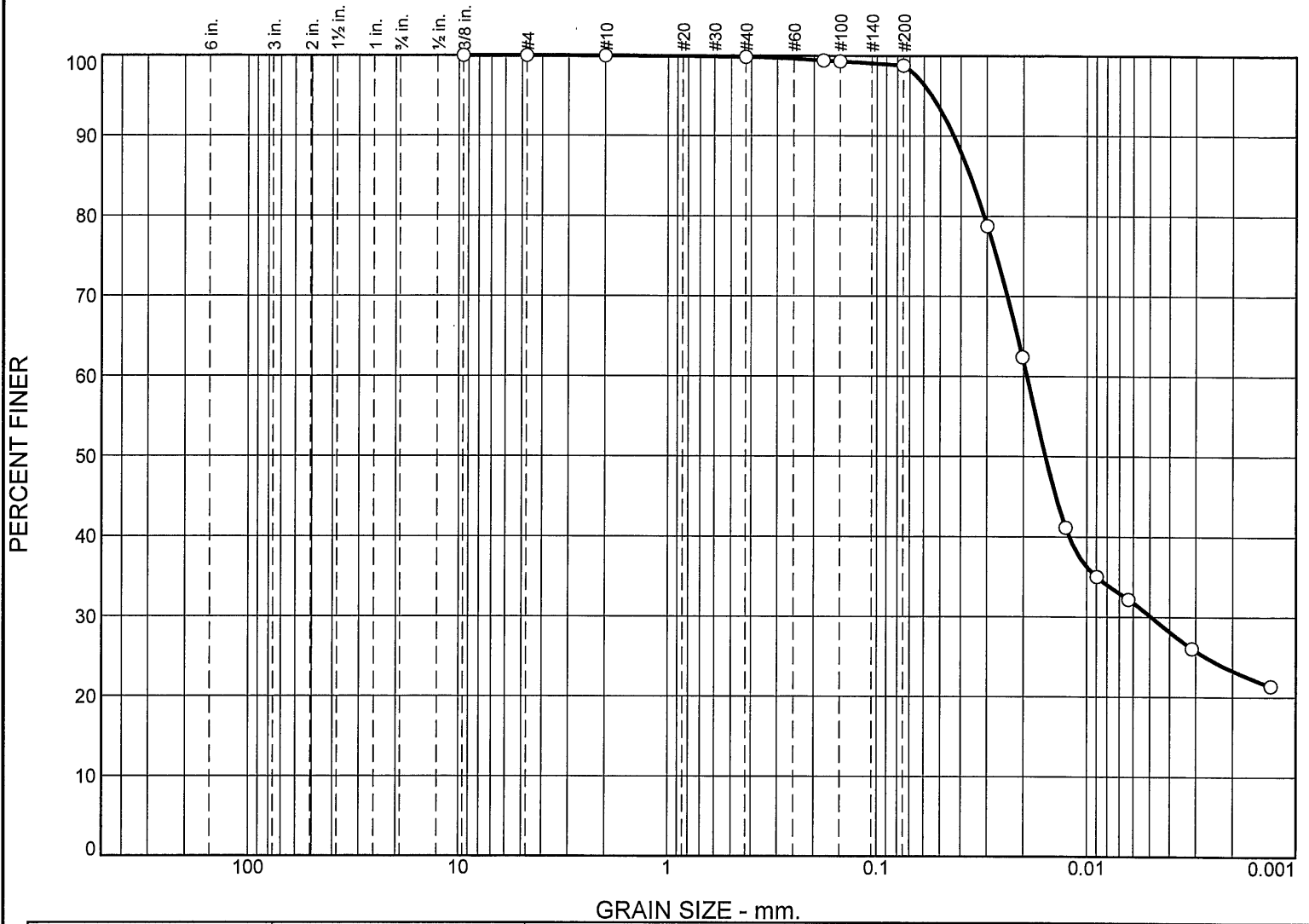
**ALLENDER  
BUTZKE  
ENGINEERS, INC.**

Client: Polk County Conservation, c/o Snyder & Associates, Inc.  
Project: Easter Lake Restoration

Project No.: 141336

Figure GS-ALL

# Particle Size Distribution Report



GRAIN SIZE - mm.

%	+3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0.0	0.0	0.0	0.0	0.2	1.0	75.5	23.3		
×	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
○			0.0360	0.0192	0.0157	0.0049				

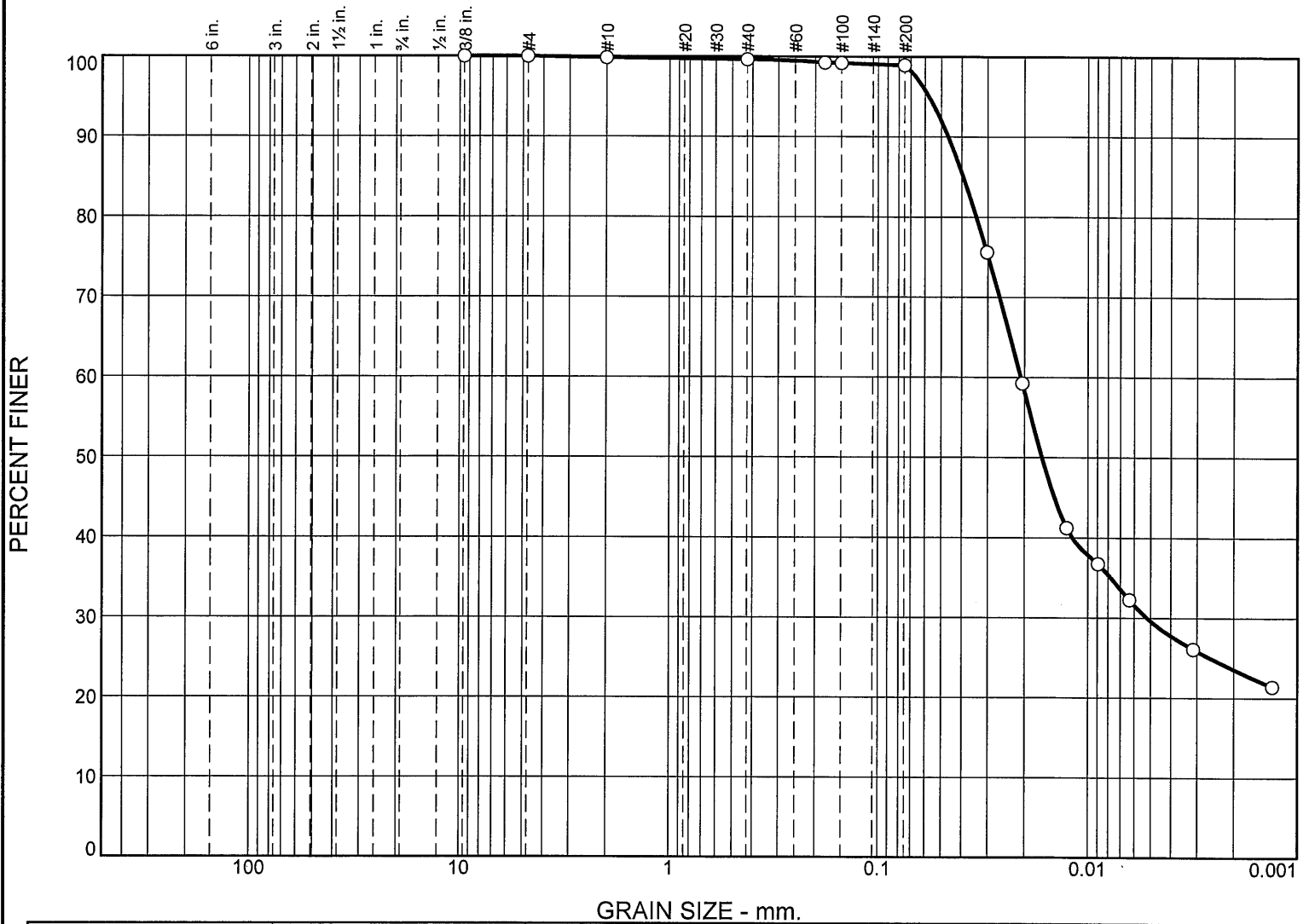
Material Description	USCS	AASHTO
○ Sediment		

**Project No.** 141336      **Client:** Polk County Conservation, c/o Snyder & Associates, Inc.  
**Project:** Easter Lake Restoration  
 ○ **Location:** 1A

**Remarks:**  
 ○ As Received:  
 Wet Unit wt. 101 pcf  
 Moisture content 56%  
 Dry Unit wt. 65 pcf

## ALLENDER BUTZKE ENGINEERS, INC.

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.2	0.7	75.3	23.6

LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
		0.0393	0.0208	0.0165	0.0052				

