

IOWA DEPARTMENT OF NATURAL RESOURCES

PROJECT MANUAL



WEST LAKE COMPLEX

WATERSHED IMPROVEMENTS

SCOTT COUNTY, IOWA

ATTENTION BIDDERS

ALL SUBSTITUTION REQUESTS AND QUESTIONS MUST BE SUBMITTED BY
12:00PM THE FRIDAY PRIOR TO THE BID LETTING TO BE CONSIDERED.

PREPARED BY

FYRA Engineering

100 Court Avenue, Suite 202

DES MOINES IA 50309

For

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING BUREAU

502 E 9TH ST

DES MOINES IA 50319-0034

PROJECT NO. 17-06-82-01

Obtain complete sets of contract documents including Drawings, Specification, bid documents, bidders' list in electronic format at: www.beelineandblue.com

WEST LAKE COMPLEX
WATERSHED IMPROVEMENTS
SCOTT COUNTY, IOWA
PROJECT NO. 17-06-82-01

Section Number	Pages
00001 Cover Page	1
00002 Table of Contents	2
00003 Enumeration of Drawings	1
 <u>Bidding Requirements:</u>	
00020 Notice to Bidders.....	1
00120 Special Notice to Contractors	1
00300 Proposal.....	3
00410 Proposal Guarantee Bond	1
 <u>Conditions of the Contract:</u>	
00500 Contract.....	2
00610 Performance Bond	2
00700 General Covenants and Provisions	43
00710 Specific EEO Responsibilities.....	7
 <u>Supplementary Conditions of Contract:</u>	
00811 Supplementary Covenants and Provisions	3
 <u>Division 1 - General Requirements:</u>	
01000 General Requirements	3
01039 Coordination and Meetings	2
01050 Field Engineering.....	1
01250 Measurement and Basis of Payment	1
01300 Submittals.....	4
01325 Construction Staking	2
01400 Quality Control	2
01500 Temporary Facilities and Control	3
01560 Temporary Pollution Controls.....	4
01600 Material and Equipment	1
01700 Project Closeout	1
01730 Operations and Maintenance Data.....	2
 <u>Division 2:</u>	
02205 Soil Materials.....	2
02222 Excavating.....	7
02223 Backfilling	8
02225 Trenching.....	4
02230 Site Clearing.....	3
02240 Dewatering.....	2
02246 Geotextiles	3
02275 Rock Riprap	4
02722 Site Storm Sewerage Systems.....	4
02936 Seeding	7

Division 3:

03100	Concrete Formwork	4
03200	Concrete Reinforcement	3
03300	Cast-In-Place Concrete	8

Division 5:

05500	Material Fabrications	3
-------	-----------------------------	---

END OF SECTION 00002

WEST LAKE COMPLEX
 WATERSHED IMPROVEMENTS
 SCOTT COUNTY, IOWA
 PROJECT NO. 17-06-82-01

CONSTRUCTION DRAWINGS - SHEET A.1 THROUGH E.101 INCLUSIVE

Sheet A.1 – Cover Sheet
 Sheet A.2 – Site Map
 Sheet B.1 – Pond 5 Site Plan
 Sheet B.2 – Pond 8 Site Plan
 Sheet B.3 – Pond 9 Site Plan
 Sheet B.4 – Pond 3 Site Plan
 Sheet B.5 – Pond 2 Site Plan
 Sheet B.6 – Trail Realignment
 Sheet B.100 – Pond Details (1 of 2)
 Sheet B.101 – Pond Details (2 of 2)
 Sheet B.102 – Riser Structure Details (1 of 2)
 Sheet B.103 – Riser Structure Details (2 of 2)
 Sheet C.1 – Bioswale Site Plan
 Sheet C.100 – Bioswale Details (1 of 2)
 Sheet C.101 – Bioswale Details (2 of 2)
 Sheet C.102 – Pretreatment Details
 Sheet D.1 – SWPPP Plan
 Sheet D.100 – SWPPP Details (1 of 2)
 Sheet D.101 – SWPPP Details (2 of 2)
 Sheet E.1 – Stream Mitigation Pond 2 D.S. Site Plan
 Sheet E.2 – Stream Mitigation Pond 2 U.S. Site Plan
 Sheet E.3 – Stream Mitigation Pond 3 D.S. Site Plan
 Sheet E.100 – Stream Mitigation Details Channel Grading
 Sheet E.101 – Stream Mitigation Details Grade Control

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 9th Street, Des Moines IA 50319-0034 until **11:00am, November 15, 2018** 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.