Material Description	USCS	AASHTO
○ Sediment		

**Project No.** 141336      **Client:** Polk County Conservation, c/o Snyder & Associates, Inc.

**Project:** Easter Lake Restoration

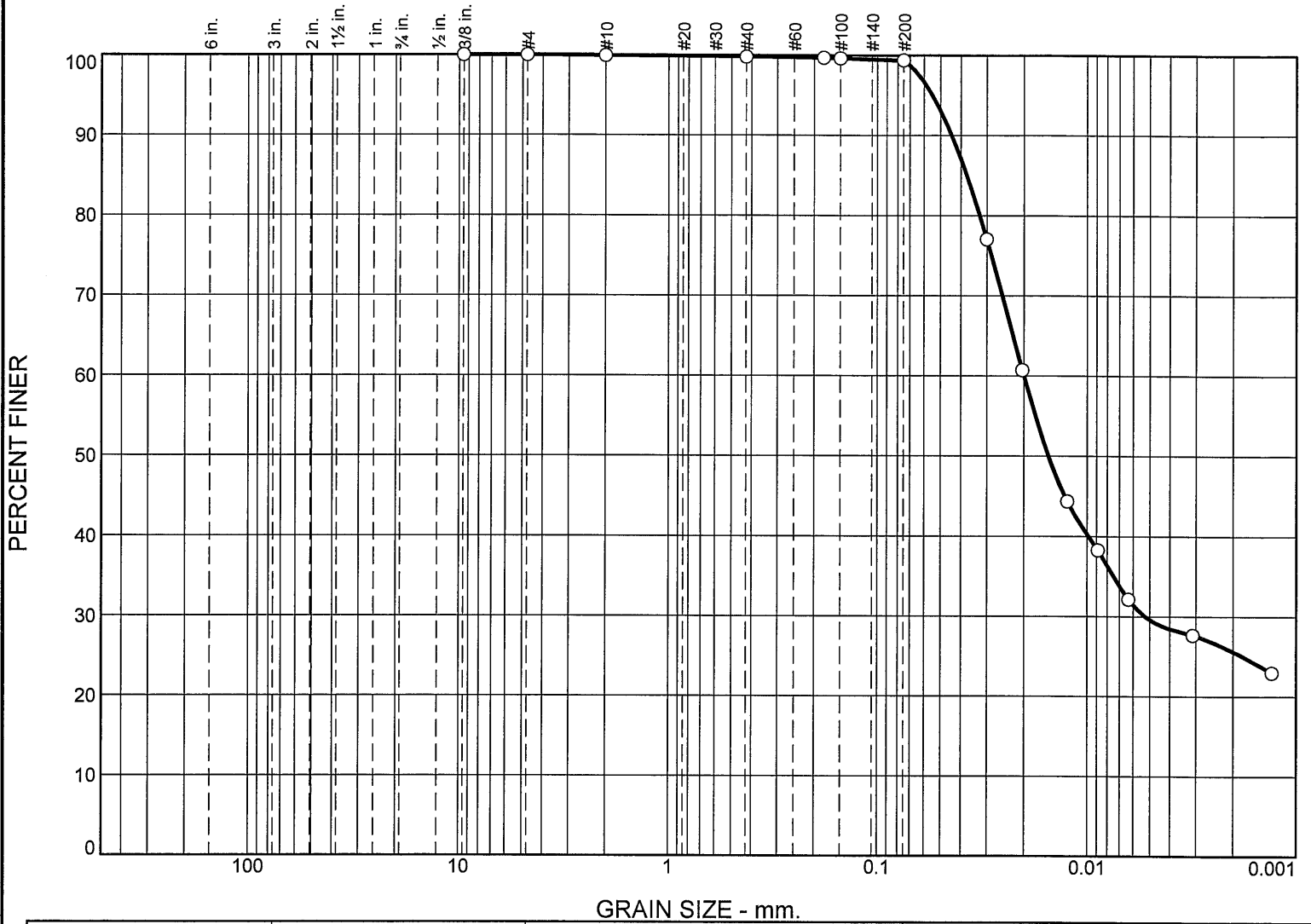
○ **Location:** 2A

**Remarks:**

○ As Recieved:  
 Wet Unit wt. 103 pcf  
 Moisture content 48%  
 Dry Unit wt. 71 pcf

## ALLENDER BUTZKE ENGINEERS, INC.

# Particle Size Distribution Report



GRAIN SIZE - mm.

%	+3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0.0	0.0	0.0	0.1	0.1	0.4	73.8	25.6		
×	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
○			0.0375	0.0200	0.0152	0.0053				

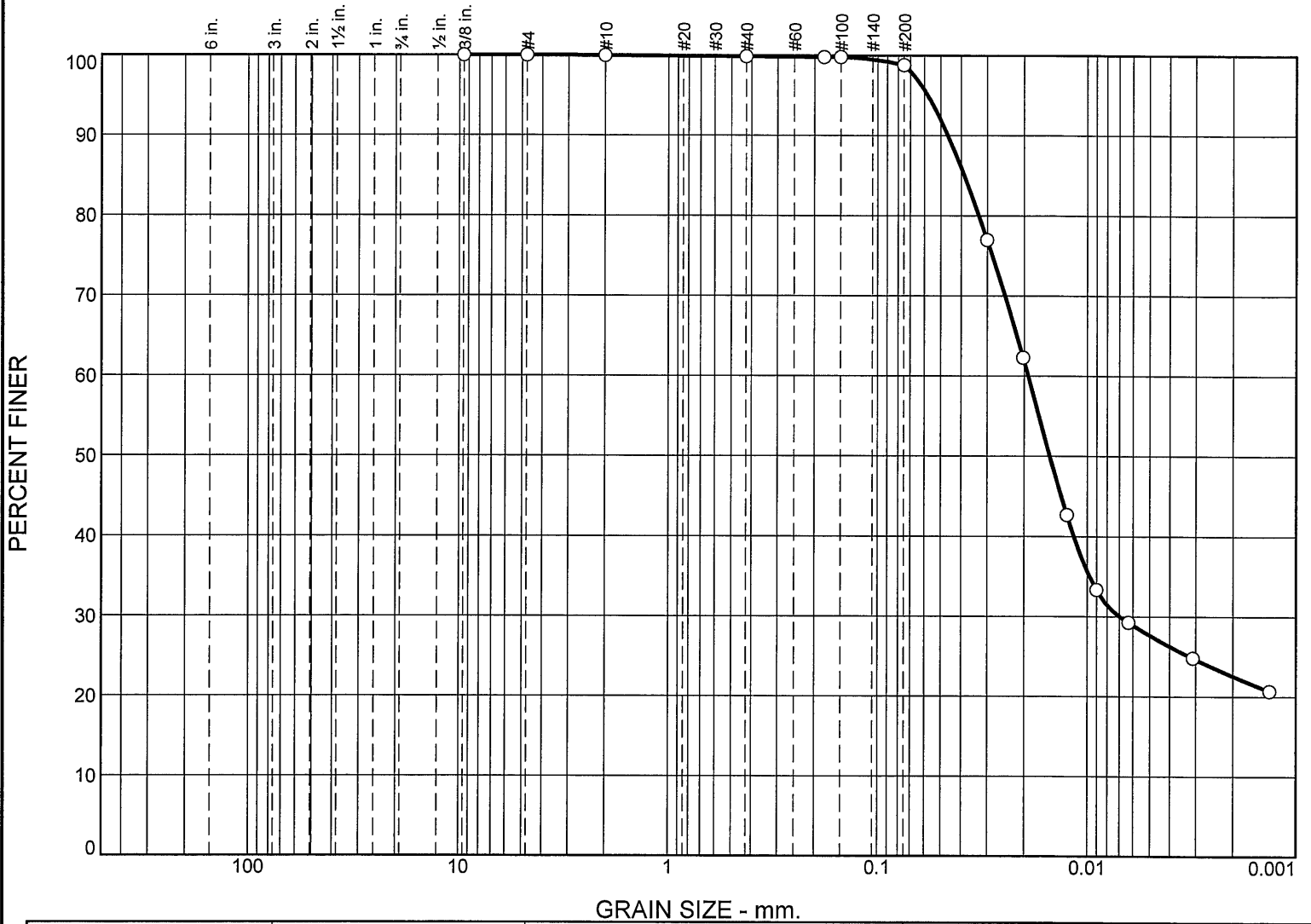
Material Description	USCS	AASHTO
○ Sediment		

**Project No.** 141336      **Client:** Polk County Conservation, c/o Snyder & Associates, Inc.  
**Project:** Easter Lake Restoration  
 ○ **Location:** 3A

**Remarks:**  
 ○ As Received:  
 Wet Unit wt. 95 pcf  
 Moisture content 49%  
 Dry Unit wt. 64 pcf

## ALLENDER BUTZKE ENGINEERS, INC.

# Particle Size Distribution Report



GRAIN SIZE - mm.

%	+3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0.0	0.0	0.0	0.0	0.1	1.1	76.2	22.6		
×	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
○			0.0386	0.0191	0.0151	0.0070				

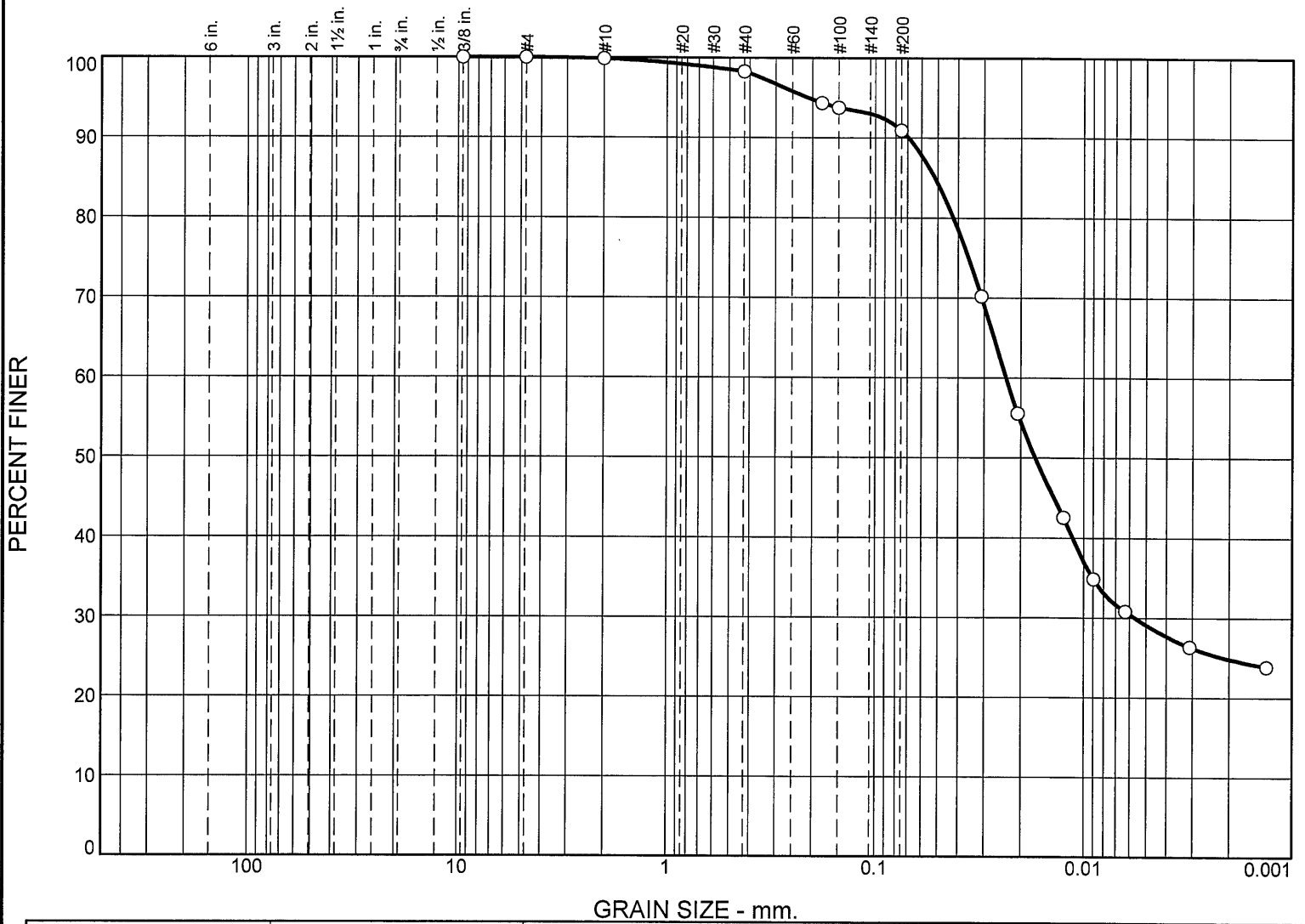
Material Description	USCS	AASHTO
○ Sediment		

**Project No.** 141336      **Client:** Polk County Conservation, c/o Snyder & Associates, Inc.  
**Project:** Easter Lake Restoration  
 ○ **Location:** 4A

**Remarks:**  
 ○ As Recieved:  
 Wet Unit wt. 96 pcf  
 Moisture content 64%  
 Dry Unit wt. 59 pcf

**ALLENDER BUTZKE ENGINEERS, INC.**

# Particle Size Distribution Report



GRAIN SIZE - mm.