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 IA 50312. Please visit 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 stormwater permit that is necessary if construction activities disturb one acre or more.

Project Estimate: \$620,000.00

Funding Source: Lake Restoration Program and Scott County Conservation

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

Charles Ikenberry, P.E.
Design Engineer
100 Court Avenue, Suite 202
Des Moines, IA 50309
Ph: (515) 444-5394
cikenberry@fyraengineering.com

Direct questions concerning Site Review and Project Inspection to:

Mike Dufoe, P.E.
District Engineer
Ph: (515) 985-9196
Michael.dufoe@dnr.iowa.gov

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
Fax: (515) 725-8202

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, 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 15, 2018**

PROPOSAL

Project Description and Location

Project No. **17-06-82-01**

**WEST LAKE COMPLEX
WATERSHED IMPROVEMENTS
SCOTT COUNTY, Iowa**

Proposal of: _____
(Name of Bidder)

Located at: _____
(Address) (Telephone include area code)

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
\$37,500.00	11/15/2019	1/1/2019	\$400.00

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

WEST LAKE COMPLEX, WATERSHED IMPROVEMENTS

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	MOBILIZATION	1 LS		
2	CLEARING AND GRUBBING	1 LS		
3	HANDLING OF WATER	1 LS		
4	EROSION CONTROL (SWPPP)	1 LS		
5	SEEDING - GRASS SEED MIX	5.4 AC		
	Ponds			
6	EARTHEN EMBANKMENT	32709 CY		
7	EXCAVATION	13961 CY		
8	24" HDPE PIPE	561 LF		
9	24" FLARED END SECTION	4 EA		
10	UNFORMED CONCRETE	38 CY		
11	CLASS "C" ROCK RIPRAP	852 TN		
12	CLASS "E" ROCK RIPRAP	41 TN		
13	FORMED CONCRETE	36 CY		
14	STEEL REINFORCEMENT	3866 LBS		
15	METAL FABRICATION	50 LF		
16	EROSION CONTROL MATTING	13991 SY		
17	EXISTING PIPE REMOVAL	160 LF		
	Bioswale			

18	EXCAVATION	141	CY		
19	CLASS "E" ROCK RIPRAP	50	TN		
20	FORMED CONCRETE	0.83	CY		
21	STEEL REINFORCEMENT	57.3	LBS		
22	TURF REINFORCEMENT MAT	235	SF		
23	COBBLES	2	CY		
24	EROSION CONTROL MATTING	263	SY		
25	AMMENDED SOILS	5	CY		
26	SAND	7	CY		
27	6" SLOTTED WALL PVC PIPE WITH SOCK	45	LF		
28	6" SOLID WALL PVC PIPE	61	LF		
29	ASPHALT REPAIRS	7	SY		
30	PLUGS - BIOSWALE BED MIX	400	EA		
31	SEEDING - BIOSWALE SLOPE MIX	2,366	SF		
	Stream Mitigation				
32	EXCAVATION	5,796	CY		
33	CLASS "E" ROCK RIPRAP	265	TN		
34	EROSION CONTROL MATTING	33,000	SY		
35	SEEDING - GRASS SEED MIX	7.3	AC		
36	SEEDING - FLOODPLAIN MIX	1.2	AC		
Total					

Bidder Acknowledges Receipt of Any Issued Addenda Below (Number and Date)	List of Subcontractors (Attach additional pages, if necessary)

PROPOSAL GUARANTEE BOND

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:

If a partnership all partners must sign.

**WEST LAKE COMPLEX
WATERSHED IMPROVEMENTS
PROJECT NO. 17-06-82-01
SCOTT 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 constructing three sediment ponds, rehabilitating two existing sediment ponds, pedestrian trail construction, bioswale construction, and stream mitigation work.

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. DNR Standard Specifications and Current Supplemental Specifications
4. Project Specifications Including Addenda Number _____ Through _____
5. Drawings, Sheet Number A.1 Through E.101 Inclusive
6. Contractor's Proposal.
7. Proposal Guarantee Bond.
8. Performance Bond.
9. This Instrument.
10. Modifications or Change Orders pursuant to DNR 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 DNR Standard

Specifications and to complete all the work by November 15, 2019

The **CONTRACTOR** hereby agrees that liquidated damages in the amount of Four hundred Dollars \$ 400.00 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:

FOR THE CONTRACTOR:

Director

(Signature and Title)

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

(Firm)

(Date)

(Address and Zip Code)

Seal if by a Corporation:

Identification Number _____

Soc. Sec. No. _____

Or Fed. I. D. No. _____

PERFORMANCE BOND

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:

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 4/4/2018)**

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. Bureau Chief – The individual appointed by the Iowa Department of Natural Resources as the head of the Land and Waters bureau.
10. Calendar Day - Every day shown on the calendar.
11. 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.
12. Channel - A natural or artificial water course.

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 Bureau Chief, or other authorized representative of the Contracting Authority, 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 are 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. By signing and submitting the proposal, the bidder gives an unsworn declaration on behalf of each person, firm, association, partnership, or corporation submitting a proposal, certifying that such 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.
- 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 proposa¹ 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. 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.

- H. 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. 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 that 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 anticipate that the sale and use tax could increase the cost of non-exempted services and material by at least 5% and make the necessary allowance 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 489 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 county. 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 county.
- 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

- A. 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.
- B. 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.
- A. 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.
- B. 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.
 - 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.
 - 3. Prior to review of working drawings, any work done or material ordered shall be at the Contractor's risk.
 - 4. 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.
 - 5. 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.
 - 6. 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. See Section 01325 – Construction Staking for the handling of construction staking and bench marks.

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

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 provide 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 Contractor's 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. 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.
- B. 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.
- C. 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.
- D. 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.
- E. 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.
- F. 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, of 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.
- B. 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.
- D. 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 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 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 Labors 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 1-7 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 US 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 US, 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 or 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 US 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 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

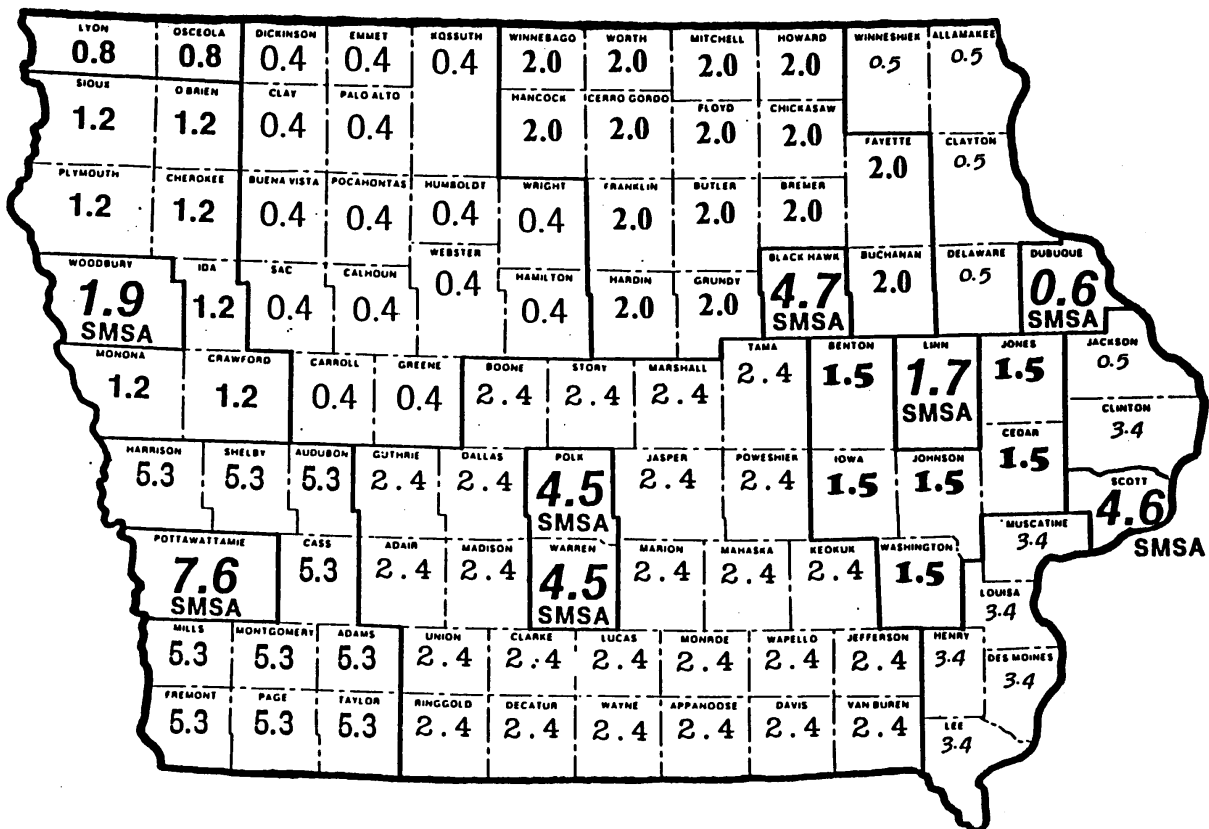
- have a discriminatory effect, by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
14. Ensure that all facilities and company activities are nonsegregated, except that 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.