%	+3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0.0	0.0	0.0	0.1	1.6	7.4	66.1	24.8		
×	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
○			0.0517	0.0235	0.0171	0.0057				

Material Description	USCS	AASHTO
○ Sediment		

<b>Project No.</b> 141336 <b>Project:</b> Easter Lake Restoration ○ <b>Location:</b> 5A	<b>Client:</b> Polk County Conservation, c/o Snyder & Associates, Inc.	<b>Remarks:</b> ○ As Recieved: Wet Unit wt. 99 pcf Moisture content 57% Dry Unit wt. 63 pcf
-----------------------------------------------------------------------------------------------	------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------

## ALLENDER BUTZKE ENGINEERS, INC.

## BORING LOG DESCRIPTION/LEGEND

(page 1 of 3)

The material types encountered during the drilling operations were recorded on field logs. The profile represented on the Boring Log is based on final classification performed by a geotechnical engineer using the field logs, laboratory observation and testing. The material stratigraphy demarcation lines shown on the Boring Logs indicate changes in soil characteristics, however, actual soil changes or variations may occur as a gradual transition. Soil profile discussion, Log Boring information, water levels and recommendations presented in this report are based upon measured depths below ground levels existing at time of the field exploration, unless otherwise specified.

### DRILLING AND SAMPLING

The borings were conducted with either a truck or all-terrain rotary drill rig using the drilling methods indicated on each Boring Log. Soil sampling and/or in-situ testing such as Shelby Tube (ST), split-spoon (SS), drive cone (DC), or core (C) was conducted at depth intervals which were selected in consideration of the characteristics of the proposed construction. Generally undisturbed soil samples are taken at 5 foot depth intervals or change in soil types. Disturbed soil samples from the auger, either jar size or bulk size samples, may be taken at intermediate intervals for the purpose of soil classification or laboratory testing. Borings conducted for soil classification only, will show no designation of sampling although disturbed sampling is performed. Soil samples obtained in the field were identified and sealed for transportation to the laboratory for performance of pertinent physical testing and engineering classification.

#### Drilling Methods

- CFA - Continuous Flight Auger: 4, 6, or 8-inch diameter (ASTM D1452).
- RD - Rotary Drilling: Using drilling fluid in cased or uncased boring (ASTM D2113).
- HSA - Hollow Stem Auger: 6 or 8-inch diameter, continuous flight auger remains in boring with soil removed from the hollow stem through which undisturbed sampling is conducted.
- HA - Hand Auger: 4-inch or less diameter.

#### Sample Types

- ST - Shelby Tube: Thin-walled tube samples of cohesive soils (ASTM D1587).
- SS - Split Spoon with 140 lb. manual hammer: Standard penetration test and split-barrel samples (ASTM D1586).
- SSA - Split Spoon with 140 lb. automatic hammer: Standard penetration test and split-barrel samples (ASTM D1586).
- DC - Drive Cone: Dynamic in-place testing of soil using a 2-inch diameter cone with a 60 degree point driven into the soil for continuous 1-foot intervals in the same manner as Split Spoon, no sample is obtained.
- C - Core: Sampling hard soil or bedrock with a diamond core barrel in a rotary drill boring (ASTM D2113).
- SPT - Standard Penetration Test: Number of blows required to drive sampler (split spoon or drive cone) into the soil with a 140-pound weight dropping a distance of 30-inches (ASTM D1586), number of blows recorded for each 6-inch interval in an 18-inch (or more) penetration depth, values shown are for each 6-inch interval (if series of number sets are shown) or a total of the last two 6-inch intervals (if only one number is shown) which is commonly referred to as "N" in blows per foot. High resistance is indicated by a high number of blows for a lesser penetration depth listed in inches.
- BS - Bulk Sample: Disturbed.
- CPT - Cone Penetration Test: Quasi-static in-place testing of soils using a 60 degree cone and friction sleeve which are steadily pushed into the soil and measure skin friction and end bearing (ASTM D3441).

### STANDARD LABORATORY TESTING

Representative undisturbed soil samples obtained by the Shelby Tube sampler were tested for moisture content (ASTM D2216), density (dry) and unconfined compressive strength (ASTM D2166) in the laboratory. Results of these tests appear on the respective Boring Logs. Additional soil testing including particle size analysis (ASTM D422) and Atterberg Limits (ASTM D4318) may be conducted, if necessary, to define in more detail pertinent soil characteristics for classification in accordance with the Unified Soil Classification System. Specialized laboratory tests (if conducted) to determine pertinent soil characteristics are discussed in the "Laboratory Testing" section of the report.

### WATER LEVEL MEASUREMENT

Water levels indicated on the Boring Logs are the levels measured in the borings at the times indicated. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels is not possible with short term observations.



## BORING LOG DESCRIPTION/LEGEND

(page 2 of 3)

### DESCRIPTIVE SOIL CLASSIFICATION

Soil description is based on the Unified Classification System as outlined in ASTM Designations D-2487 and D-2488. This classification is primarily based upon visual and apparent physical soil characteristics, comparison with other soil samples, and our experience with the soil. Additional laboratory testing may be conducted, if necessary to define in more detail pertinent soil characteristics. The Unified Soil Classification group symbol shown on the boring logs corresponds with the group names listed below. The description includes soil constituents, moisture conditions, color and any other appropriate descriptive terms.

Group Symbol	Group Name	Group Symbol	Group Name	Group Symbol	Group Name	Group Symbol	Group Name
GW	Well-Graded Gravel	SW	Well-Graded Sand	CL	Lean Clay	CH	Fat Clay
GP	Poorly-Graded Gravel	SP	Poorly-Graded Sand	ML	Silt	MH	Elastic Silt
GM	Silty Gravel	SM	Silty Sand	OL	Organic Clay Organic Silt	OH	Organic Clay Organic Silt
GC	Clayey Gravel	SC	Clayey Sand			PT	Peat

RELATIVE PROPORTIONS			GRAIN SIZE TERMINOLOGY	
Descriptive Term(s) (Of components also present in sample)	Sand and Gravel % of Dry Weight	Fines % of Dry Weight	Major Component of Sample	Size Range
Trace	<15	<5	Cobbles	12 in. to 3 in. (300mm to 75mm)
With	15-30	5-12	Gravel	3 in. to #4 sieve (75mm to 4.75mm)
Modifier	>30	>12	Sand	#4 to #200 sieve (4.75mm to 0.074mm)
			Silt or Clay	Passing #200 sieve (.074 mm)

CONSISTENCY OF FINE-GRAINED SOILS			RELATIVE DENSITY OF COARSE-GRAINED SOILS	
Unconfined Compressive Strength, Qu, psf	Consistency	SPT, bpf	SPT, bpf	Relative Density
< 500	Very Soft	0-2	0-4	Very Loose
500-1,000	Soft	2-4	4-10	Loose
1,000-2,000	Medium Stiff	4-8	10-30	Medium Dense
2,000-4,000	Stiff	8-15	30-50	Dense
4,000-8,000	Very Stiff	15-30	50-80	Very Dense
8,000-16,000	Hard	30-100	80+	Extremely Dense
> 16,000	Very Hard	>100		

## BORING LOG DESCRIPTION/LEGEND

(page 3 of 3)

### ABBREVIATIONS

COMMONLY USED ABBREVIATIONS	
ft. or ' - feet	elev. - Elevation
in. or " - inches	% - Percent
psf - pounds per square foot	No. - Number
plf - pound per lineal foot	TB - Test Boring
pcf - pounds per cubic feet	N - blow count (SPT, bpf)
kip - 1000 pounds	USCS - Unified Soil Classification System
ksf - 1000 pounds per square foot	LL - Liquid Limit
klf - 1000 pounds per lineal foot	PL - Plastic Limit
tsf - tons per square foot	PI - Plasticity Index
bpf - blows per foot (SPT, N)	

**BORING LOG NO.**

**11**

Project No.: **141336**

Project: **Easter Lake Restoration**  
**Evergreen Drive and Easter Lake Drive**  
**Des Moines, Iowa**

Client: **Polk County Conservation, c/o Snyder &**  
**2727 SW Snyder Blvd**  
**Ankeny, Iowa 50023**



Surface Elevation: **813.9'**  
 Datum: **Site Topo Map**

Date Drilled: **10-21-2014**  
 Drilling Depth, ft.: **50**

Drilling Method: **4" CFA**  
 Page: **1** of **1**

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth Elevation ft.
	0							Very dark brown lean clay with organics, very moist		CL		
		1	ST		25.9	94	2140	<b>TOPSOIL</b>				3
		2	ST		26.2	96	4010	Very dark gray-brown fat clay, very moist		CH		810.9
808		3	ST		27.2	96	4320					
	8	4	ST		24.5	98	3620	Dark brown-gray after 8.5'				
								Brown-gray lean clay with rust, moist to very moist after 11.8'		CL		
800		5	ST		26.9	92	1040	<b>COHESIVE ALLUVIUM</b> (Stiff Silty Clay)				
	16							Sand seams after 14' Moisture seepage near 14' Dark gray with sand after 17'				
		6	SSA	4	28.7							22
792								Brown and gray well graded sand, saturated		SW		791.9
	24							<b>GRANULAR ALLUVIUM</b> (Silty Sand)				25.5
		7	SSA	11	23.7 12.7			Very dark gray lean clay, moist		CL		788.4
784		8	SSA	11	25.7			Dark gray after 27'				
	32							<b>COHESIVE ALLUVIUM</b> (Firm Silty Clay)				33.5
		9	SSA	27	27.6 11.5			Gray with maroon clay shale, moist to very moist		CH		780.4
776								Light gray sandstone and shale, damp to moist after 35'				
	40							<b>WEATHERED BEDROCK</b>				
		10	SSA	37	11.4			Denser after 42'				
768		11	SSA	109	9.3							50
	48											
		12	SSA	200	10.6							
760								End of Boring				763.9