“Minority employment goals are expressed as a percentage (%) of total hours worked for each craft and/or trade in each county.”



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. Bureau Chief: The individual appointed by the Iowa Department of Natural Resources as the head of the Land and Waters bureau.
 - 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.

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 DNR 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.

4.13 DRAWINGS AND SPECIFICATIONS:

- A. Article 1104.13 “Drawings and Specifications” is supplemented and modified as follows:
 1. Contractor shall be responsible for distributing to all involved in this project, Drawings and Specifications in quantities reasonably necessary for the completion of the portion of work they are responsible for. No additional payment will be made for shortcomings resulting from misunderstanding of Contract Documents due to any shortage of information between General Contractor, subcontractors, and Material Suppliers.

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.”

5.07 CONSTRUCTION STAKES AND BENCHMARKS:

- A. Article 1105.07 “Construction Stakes and Benchmarks” is supplemented and modified as follows:
 1. The contractor shall be responsible for providing all labor, equipment and material necessary to complete the work covered in paragraph A of the General Covenants and Provision of this contract. The Contractor or

his/her assigned representative shall assume the function of the Engineer as described herein in addition to those assigned to the Contractor and be held responsible for such. The cost of this work shall be paid for as a part of the "Mobilization" Bid Item.

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 and the Supplementary Covenants and Provisions.

1.02 SUMMARY OF WORK:

- A. Work Covered by Contract Documents:
 - 1. Name of the project is "West Lake Complex Watershed Improvements", Project Number 17-06-82-01. Drawings and Specifications are dated October 2018.
 - 2. Briefly and without force and effect upon contract documents, work of the contract can be summarized as follows:
 - a. This project consists of constructing three sediment ponds, rehabilitating two existing sediment ponds, pedestrian trail construction, bioswale construction, and stream mitigation work..
- 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.

- 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

**SECTION 01039
COORDINATION AND MEETINGS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination.
- B. Field engineering.
- C. Preconstruction meeting.
- D. Construction progress meetings.

1.2 RELATED SECTIONS

- A. All sections.

1.3 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various sections of the Project to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Coordinate and schedule all construction operations to comply with access restrictions of the limits of construction.
- C. Coordinate and schedule all construction operations within project limits of construction so that free access of vehicular and pedestrian traffic to adjacent property is maintained at all times.
- D. Provide all required traffic control, flagmen, barricades, signs, etc.
- E. Identify all utility companies which have facilities which may be impacted by project construction operations.
- F. Coordinate work adjacent to or involving utilities, with utility companies.
- G. Schedule all work which may impact any utility with the appropriate utility companies at least 48 hours before commencing such work.
- H. Coordinate all construction operations with those of utility company forces which may be on site to accomplish utility relocations or reconstruction.
- I. Coordinate completion and clean up of Work of separate project segments in preparation for Substantial Completion.