\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

**Water Level Observation**

Time: at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
 Depth to water: **14'** ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS, INC.**  
**Geotechnical | Environmental | Construction Q.C.**

**BORING LOG NO.**

**12**

Project No.: **141336**

Project: **Easter Lake Restoration**  
**Evergreen Drive and Easter Lake Drive**  
**Des Moines, Iowa**

Client: **Polk County Conservation, c/o Snyder &**  
**2727 SW Snyder Blvd**  
**Ankeny, Iowa 50023**



Surface Elevation: **818.2'**  
Datum: **Site Topo Map**

Date Drilled: **10-21-2014** Drilling Method: **4" CFA**  
Drilling Depth, ft.: **44.7** Page: **1** of **1**

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth Elevation ft.
816	0	1	SSA	11	11.8			Brown lean lay with fine sand, damp <b>TOPSOIL</b>		CL		1.8
		2	SSA	15	19.3			Brown with gray lean clay, trace sand, damp Brown gray fat clay with rust, damp to moist after 4'		CH		816.4
		3	SSA	12	17.1			<b>COHESIVE ALLUVIUM</b> <b>(Firm Silty Clay)</b>				6.5
	8	4	SSA	9	21.8			Gray very sandy lean clay with gravel, moist Rusty brown after 7.5'		CL		811.7
					16.6			<b>GLACIAL TILL</b> <b>(Firm Sandy Glacial Clay)</b>				9.5
					18.9			Moisture seepage near 9' to 10'				
	16	5	SSA	4				Brown-gray clayey sand, saturated <b>GLACIAL OUTWASH</b> <b>(Silty Sand)</b>				17
800		6	SSA	5	26.2			Gray lean clay, very moist		CL		801.2
								Interbedded sand seams after 22'				
	24	7	SSA	9	20.5			<b>COHESIVE ALLUVIUM</b> <b>(Firm Silty Clay)</b>				
		8	SSA	11	25.0							
	32	9	SSA	21	24.3							35.5
					19.6			Gray clay shale with sandstone, very moist Light gray clay shale, denser, with sandstone, damp after 37.5'		CH		782.7
	40	10	SSA	133	11.9			<b>WEATHERED BEDROCK</b>				
												44.7
	48	11	SSA	200	7.8			End of Boring				773.5
	768											

\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

**Water Level Observation**

Time: at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
Depth to water: **10.5'** CWft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS, INC.**  
**Geotechnical | Environmental | Construction Q.C.**

**BORING LOG NO. 14**

Project No.: **141336**

Project: **Easter Lake Restoration**  
**Evergreen Drive and Easter Lake Drive**  
**Des Moines, Iowa**

Client: **Polk County Conservation, c/o Snyder &**  
**2727 SW Snyder Blvd**  
**Ankeny, Iowa 50023**



Surface Elevation: **816.4'**  
 Datum: **Site Topo Map**

Date Drilled: **10-22-2014**  
 Drilling Depth, ft.: **30**

Drilling Method: **4" CFA**  
 Page: **1** of **1**

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth Elevation ft.
816	0	1	SSA	5	32.5			Very dark gray lean clay with organics, moist <b>TOPSOIL</b>		CL		1.3
		2	ST		26.0	93	3640	Very dark gray fat clay, moist Dark gray after 2' Gray with rust after 4'		CH		815.1
		3	ST		26.8	91	3120					
808	8	4	ST		25.4	99	4010					
								Moisture seepage from 10' to 11' Brown lean clay with rust, very moist after 10.5' <b>COHESIVE ALLUVIUM</b>		CL		
		5	ST		20.1	103	640	Gray after 14' With rust from 14' to 17'				
		6	ST		27.1	97	1650					
792	24	7	SSA	12	21.4			Brown-gray with dark gray clay shale with sandstone, very moist Yellow-brown after 25.3' <b>WEATHERED BEDROCK</b>		CH		21.8 794.6
		8	SSA	22	28.4			Gray after 29.3'				30
784	32							End of Boring				786.4
776	40											
768	48											

\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation

Time: at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
 Depth to water: **3.8'** ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS, INC.**  
**Geotechnical | Environmental | Construction Q.C.**

**BORING LOG NO.**

**15**

Project No.: **141336**

Project: **Easter Lake Restoration**  
**Evergreen Drive and Easter Lake Drive**  
**Des Moines, Iowa**

Client: **Polk County Conservation, c/o Snyder &**  
**2727 SW Snyder Blvd**  
**Ankeny, Iowa 50023**



Surface Elevation: **814.2'**

Date Drilled: **10-20-2014**

Drilling Method: **4" CFA**

Datum: **Site Topo Map**

Drilling Depth, ft.: **20**

Page: **1** of **1**

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth Elevation ft.
0								Very dark brown-gray lean clay, trace gravel and organics, moist to very moist		CL		1
		1	SSA	5	30.5			<b>TOPSOIL</b>		CL		813.2
		2	SSA	4	32.1			Dark gray and gray lean clay, trace organics, very moist				
808		3	SSA	3	30.0			Brown-gray after 3.3'				
	8	4	SSA	3	30.0			Moisture seepage near 3.5'				
								Less dense with depth after 5'				
								<b>COHESIVE ALLUVIUM</b>				
800		5	SSA	4	26.4			Gray-brown lean to fat clay, trace sand after 16'		CH		
	16							Dark gray after 18.5'				
		6	SSA	6	29.9			End of Boring				20
792												794.2
	24											
784												
	32											
776												
	40											
768												
	48											
760												

\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation

Time: at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days

Depth to water: **4'** ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS, INC.**

**Geotechnical | Environmental | Construction Q.C.**

**BORING LOG NO. 16**

Project No.: **141336**

Project: **Easter Lake Restoration**  
**Evergreen Drive and Easter Lake Drive**  
**Des Moines, Iowa**

Client: **Polk County Conservation, c/o Snyder &**  
**2727 SW Snyder Blvd**  
**Ankeny, Iowa 50023**



Surface Elevation: **825.1'**  
 Datum: **Site Topo Map**

Date Drilled: **10-22-2014** Drilling Method: **4" CFA**  
 Drilling Depth, ft.: **20** Page: **1** of **1**

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth Elevation ft.
824	0	1	SSA	8	30.4			Very dark gray lean clay with sand, moist		CL		1.5
					25.8		<b>TOPSOIL</b>	CH			823.6	
		2	ST		24.4	96	3500	Very dark gray to light gray fat clay, moist				
		3	ST		23.7	97	3750	Gray with rust after 3.5'				
	8	4	ST		23.3	98	3080	Maroon-brown after 6.3'				
816								With gray after 9'				
		5	ST		23.6	101	3740	<b>COHESIVE ALLUVIUM</b>				
								Dark gray with rust lean clay, moist after 11'				
	16							Brown-red and gray lean clay with rust after 14'				
808		6	SSA	11	24.3			Brown-maroon clay shale with sandstone frags, very moist		CH		17
					22.4			Moisture seepage near 17'				
								<b>WEATHERED BEDROCK</b>				
								Maroon-gray after 19.5'				
	24							End of Boring				
800												
	32											
792												
	40											
784												
	48											
776												

\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation

Time: at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
 Depth to water: **17'** ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS, INC.**  
**Geotechnical | Environmental | Construction Q.C.**

**BORING LOG NO.** 1 **STATION** Phase 2 Bridge, West Abutment Project No.: 131215

Project: Easter Lake Trail Bridges  
Evergreen Drive and Easter Lake Drive  
Des Moines, Iowa

Client: Snyder & Associates, Inc.  
2727 SW Snyder Blvd.  
Ankeny, Iowa 50023



Surface Elevation: 818.9'  
 Datum: Site Datum

Date Drilled: 4/29/2013 Drilling Method: HSA  
 Drilling Depth, ft.: 24.7 Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description *	Graphic Log	USCS	Water Level	Depth Elevation ft.
816	0							Brown lean clay, moist to very moist		CL		10.3
	1	1	SSA	6	27.6		<b>COHESIVE ALLUVIUM</b> (Stiff Silty Clay)					
808	8							Gray-brown lean to fat clay with sand, moist to very moist Moisture seepage near and very sandy after 12'		CL-CH		16
	16	2	SSA	7	27.4		<b>COHESIVE ALLUVIUM</b> (Stiff Sandy Clay)					
800	24							Very dark gray weathered shale, moist to damp  Hard after 20'				24.7
	24	3	SSA	9	19.5		<b>BEDROCK</b>					
792	24.7	4	SSA	148	17.5		End of Boring					794.2
784												
776												
768												
		5	SSA	50/1"	14.5							

\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation  
 Time: at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
 Depth to water: 5.5 ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS INC.**  
 Geotechnical | Environmental | Construction Q.C.



**BORING LOG NO.** 2 **STATION** Phase 2 Bridge, East Abutment **Project No.:** 131215

**Project:** Easter Lake Trail Bridges  
Evergreen Drive and Easter Lake Drive  
Des Moines, Iowa

**Client:** Snyder & Associates, Inc.  
2727 SW Snyder Blvd.  
Ankeny, Iowa 50023



**Surface Elevation:** 818.4'  
**Datum:** Site Datum

**Date Drilled:** 4/29/2013  
**Drilling Depth, ft.:** 24.7

**Drilling Method:** HSA  
**Page:** 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth Elevation ft.
816	0							Dark brown lean clay with sand, moist <b>TOPSOIL</b>		CL		1.8
		1	ST		24.2	97	5300	Brown lean to fat clay, moist Brown-gray after 4' <b>COHESIVE ALLUVIUM</b> (Firm Silty Clay)		CL-CH		816.6
								Gray-brown lean clay, moist to very moist <b>COHESIVE ALLUVIUM</b> (Stiff Silty Clay) Moisture seepage near 12'		CL		7.5
808	8	2	ST		27.6	90	2610					810.9
		3	SSA	56	14.3			Very dark gray weathered shale, damp Hard after 16.5'				14.3
800	16	4	SSA	200	15.4			<b>BEDROCK</b>				804.1
		5	SSA	50/1.5"	13.0							24.7
792	24							End of Boring				793.7

\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

**Water Level Observation**  
**Time:** at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
**Depth to water:** 6.8 ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS INC.**  
 Geotechnical | Environmental | Construction Q.C.