1.4 FIELD ENGINEERING

A. Contractor is solely responsible for the means and methods of construction staking and for the adequacy and accuracy of the layout of the Work.

B. Contractor to record and document project component layout information and assist Owner/Engineer with review or field checking of layouts.

1.5 PRECONSTRUCTION CONFERENCE

A. Preconstruction conference details are as defined in Section 1.07 of the General Conditions.

1.6 CONSTRUCTION PROGRESS MEETINGS

A. Attend and assist with presentation at weekly progress meetings with Owner and Engineer representatives.

B. At each meeting report on progress, work schedule, difficulties, etc.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

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.

1.07 MEASUREMENT AND PAYMENT – BID ITEM DESCRIPTIONS:

GENERAL

- A. Mobilization shall include all bonds, permits, insurance, administrations, transportation to and from the site, operating supplies, staking for construction, establishing and maintaining access routes, detailed construction layouts, meetings, and coordination necessary to provide, manage, and maintain a construction force at the project site complete and ready to perform all work required under the contract. Protection methods to avoid damage to existing infrastructure (pipes, utilities, buildings, fences, etc) are included in this item as well as clean-up to the construction site(s), restoring site(s) to original condition and de-mobilization of construction forces upon approval of the completed project. Clean-up will include repairing roads or driveways to original condition if damaged. The pay item is a lump sum.
- B. Clearing and Grubbing shall include all materials, disposal and incidental items necessary to complete the clearing and grubbing of trees, shrubs, other vegetation, fencing, debris, and trash or rubbish required to access and complete the construction. This includes the access routes and borrow areas. Trees to be salvaged/hailed/stockpiled as described on construction plans to be include in this pay item. The pay item is a lump sum.

- C. Handling of Water shall include all materials, equipment and manual labor required to handle surface water runoff through the site or impounded by the proposed embankments, and groundwater that may seep up into work areas. It is intended that the water will be handled to allow the contractor to perform work under dry conditions. The pay item is one lump sum for all work included in this bid package.
- D. Erosion Control (SWPPP) shall include all preparation, installation, record keeping, management/maintenance for regulatory compliance, excavation, dewatering, backfill, materials, supplemental BMP's, and incidental items necessary to construct and maintain sediment and erosion control during the construction period in compliance with NPDES regulations and to remove and dispose of non-permanent sediment control practices after vegetation is established. **Seeding and Erosion Control Blanket are not to be included in this line item,** individual line items have been provided as needed below. The pay item is a lump sum.
- E. Seeding – Grass Seed Mix shall include all materials, subgrade preparation, handling of water, and related work necessary to seed and mulch, establish and maintain planned vegetation in all earthen areas disturbed from construction activities. This does not include the specialized plugs/seeding for the Bioswale or Stream Buffer Mitigation. Mulch will not be required in locations where erosion control matting is placed. The pay item is one acre, placed as planned, of the type(s) listed in the specification, computed to the nearest one-tenth acre from measured dimensions of site access and construction activities, as authorized for disruption and reseeded during the project.