**BORING LOG NO.** 3

**STATION** Phase 1 Bridge, West Abutment

Project No.: 131215

Project: Easter Lake Trail Bridges  
Evergreen Drive and Easter Lake Drive  
Des Moines, Iowa

Client: Snyder & Associates, Inc.  
2727 SW Snyder Blvd.  
Ankeny, Iowa 50023



Surface Elevation: 814.4'  
Datum: Site Datum

Date Drilled: 4/29/2013  
Drilling Depth, ft.: 24.7

Drilling Method: HSA  
Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth Elevation ft.
0								Brown lean clay, very moist <b>FILL</b>		CL		2
								Very dark gray, very moist 1.3' to 2'		CL-CH		812.4
808		1	ST		28.0	95	3230	Gray-brown lean to fat clay, moist to very moist <b>COHESIVE ALLUVIUM</b>				5.5
		2	ST		27.0	91	2000	<b>(Firm Silty Clay)</b>		CL		808.9
8								Brown-gray lean clay, moist to very moist With sand after 9'				
		3	ST		24.6	98	2590	<b>COHESIVE ALLUVIUM</b>				
								<b>(Stiff Silty Clay)</b>				
800												
	16	4	SSA	11	26.2			Gray-brown silty to clayey fine sand, saturated <b>GRANULAR ALLUVIUM</b>		SM		16
								<b>(Silty Sand)</b>				798.4
		5	SSA	100	11.0			Gray siltstone, moist <b>BEDROCK</b>				19
792												795.4
	24	6	SSA	50/2.5"	22.3			Brown fine sandstone after 24' End of Boring				24.7
												789.7
784												
	32											
776												
	40											
768												
	48											
760												

\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation  
Time: at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
Depth to water: 2.5 ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS INC.**  
Geotechnical | Environmental | Construction Q.C.

**BORING LOG NO.** 4

**STATION** Phase 1 Bridge, East Abutment

Project No.: 131215

Project: Easter Lake Trail Bridges  
Evergreen Drive and Easter Lake Drive  
Des Moines, Iowa

Client: Snyder & Associates, Inc.  
2727 SW Snyder Blvd.  
Ankeny, Iowa 50023



Surface Elevation: 815.9'

Date Drilled: 4/29/2013

Drilling Method: HSA

Datum:

Drilling Depth, ft.: 29.7

Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth Elevation ft.
	0							Dark brown lean clay, moist <b>TOPSOIL</b>		CL		1
		1	SSA	13	22.0			Brown-gray lean to fat clay, moist With sand after 4'		CL-CH		814.9
	8							<b>COHESIVE ALLUVIUM</b> (Firm Silty Clay)				13
		2	SSA	12	21.9							
808												
	16							Gray-brown silty to clayey fine sand, very moist Moisture seepage near 14'		SM		802.9
		3	SSA	3				Possible fine to medium sand after 16'				20
		4	SSA	15	21.2							
	24							Very dark gray to gray weathered shale, moist Hard after 22'				795.9
		5	SSA	150	11.8			<b>BEDROCK</b>				
792												
	32							Brown fine sandstone, after 29'				29.7
		6	SSA	50/1.8"	20.3			End of Boring				786.2
784												
	40											
776												
	48											
768												

\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation

Time: at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
Depth to water: 4 ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS INC.**

Geotechnical | Environmental | Construction Q.C.

**BORING LOG NO. 5**

Project No.: **131215A**

Project: **Easter Lake Trail Bridge**  
**Evergreen Drive and Easter Lake Drive**  
**Des Moines, Iowa**

Client: **Snyder & Associates, Inc.**  
**2727 SW Snyder Boulevard**  
**Ankeny, Iowa 50023**



Surface Elevation: **815.0'**  
 Datum: **BM - Existing E. Abutment @ Elev= 100.0'**

Date Drilled: **7/30/2013** Drilling Method: **HSA**  
 Drilling Depth, ft.: **40** Page: **1** of **1**

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth Elevation ft.
808	8	1	SSA	3	33.9			2' CRUSHED ROCK				2
								Gray lean clay, very moist FILL		CL		813
								Sand seam near 3.8' Moisture seepage near 4'		CL		810
		2	SSA	2	41.0			Very dark gray lean clay, very moist				
								Dark gray after 12'				
		3	SSA	3	35.1			COHESIVE ALLUVIUM (Soft Silty Clay)				
		4	SSA	4	37.5							
		5	SSA	6	31.2 22.6			Gray fine to medium sand with gravel, saturated GRANULAR ALLUVIUM (Silty Sand)		SP		25.8 789.2
		6	SSA	11	25.4 17.7							31.3 783.7
		7	SSA	40	11.0			Gray sandstone, moist WEATHERED BEDROCK				
		8	SSA	50/1"				End of Boring				40 775

\*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

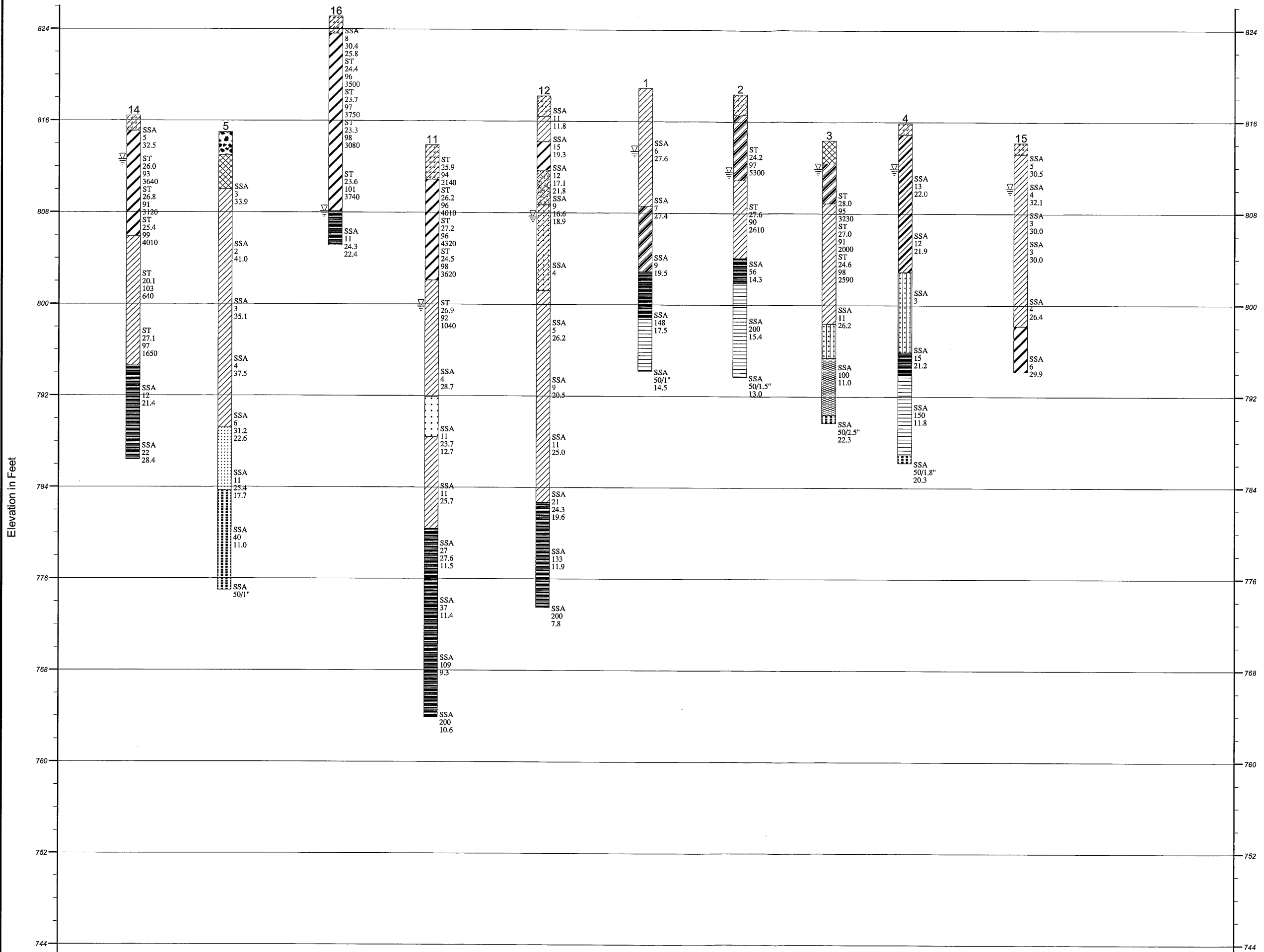
Water Level Observation  
 Time: at completion \_\_\_\_\_ hrs. \_\_\_\_\_ days  
 Depth to water: \_\_\_\_\_ ft. \_\_\_\_\_ ft. \_\_\_\_\_ ft.

**ALLENDER BUTZKE ENGINEERS, INC.**  
 Geotechnical | Environmental | Construction Q.C.

# PROFILE OF BORINGS

## Profile of Borings Legend

Symbol	Description
<b>Strata symbols</b>	
	Lean Clay
	Topsoil
	Fat Clay
	Lean Clay
	Well-Graded Sand
	Weathered Clay Shale
	Sandy Lean Clay
	Clayey Sand
<b>Misc. Symbols</b>	
	Water table at completion



ALLENDER BUTZKE ENGINEERS, INC.



Easter Lake Restoration  
Evergreen Drive and Easter Lake Drive  
Des Moines, Iowa

PN 141336

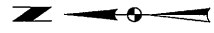
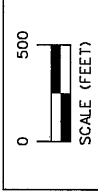
Vertical Scale: 1:8

Plate A-1



**LEGEND**

- SOIL BORING LOCATION
- SB15 SOIL BORING NAME/NUMBER
- 814.20 EXISTING GROUND ELEVATION AT SOIL BORING LOCATION



**SNYDER & ASSOCIATES**  
Engineers and Planners

**SOIL BORING LOG  
LOCATION MAP  
EASTER LAKE RESTORATION  
POLK COUNTY, IOWA**

# NOTES

**APPENDIX C**  
**SEDIMENT ANALYSES**





# State Hygienic Laboratory

*The University of Iowa*

DARIN JACOBS  
 SNYDER & ASSOCIATES  
 2727 SW SNYDER BLVD  
 ANKENY, IA 50023-

Accession Number | 194428  
 Date Sample Finalized | 2014-10-28 11:22  
 Date Received | 2014-10-01 11:38  
 Sample Source | Solid  
 Project  
 Date Collected | 2014-09-30 11:00  
 Collection Site | 1a & 1b  
 Collection Town | DES MOINES  
 Sample Description | sediment  
 Client Reference | easter lk restor.  
 Collector | jacobs darin  
 Phone | 515/964-2020

Note: Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.  
 Client delivered 1-#18 on 9/30 and 1 more 18 on 10/1.

## Results of Analyses

### Ammonia as N, LAC 10-107-06-1J

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-13 10:11	Date Verified	2014-10-16 07:56
Analyst	MGB	Verifier	DLS
Analysis Prep	Ammonia distillation, SM 4500-NH3 B		

Analyte	Result	Quant Limit
Ammonia nitrogen as N	130	10

### Anions, EPA 300.0

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-06 17:25	Date Verified	2014-10-20 15:59
Analyst	BER	Verifier	DLS

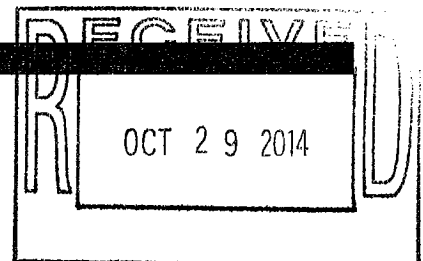
Analyte	Result	Quant Limit	MCL
Nitrate nitrogen as N	<8.0	8.0	

Note: The MCL (maximum contaminant level) is only applicable to compliance monitoring samples under the Safe Drinking Water Act (SDWA).

### Total Phosphorus as P, LAC 10-115-01-1D

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-09 14:52	Date Verified	2014-10-16 10:01
Analyst	RWR	Verifier	DLS

Analyte	Result	Quant Limit
Total Phosphorus as P	450	0.02





# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 194428

**Total Kjeldahl Nitrogen as N, LAC 10-107-06-2E**

Units | mg/kg [dry wt]  
 Date Analyzed | 2014-10-09 11:30  
 Analyst | JAE

Analyzed In | Ankeny  
 Date Verified | 2014-10-16 07:57  
 Verifier | DLS

Analyte	Result	Quant Limit
Total Kjeldahl Nitrogen as N	970	10

**Alkalinity as CaCO<sub>3</sub>, SM 2320 B**

Units | mg/kg  
 Date Analyzed | 2014-10-15 13:48  
 Analyst | AJB

Analyzed In | Ankeny  
 Date Verified | 2014-10-16 08:21  
 Verifier | DLS

Analyte	Result	Quant Limit
Total Alkalinity	140	1.0

**Laboratory pH, EPA 9045**

Units | pH  
 Date Analyzed | 2014-10-02 15:00  
 Analyst | DMJ, BER

Analyzed In | Ankeny  
 Date Verified | 2014-10-03 13:40  
 Verifier | JAE

Analyte	Result	Quant Limit
Laboratory pH	7.3	

*Note:* EPA holding time requires pH analysis be completed within 15 minutes of collection to be valid for regulatory reporting. Results reported as Laboratory pH do not meet this requirement and must be qualified if reported for regulatory purposes.

**Mercury, EPA 7471A**

Units | mg/kg [dry wt]  
 Date Analyzed | 2014-10-27 10:52  
 Analyst | SGB  
 Analysis Prep | Mercury Digestion, EPA 7471A

Analyzed In | Ankeny  
 Date Verified | 2014-10-28 11:22  
 Verifier | DLS

Analyte	Result	Quant Limit
Mercury	<1.0	1

**Metals, EPA 6020**

Units | mg/kg [dry wt]  
 Date Analyzed | 2014-10-07 11:56  
 Analyst | SGB  
 Analysis Prep | Metals Digestion of Solid Samples, EPA 3050B

Analyzed In | Ankeny  
 Date Verified | 2014-10-08 11:24  
 Verifier | DLS

Analyte	Result	Quant Limit
Arsenic	3.5	1
Bism	130	5



# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 194428

Analyte	Result	Quant Limit
Cadmium	<2.0	2
Chromium	13	2
Copper	12	5
Lead	11	10
Nickel	15	5
Selenium	<1.0	1
Silver	<1.0	1
Zinc	41	2

**Total Extractable Hydrocarbons, Iowa OA-2**

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-03 09:59	Date Verified	2014-10-06 17:56
Analyst	PM	Verifier	SJM
Analysis Prep	Prep by Sonication, Iowa OA-2		

Analyte	Result	Quant Limit
Gasoline	<3	3
Mineral spirits	<3	3
Kerosene	<3	3
Diesel fuel	<3	3
Motor oil	41	3
Total Extractable Hydrocarbons	41	3

*Note:* The chromatographic profile of the sample extract did not match this laboratory's fuel or oil standards. Quantitation is based on this laboratory's motor oil standard.

**Prep by Sonication, Iowa OA-2**

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-02 08:00	Date Verified	2014-10-02 14:28
Analyst	GHJ, MES	Verifier	PM

**Polychlorinated biphenyls (PCB), EPA 8082**

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-04 00:24	Date Verified	2014-10-14 11:01
Analyst	VER	Verifier	SJM

Analyte	Result	Quant Limit
Aroclor 1016	<0.05	0.05
Aroclor 1221	<0.05	0.05
Aroclor 1232	<0.05	0.05
Aroclor 1242	<0.05	0.05
Aroclor 1248	<0.05	0.05
Aroclor 1254	<0.05	0.05
Aroclor 1260	<0.05	0.05



# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 194428

Prep by Sonication, EPA 3550 CHI

Units |  
Date Analyzed | 2014-10-03 08:00  
Analyst | MES

Analyzed In | Coralville  
Date Verified | 2014-10-07 07:30  
Verifier | GHJ

### Description of Units used within this report

mg/kg = Milligrams per Kilogram

mg/kg [dry wt] = Milligrams per Kilogram by Dry Weight

pH = pH Units

The result(s) of this report relate only to the items analyzed. This report shall not be reproduced except in full without the written approval of the laboratory.

Iowa Environmental Laboratory IDs are: Ankeny #397, Iowa City/Coralville #027, Lakeside #393.

If you have any questions, please call Client Services at 800/421-IOWA (4692) or 319/335-4500. Thank you.



# State Hygienic Laboratory

*The University of Iowa*

DARIN JACOBS  
 SNYDER & ASSOCIATES  
 2727 SW SNYDER BLVD  
 ANKENY, IA 50023-

Accession Number	194429
Date Sample Finalized	2014-10-28 11:22
Date Received	2014-10-01 11:38
Sample Source	Solid
Project	
Date Collected	2014-09-30 11:00
Collection Site	2a & 2b
Collection Town	DES MOINES
Sample Description	sediment
Client Reference	easter lk restor.
Collector	jacobs darin
Phone	515/964-2020

Note: Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.  
 Client delivered 1-#18 on 9/30 and 1 more 18 on 10/1.

## Results of Analyses

### Ammonia as N, LAC 10-107-06-1J

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-13 10:11	Date Verified	2014-10-16 07:56
Analyst	MGB	Verifier	DLS
Analysis Prep	Ammonia distillation, SM 4500-NH3 B		

Analyte	Result	Quant Limit
Ammonia nitrogen as N	74	10

### Anions, EPA 300.0

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-06 17:40	Date Verified	2014-10-20 15:59
Analyst	BER	Verifier	DLS

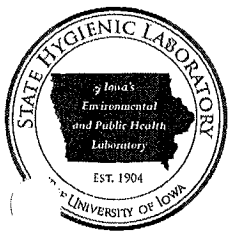
Analyte	Result	Quant Limit	MCL
Nitrate nitrogen as N	<6.7	6.7	

Note: The MCL (maximum contaminant level) is only applicable to compliance monitoring samples under the Safe Drinking Water Act (SDWA).

### Total Phosphorus as P, LAC 10-115-01-1D

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-09 14:52	Date Verified	2014-10-16 10:01
Analyst	RWR	Verifier	DLS

Analyte	Result	Quant Limit
Total Phosphorus as P	350	0.02



# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 194429

**Total Kjeldahl Nitrogen as N, LAC 10-107-06-2E**

Units | mg/kg [dry wt]  
Date Analyzed | 2014-10-09 11:30  
Analyst | JAE

Analyzed In | Ankeny  
Date Verified | 2014-10-16 07:57  
Verifier | DLS

Analyte	Result	Quant Limit
Total Kjeldahl Nitrogen as N	740	10

**Alkalinity as CaCO<sub>3</sub>, SM 2320.B**

Units | mg/kg  
Date Analyzed | 2014-10-15 13:48  
Analyst | AJB

Analyzed In | Ankeny  
Date Verified | 2014-10-16 08:21  
Verifier | DLS

Analyte	Result	Quant Limit
Total Alkalinity	120	1.0

**Laboratory pH, EPA 9045**

Units | pH  
Date Analyzed | 2014-10-02 15:00  
Analyst | DMJ, BER

Analyzed In | Ankeny  
Date Verified | 2014-10-03 13:40  
Verifier | JAE

Analyte	Result
Laboratory pH	7.4

*Note:* EPA holding time requires pH analysis be completed within 15 minutes of collection to be valid for regulatory reporting. Results reported as Laboratory pH do not meet this requirement and must be qualified if reported for regulatory purposes.