PONDS

- F. Earthen Embankment - shall include all materials, stripping, subgrade preparation, dewatering, excavation, spreading, mixing, rolling, grading, water necessary for proper compaction in accordance with the plans and specification requirements, and incidental items necessary to complete the construction of the dam embankments for the project per the construction documents. Obtaining and incorporating a topsoil layer from the overexcavated material in the outer embankment is included in this pay item. Excavation of borrow material (including any overexcavation required to get to the material) within proposed pools required for the embankment is subsidiary to this pay item and is to be completed according to the construction documents. Monitoring the embankment for settling and cracking, and performing the necessary repairs to meet plan and specification requirements is included in this pay item. The pay item is one cubic yard in place, as computed from proposed grading and existing surface contours and measured in place as planned.
- G. Excavation shall include all cost for materials, disposal, dewatering, and incidental items necessary to complete excavation of soil identified as overexcavation and assumed unusable as borrow material. The excavation of the keyway (after overexcavation) has been reduced to zero due to the use of the material as Earthen Embankment. The hauling and wasting of any common excavation materials not used for earthen embankment is subsidiary to this pay item. The pay item is one cubic yard as measured and computed from proposed grading and existing surface contours.
- H. 24" HDPE Pipe shall include all labor, materials, accessories, trenching, dewatering, subgrade preparation, compacted backfill, joint fusing, and incidental items necessary to install solid wall HDPE pipe as required in the contract documents. The pay item is one linear foot, measured in place between the ends of the pipe as planned.
- I. 24" Flared End Section shall include all labor, materials, accessories, trenching, dewatering, subgrade preparation and bedding, compacted backfill, joint fusing, and incidental items necessary to install HDPE FES as required in the contract documents. The pay item is one each installed as planned.
- J. Unformed Concrete shall include all labor, materials, concrete, equipment, excavation, subgrade preparation, aggregate base if necessary, backfill compaction, accessories, dewatering, and incidental items necessary to construct pipe bedding as required by the construction plans. The pay item is one cubic yard, measured in place as planned.
- K. Class "C" Rock Riprap shall include the materials, excavation, dewatering, subgrade preparation, hauling, placement, and incidental items necessary to complete rock riprap construction of the outlet protection of the spillway pipe per the construction documents. The pay item is one cubic yard, as delivered (with delivery tickets collected and documented by contractor) and measured in place as planned.
- L. Class "E" Rock Riprap shall include the materials, excavation, dewatering, subgrade preparation, hauling, placement, and incidental items necessary to complete rock riprap construction of the inlet protection of the

spillway pipe per the construction documents. The pay item is one cubic yard, as delivered (with delivery tickets collected and documented by contractor) and measured in place as planned.

- M. Formed Concrete shall include all labor, materials, concrete, equipment, excavation, subgrade preparation, aggregate base if necessary, backfill compaction, gate(s), accessories, forms, waterstops, waterlogs, dewatering, and incidental items necessary to construct the riser structure as required by the construction plans. The pay item is one cubic yard, measured in place as planned according to detail dimensions.
- N. Steel Reinforcement shall include all labor, materials, reinforcing steel, equipment, accessories, dewatering, and incidental items necessary to place the steel reinforcement for the riser structure as required by the construction plans. The pay item is one pound, measured in place as planned.
- O. Metal Fabrication shall include all labor, materials, equipment, accessories, dewatering, and incidental items necessary to construct the safety grate, trash racks, ladder spokes and orifice plate for the Pond 2 outlet structure as required by the construction plans. The pay item is lump sum, complete in place as planned.
- P. Erosion Control Matting shall include all materials, subgrade preparation, handling of water, and related work necessary to place and secure erosion control blanket, and maintain as required under the contract. The pay item is one square yard, measured in place as planned.
- Q. Existing Pipe Removal shall include all materials, handling of water, excavation, disposal and related work necessary to remove existing pipes as described in the construction documents. The pay item is one linear foot measured upon removal.