**Mercury, EPA 7471A**

Units | mg/kg [dry wt]  
Date Analyzed | 2014-10-27 10:52  
Analyst | SGB  
Analysis Prep | Mercury Digestion, EPA 7471A

Analyzed In | Ankeny  
Date Verified | 2014-10-28 11:22  
Verifier | DLS

Analyte	Result	Quant Limit
Mercury	<1.0	1

**Metals, EPA 6020**

Units | mg/kg [dry wt]  
Date Analyzed | 2014-10-07 11:56  
Analyst | SGB  
Analysis Prep | Metals Digestion of Solid Samples, EPA 3050B

Analyzed In | Ankeny  
Date Verified | 2014-10-08 11:24  
Verifier | DLS

Analyte	Result	Quant Limit
Arsenic	4.9	1
Lead	120	5



# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 194429

Analyte	Result	Quant Limit
Cadmium	<2.0	2
Chromium	11	2
Copper	11	5
Lead	13	10
Nickel	14	5
Selenium	<1.0	1
Silver	<1.0	1
Zinc	29	2

**Total Extractable Hydrocarbons, Iowa OA-2**

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-03 13:54	Date Verified	2014-10-06 17:56
Analyst	PM	Verifier	SJM
Analysis Prep	Prep by Sonication, Iowa OA-2		

Analyte	Result	Quant Limit
Gasoline	<3	3
Mineral spirits	<3	3
Kerosene	<3	3
Diesel fuel	<3	3
Motor oil	16	3
Total Extractable Hydrocarbons	16	3

Note: The chromatographic profile of the sample extract did not match this laboratory's fuel or oil standards. Quantitation is based on this laboratory's motor oil standard.

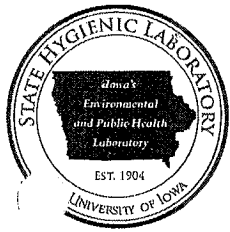
**Prep by Sonication, Iowa OA-2**

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-02 08:00	Date Verified	2014-10-02 14:28
Analyst	GHJ, MES	Verifier	PM

**Polychlorinated biphenyls (PCB), EPA 8082**

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-04 00:58	Date Verified	2014-10-14 11:01
Analyst	VER	Verifier	SJM

Analyte	Result	Quant Limit
Aroclor 1016	<0.05	0.05
Aroclor 1221	<0.05	0.05
Aroclor 1232	<0.05	0.05
Aroclor 1242	<0.05	0.05
Aroclor 1248	<0.05	0.05
Aroclor 1254	<0.05	0.05
Aroclor 1260	<0.05	0.05



# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 194429

*Prep by Sonication, EPA 3550-CHI*

Units		
Date Analyzed		2014-10-03 08:00
Analyst		MES

Analyzed In		Coralville
Date Verified		2014-10-07 07:30
Verifier		GHJ

Description of Units used within this report

mg/kg = Milligrams per Kilogram  
mg/kg [dry wt] = Milligrams per Kilogram by Dry Weight  
pH = pH Units

The result(s) of this report relate only to the items analyzed. This report shall not be reproduced except in full without the written approval of the laboratory.

Iowa Environmental Laboratory IDs are: Ankeny #397, Iowa City/Coralville #027, Lakeside #393.

If you have any questions, please call Client Services at 800/421-IOWA (4692) or 319/335-4500. Thank you.





# State Hygienic Laboratory

*The University of Iowa*

DARIN JACOBS  
 SNYDER & ASSOCIATES  
 2727 SW SNYDER BLVD  
 ANKENY, IA 50023-

Accession Number	194430
Date Sample Finalized	2014-10-28 11:22
Date Received	2014-10-01 11:38
Sample Source	Solid
Project	
Date Collected	2014-09-30 12:30
Collection Site	3a & 3b
Collection Town	DES MOINES
Sample Description	sediment
Client Reference	easter lk restor.
Collector	jacobs darin
Phone	515/964-2020

*Note:* Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.  
 Client delivered 1-#18 on 9/30 and 1 more 18 on 10/1.

## Results of Analyses

### *Ammonia as N, LAC 10-107-06-1J*

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-13 10:11	Date Verified	2014-10-16 07:56
Analyst	MGB	Verifier	DLS
Analysis Prep	Ammonia distillation, SM 4500-NH3 B		

Analyte	Result	Quant Limit
Ammonia nitrogen as N	150	10

### *Anions, EPA 300.0*

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-06 17:55	Date Verified	2014-10-20 16:00
Analyst	BER	Verifier	DLS

Analyte	Result	Quant Limit	MCL
Nitrate nitrogen as N	<7.0	7.0	

*Note:* The MCL (maximum contaminant level) is only applicable to compliance monitoring samples under the Safe Drinking Water Act (SDWA).

### *Total Phosphorus as P, LAC 10-115-01-1D*

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-09 14:52	Date Verified	2014-10-16 10:01
Analyst	RWR	Verifier	DLS

Analyte	Result	Quant Limit
Total Phosphorus as P	590	0.02



# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 194430

**Total Kjeldahl Nitrogen as N, LAC 10-107-06-2E**

Units | mg/kg [dry wt]  
 Date Analyzed | 2014-10-09 11:30  
 Analyst | JAE

Analyzed In | Ankeny  
 Date Verified | 2014-10-16 07:58  
 Verifier | DLS

Analyte	Result	Quant Limit
Total Kjeldahl Nitrogen as N	1300	10

**Alkalinity as CaCO<sub>3</sub>, SM 2320.B**

Units | mg/kg  
 Date Analyzed | 2014-10-15 13:49  
 Analyst | AJB

Analyzed In | Ankeny  
 Date Verified | 2014-10-16 08:25  
 Verifier | DLS

Analyte	Result	Quant Limit
Total Alkalinity	140	1.0

**Laboratory pH, EPA 9045**

Units | pH  
 Date Analyzed | 2014-10-02 15:00  
 Analyst | DMJ, BER

Analyzed In | Ankeny  
 Date Verified | 2014-10-03 13:40  
 Verifier | JAE

Analyte	Result	Quant Limit
Laboratory pH	7.3	

*Note:* EPA holding time requires pH analysis be completed within 15 minutes of collection to be valid for regulatory reporting. Results reported as Laboratory pH do not meet this requirement and must be qualified if reported for regulatory purposes.

**Mercury, EPA 7471A**

Units | mg/kg [dry wt]  
 Date Analyzed | 2014-10-27 10:52  
 Analyst | SGB  
 Analysis Prep | Mercury Digestion, EPA 7471A

Analyzed In | Ankeny  
 Date Verified | 2014-10-28 11:22  
 Verifier | DLS

Analyte	Result	Quant Limit
Mercury	<1.0	1

**Metals, EPA 6020**

Units | mg/kg [dry wt]  
 Date Analyzed | 2014-10-07 11:56  
 Analyst | SGB  
 Analysis Prep | Metals Digestion of Solid Samples, EPA 3050B

Analyzed In | Ankeny  
 Date Verified | 2014-10-08 11:25  
 Verifier | DLS

Analyte	Result	Quant Limit
Arsenic	4.7	1
Boron	180	5



# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 194430

Analyte	Result	Quant Limit
Cadmium	<2.0	2
Chromium	15	2
Copper	14	5
Lead	15	10
Nickel	18	5
Selenium	<1.0	1
Silver	<1.0	1
Zinc	48	2

**Total Extractable Hydrocarbons, Iowa OA-2**

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-03 17:48	Date Verified	2014-10-06 17:56
Analyst	PM	Verifier	SJM
Analysis Prep	Prep by Sonication, Iowa OA-2		

Analyte	Result	Quant Limit
Gasoline	<3	3
Mineral spirits	<3	3
Kerosene	<3	3
Diesel fuel	<3	3
Motor oil	45	3
Total Extractable Hydrocarbons	45	3

Note: The chromatographic profile of the sample extract did not match this laboratory's fuel or oil standards. Quantitation is based on this laboratory's motor oil standard.

**Prep by Sonication, Iowa OA-2**

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-02 08:00	Date Verified	2014-10-02 14:28
Analyst	GHJ, MES	Verifier	PM

**Polychlorinated biphenyls (PCB), EPA 8082**

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-04 02:07	Date Verified	2014-10-14 11:01
Analyst	VER	Verifier	SJM

Analyte	Result	Quant Limit
Aroclor 1016	<0.05	0.05
Aroclor 1221	<0.05	0.05
Aroclor 1232	<0.05	0.05
Aroclor 1242	<0.05	0.05
Aroclor 1248	<0.05	0.05
Aroclor 1254	<0.05	0.05
Aroclor 1260	<0.05	0.05



# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 194430

*Prep by Sonication, EPA 3550 CHI*

Units		
Date Analyzed		2014-10-03 08:00
Analyst		MES

Analyzed In		Coralville
Date Verified		2014-10-07 07:30
Verifier		GHJ

Description of Units used within this report

mg/kg = Milligrams per Kilogram  
mg/kg [dry wt] = Milligrams per Kilogram by Dry Weight  
pH = pH Units

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Iowa Environmental Laboratory IDs are: Ankeny #397, Iowa City/Coralville #027, Lakeside #393.

If you have any questions, please call Client Services at 800/421-IOWA (4692) or 319/335-4500. Thank you.



# State Hygienic Laboratory

*The University of Iowa*

DARIN JACOBS  
SNYDER & ASSOCIATES  
2727 SW SNYDER BLVD  
ANKENY, IA 50023-

Accession Number	195262
Date Sample Finalized	2014-10-29 12:33
Date Received	2014-10-06 14:46
Sample Source	Solid
Project	
Date Collected	2014-10-06 09:30
Collection Site	#4
Collection Town	DES MOINES
Sample Description	sediment
Client Reference	easter lk rest.
Collector	merical david
Phone	515/964-2020

Note: Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

### Results of Analyses

#### *Ammonia as N, LAC 10-107-06-IJ*

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-17 14:12	Date Verified	2014-10-20 07:58
Analyst	MGB	Verifier	DLS
Analysis Prep	Ammonia distillation, SM 4500-NH3 B		

Analyte	Result	Quant Limit
Ammonia nitrogen as N	270	10

#### *Anions, EPA 300.0*

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-10 13:14	Date Verified	2014-10-16 14:39
Analyst	BER, PMR	Verifier	BRW

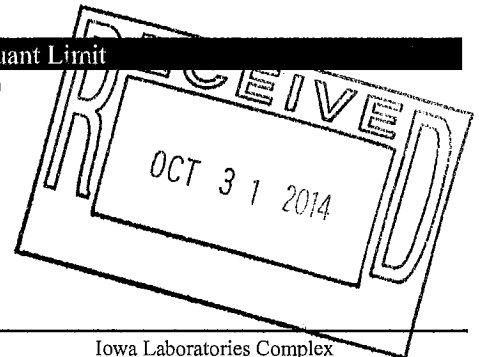
Analyte	Result	Quant Limit	MCL
Nitrate nitrogen as N	<8.6	8.6	

Note: The MCL (maximum contaminant level) is only applicable to compliance monitoring samples under the Safe Drinking Water Act (SDWA).

#### *Total Phosphorus as P, LAC 10-115-01-1C*

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-17 19:06	Date Verified	2014-10-20 08:16
Analyst	RWR	Verifier	DLS

Analyte	Result	Quant Limit
Total Phosphorus as P	650	10





# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 195262

**Total Kjeldahl Nitrogen as N, LAC 10-107-06-2E**

Units | mg/kg [dry wt]  
Date Analyzed | 2014-10-20 09:14  
Analyst | JAE

Analyzed In | Ankeny  
Date Verified | 2014-10-20 13:45  
Verifier | DLS

Analyte	Result	Quant Limit
Total Kjeldahl Nitrogen as N	1300	10

**Alkalinity as CaCO<sub>3</sub>, SM 2320 B**

Units | mg/kg  
Date Analyzed | 2014-10-15 13:49  
Analyst | AJB

Analyzed In | Ankeny  
Date Verified | 2014-10-16 08:22  
Verifier | DLS

Analyte	Result	Quant Limit
Total Alkalinity	190	1.0

**Laboratory pH, EPA 9045**

Units | pH  
Date Analyzed | 2014-10-07 11:30  
Analyst | RWR

Analyzed In | Ankeny  
Date Verified | 2014-10-07 12:48  
Verifier | JAE

Analyte	Result
Laboratory pH	8.0

*Note:* EPA holding time requires pH analysis be completed within 15 minutes of collection to be valid for regulatory reporting. Results reported as Laboratory pH do not meet this requirement and must be qualified if reported for regulatory purposes.

**Mercury, EPA 7471A**

Units | mg/kg [dry wt]  
Date Analyzed | 2014-10-27 10:52  
Analyst | SGB  
Analysis Prep | Mercury Digestion, EPA 7471A

Analyzed In | Ankeny  
Date Verified | 2014-10-28 11:25  
Verifier | DLS

Analyte	Result	Quant Limit
Mercury	<1.0	1

**Metals, EPA 6020**

Units | mg/kg [dry wt]  
Date Analyzed | 2014-10-20 18:09  
Analyst | SGB  
Analysis Prep | Metals Digestion of Solid Samples, EPA 3050B

Analyzed In | Ankeny  
Date Verified | 2014-10-21 15:59  
Verifier | DLS

Analyte	Result	Quant Limit
Arsonic	3.8	1
Element	140	5



# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 195262

Analyte	Result	Quant Limit
Cadmium	<2.0	2
Chromium	14	2
Copper	17	5
Lead	21	10
Nickel	16	5
Selenium	<1.0	1
Silver	<1.0	1
Zinc	89	2

**Total Extractable Hydrocarbons, Iowa OA-2**

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-24 00:21	Date Verified	2014-10-27 13:04
Analyst	PM	Verifier	SJM
Analysis Prep	Prep by Sonication, Iowa OA-2		

Analyte	Result	Quant Limit
Gasoline	<50.	50.
Mineral spirits	<50.	50.
Kerosene	<50.	50.
Diesel fuel	<50.	50.
Motor oil	330	50.
Total Extractable Hydrocarbons	330	50.

*Note:* The chromatographic profile of the sample extract is similar to this laboratory's motor oil standard. Quantitation is based on this laboratory's motor oil standard.

**Prep by Sonication, Iowa OA-2**

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-16 07:48	Date Verified	2014-10-17 14:13
Analyst	GHJ	Verifier	KB

**Polychlorinated biphenyls (PCB), EPA 8082**

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-17 13:48	Date Verified	2014-10-23 17:02
Analyst	VER	Verifier	TGC
Analysis Prep	Prep by Sonication, EPA 3550 CHI		

Analyte	Result	Quant Limit
Aroclor 1016	<0.05	0.05
Aroclor 1221	<0.05	0.05
Aroclor 1232	<0.05	0.05
Aroclor 1242	<0.05	0.05
Aroclor 1248	<0.05	0.05
Aroclor 1254	<0.05	0.05
Aroclor 1260	<0.05	0.05



# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 195262

*Prep by Sonication, EPA 3550 CHI*

Units		
Date Analyzed		2007-10-16 07:38
Analyst		GHJ

Analyzed In		Coralville
Date Verified		2014-10-17 14:16
Verifier		KB

**Description of Units used within this report**

mg/kg = Milligrams per Kilogram  
mg/kg [dry wt] = Milligrams per Kilogram by Dry Weight  
pH = pH Units

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# State Hygienic Laboratory

*The University of Iowa*

DARIN JACOBS  
 SNYDER & ASSOCIATES  
 2727 SW SNYDER BLVD  
 ANKENY, IA 50023-

<i>Accession Number</i>	195263
<i>Date Sample Finalized</i>	2014-10-29 12:33
<i>Date Received</i>	2014-10-06 14:46
<i>Sample Source</i>	Solid
<i>Project</i>	
<i>Date Collected</i>	2014-10-06 10:30
<i>Collection Site</i>	#5
<i>Collection Town</i>	DES MOINES
<i>Sample Description</i>	sediment
<i>Client Reference</i>	easter lk rest.
<i>Collector</i>	merical david
<i>Phone</i>	515/964-2020

*Note:* Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

## Results of Analyses

### *Ammonia as N, LAC 10-107-06-1J*

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-17 14:12	Date Verified	2014-10-20 07:58
Analyst	MGB	Verifier	DLS
Analysis Prep	Ammonia distillation, SM 4500-NH3 B		

Analyte	Result	Quant Limit
Ammonia nitrogen as N	240	10

### *Anions, EPA 300.0*

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-10 13:29	Date Verified	2014-10-16 14:39
Analyst	BER, PMR	Verifier	BRW

Analyte	Result	Quant Limit	MCL
Nitrate nitrogen as N	<8.2	8.2	

*Note:* The MCL (maximum contaminant level) is only applicable to compliance monitoring samples under the Safe Drinking Water Act (SDWA).

### *Total Phosphorus as P, LAC 10-115-01-1C*

Units	mg/kg [dry wt]	Analyzed In	Ankeny
Date Analyzed	2014-10-17 19:06	Date Verified	2014-10-20 08:16
Analyst	RWR	Verifier	DLS

Analyte	Result	Quant Limit
Total Phosphorus as P	730	10



# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 195263

**Total Kjeldahl Nitrogen as N, LAC 10-107-06-2E**

Units | mg/kg [dry wt]  
Date Analyzed | 2014-10-20 09:14  
Analyst | JAE

Analyzed In | Ankeny  
Date Verified | 2014-10-20 13:45  
Verifier | DLS

Analyte	Result	Quant Limit
Total Kjeldahl Nitrogen as N	940	10

**Alkalinity as CaCO<sub>3</sub>, SM 2320.B**

Units | mg/kg  
Date Analyzed | 2014-10-15 13:51  
Analyst | AJB

Analyzed In | Ankeny  
Date Verified | 2014-10-16 08:22  
Verifier | DLS

Analyte	Result	Quant Limit
Total Alkalinity	300	1.0

**Laboratory pH, EPA 9045**

Units | pH  
Date Analyzed | 2014-10-07 11:30  
Analyst | RWR

Analyzed In | Ankeny  
Date Verified | 2014-10-07 12:48  
Verifier | JAE

Analyte	Result
Laboratory pH	8.0

*Note:* EPA holding time requires pH analysis be completed within 15 minutes of collection to be valid for regulatory reporting. Results reported as Laboratory pH do not meet this requirement and must be qualified if reported for regulatory purposes.

**Mercury, EPA 7471A**

Units | mg/kg [dry wt]  
Date Analyzed | 2014-10-27 10:52  
Analyst | SGB  
Analysis Prep | Mercury Digestion, EPA 7471A

Analyzed In | Ankeny  
Date Verified | 2014-10-28 11:25  
Verifier | DLS

Analyte	Result	Quant Limit
Mercury	<1.0	1

**Metals, EPA 6020**

Units | mg/kg [dry wt]  
Date Analyzed | 2014-10-20 18:09  
Analyst | SGB  
Analysis Prep | Metals Digestion of Solid Samples, EPA 3050B

Analyzed In | Ankeny  
Date Verified | 2014-10-21 15:59  
Verifier | DLS

Analyte	Result	Quant Limit
Ar	4.6	1
B	160	5



# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 195263

Analyte	Result	Quant Limit
Cadmium	<2.0	2
Chromium	15	2
Copper	18	5
Lead	32	10
Nickel	19	5
Selenium	<1.0	1
Silver	<1.0	1
Zinc	100	2

*Total Extractable Hydrocarbons, Iowa OA-2*

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-24 04:15	Date Verified	2014-10-27 13:04
Analyst	PM	Verifier	SJM
Analysis Prep	Prep by Sonication, Iowa OA-2		

Analyte	Result	Quant Limit
Gasoline	<50.	50.
Mineral spirits	<50.	50.
Kerosene	<50.	50.
Diesel fuel	<50.	50.
Motor oil	640	50.
Total Extractable Hydrocarbons	640	50.

Note: The chromatographic profile of the sample extract is similar to this laboratory's motor oil standard. Quantitation is based on this laboratory's motor oil standard.

*Prep by Sonication, Iowa OA-2*

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-16 07:48	Date Verified	2014-10-17 14:13
Analyst	GHJ	Verifier	KB

*Polychlorinated biphenyls (PCB), EPA 8082*

Units	mg/kg	Analyzed In	Coralville
Date Analyzed	2014-10-17 14:57	Date Verified	2014-10-23 17:03
Analyst	VER	Verifier	TGC
Analysis Prep	Prep by Sonication, EPA 3550 CHI		

Analyte	Result	Quant Limit
Aroclor 1016	<0.05	0.05
Aroclor 1221	<0.05	0.05
Aroclor 1232	<0.05	0.05
Aroclor 1242	<0.05	0.05
Aroclor 1248	<0.05	0.05
Aroclor 1254	<0.05	0.05
Aroclor 1260	<0.05	0.05



# State Hygienic Laboratory

*The University of Iowa*

Accession Number | 195263

*Prep. by Sonication, EPA 3550 CHI*

Units		
Date Analyzed		2007-10-16 07:38
Analyst		GHJ

Analyzed In		Coralville
Date Verified		2014-10-17 14:16
Verifier		KB

Description of Units used within this report

mg/kg = Milligrams per Kilogram  
mg/kg [dry wt] = Milligrams per Kilogram by Dry Weight  
pH = pH Units

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