BIOSWALE

- R. Excavation shall include all cost for materials, disposal, dewatering, and incidental items necessary to complete excavation of soil or rippable materials and hauling to the spoil site. The pay item is one cubic yard as measured and computed from proposed grading and existing surface contours.
- S. Class "E" Rock Riprap shall include the materials, excavation, dewatering, subgrade preparation, hauling, placement, and incidental items necessary to complete rock riprap construction of the rock check dams per the construction documents. The pay item is one cubic yard, as delivered (with delivery tickets collected and documented by contractor) and measured in place as planned.
- T. Formed Concrete shall include all labor, materials, concrete, equipment, excavation, subgrade preparation, aggregate base if necessary, backfill compaction, gate(s), accessories, forms, waterstops, waterlogs, dewatering, and incidental items necessary to construct the pretreatment basin as required by the construction plans. The pay item is one cubic yard, measured in place as planned according to detail dimensions.
- U. Steel Reinforcement shall include all labor, materials, reinforcing steel, equipment, accessories, dewatering, and incidental items necessary to place the steel reinforcement for the pretreatment basin as required by the construction plans. The pay item is one pound, measured in place as planned.
- V. Turf Reinforcement Mat (TRM) shall include all materials, subgrade preparation, handling of water, and related work necessary to place and secure turf reinforcement mat, and maintain as required under the contract. The pay item is one square foot, measured in place as planned.
- W. Cobbles shall include all materials, dewatering, subgrade preparation, compaction, hauling, placement, backfill and related incidental items of work necessary to install cobbles as described in the construction plans. The pay item is one cubic yard, as delivered (with delivery tickets collected and documented by contractor) and measured in place as planned.
- X. Erosion Control Matting shall include all materials, subgrade preparation, handling of water, and related work necessary to place and secure erosion control blanket, and maintain as required under the contract. The pay item is one square yard, measured in place as planned.
- Y. Amended Soils shall include all cost for materials, disposal, dewatering, equipment, hauling and incidental items necessary to obtain clean sand from the abandoned beach, mix with the compost and place according to construction document. The pay item is one cubic yard as measured in place as planned.
- Z. Sand shall include all cost for materials, disposal, dewatering, equipment, hauling and incidental items necessary to obtain clean sand from the abandoned beach and place according to construction document. The pay item is one cubic yard as measured in place as planned.
- AA. 6" Slotted Wall PVC Pipe with Sock shall include all labor, materials, accessories, trenching, dewatering, subgrade preparation, compacted backfill, joints, connections and incidental items necessary to slotted wall PVC

pipe with sock as required in the contract documents. The pay item is one linear foot, measured in place between the ends of the pipe as planned.

- BB. 6" Solid Wall PVC Pipe Sock shall include all labor, materials, accessories, trenching, dewatering, subgrade preparation, compacted backfill, joints, connections and incidental items necessary to solid wall PVC pipe as required in the contract documents. The pay item is one linear foot, measured in place between the ends of the pipe as planned.
- CC. Asphalt Repairs shall include all cost for materials, disposal, dewatering, equipment, and incidental items necessary to repair the existing parking lot and curb according to construction document. The pay item is one square yard as measured in place as planned.
- DD. Plugs – Bioswale Bed Mix shall include all materials, subgrade preparation, handling of water, and related work necessary to install, establish and maintain planned vegetation areas as required under the contract. The pay item is one each, placed as planned, of the type(s) listed in the specification.
- EE. Seeding – Bioswale Slope Mix shall include all materials, subgrade preparation, handling of water, and related work necessary to seed and mulch, establish and maintain planned vegetation areas as required under the contract. Mulch will not be required in locations where erosion control matting is placed. The pay item is one acre, placed as planned, of the type(s) listed in the specification, computed to the nearest one-tenth acre from measured dimensions of seeded areas within the limits of construction, as authorized for disruption and reseeding during the project.

STREAM MITIGATION

- FF. Excavation shall include all cost for materials, disposal, dewatering, and incidental items necessary to complete excavation of soil or rippable materials. The hauling and wasting of any common excavation materials not used for earthen embankment is subsidiary to this pay item. The pay item is one cubic yard as measured and computed from proposed grading and existing surface contours.
- GG. Class "C" Rock Riprap shall include the materials, excavation, dewatering, subgrade preparation, hauling, placement, and incidental items necessary to complete rock riprap construction of the grade stabilization structures per the construction documents. The pay item is one cubic yard, as delivered (with delivery tickets collected and documented by contractor) and measured in place as planned.
- HH. Erosion Control Matting shall include all materials, subgrade preparation, handling of water, and related work necessary to place and secure erosion control blanket, and maintain as required under the contract and directed by Field Engineer. The pay item is one square yard, measured in place as planned.
- II. Seeding – Grass Seed Mix shall include all materials, subgrade preparation, handling of water, and related work necessary to seed and mulch, establish and maintain planned vegetation areas as required under the contract. Mulch will not be required in locations where erosion control matting is placed. The pay item is one acre, placed as planned, of the type(s) listed in the specification, computed to the nearest one-tenth acre from measured dimensions of seeded areas within the limits of construction, as authorized for disruption and reseeding during the project.
- JJ. Seeding – Floodplain Seed Mix shall include all materials, subgrade preparation, handling of water, and related work necessary to seed and mulch, establish and maintain planned vegetation areas as required under the contract. Mulch will not be required in locations where erosion control matting is placed. The pay item is one acre, placed as planned, of the type(s) listed in the specification, computed to the nearest one-tenth acre from measured dimensions of seeded areas within the limits of construction, as authorized for disruption and reseeding during the project.

END OF SECTION 01250

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:
- 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. Section</u>	<u>Item Description</u>	<u>Shop Drawing</u>	<u>Product Data</u>	<u>Samples, Test Results, Certification</u>
02246 - Geotextiles	Erosion Control Blanket		X	
02246 - Geotextiles	Turf Reinforcement Mat		X	
02775 - Riprap	Class C Riprap		X	Certification
02775 - Riprap	Class E Riprap		X	Certification
02775 - Riprap	Cobbles		X	
02722 – Site Storm Sewerage Sysetms	HDPE Solid Wall Pipe	X	X	Certification, Detailed Work Plan
02722 – Site Storm Sewerage Sysetms	Flared End Section		X	
02722 – Site Storm Sewerage Sysetms	Solid and Slotted Wall PVC Pipes		X	
02936 - Seeding	Grass Seed Mix		X	
02936 - Seeding	Bioswale Bed Mix (Plugs)		X	
02936 - Seeding	Bioswale Slope Mix		X	
02936 - Seeding	Floodplain Seed Mix		X	
03200 – Concrete Reinforcement	Riser Outlet Structure – Reinforcing Steel	X	X	
03300 – Cast-In-Place-Concrete	Aggregate Gradation Analysis		X	
03300 – Cast-In-Place-Concrete	Concrete Mix Design		X	Certification
03300 – Cast-In-Place-Concrete	Concrete Mix Design			Test cylinders as complete
05500 – Metal Fabrications	Riser Outlet Structure appurtenances	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

**SECTION 01325
CONSTRUCTION STAKING**

PART 1 GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for construction staking. All field survey efforts required for the effective prosecution of the Work, except for those items specifically identified as provided by Owner or Engineer, are to be provided by Contractor.

1.2 QUALITY ASSURANCE

A. Work described shall be performed under the direct supervision of a Professional Surveyor registered in the State of Iowa.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 CONSTRUCTION STAKING

A. Contractor is solely responsible for the means and methods of construction staking and for the adequacy and accuracy of the layout of the Work. Temporary benchmark information can be provided by the Engineer if requested by Contractor.

B. Electronic files can be provided for GPS compatible equipment or site layout/staking point data can be provided by Engineer upon request by Contractor once under contract. A minimum of 7 days notice required for such request.

3.2 EXAMINATION

A. All control points will be set at the beginning of the Work. Contractor is responsible for verifying layout and utility information. Once control points as described are set, Contractor shall protect stakes and other markings, and replace them at Contractor's cost if they are lost or destroyed.

B. Verify layout information shown on Drawings in relation to the property survey and existing benchmarks. Locate and protect existing benchmarks and control points, including city monuments in intersections. Preserve permanent reference points and construction stakes during construction.

C. Should minor adjustments to the "design" be needed as Work progresses to accommodate actual field conditions, notify Resident Project Representative immediately. Such adjustments shall be reviewed with the Resident Project Representative before the Work is performed.

D. Existing Utilities and Equipment: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning Site Work, investigate and verify the existence and location of underground utilities and other construction.

1. Prior to construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water service piping.

3.3 PERFORMANCE

A. Contractor to establish markers to set lines and levels at each area of Work and elsewhere as needed to properly locate each element of the Project. Calculate and measure required dimensions within indicated or recognized tolerances. Prepare "cut sheets" and other construction aids as required to accurately install the Work. Note any changes in line or grade on the Record Drawings to be delivered to Engineer at the completion of Project.

END OF SECTION

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 02223 - Backfilling
 - 2. Section 03300 – Cast In Place Concrete
- 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.
 - c. The Contractor shall make and cure test cylinders in conformity with ASTM C-31.
 - d. 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.
- B. 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

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

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 objects.**

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.

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

**SECTION 02205
SOIL MATERIALS**

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Subsoil materials.

B. Topsoil materials.

1.2 RELATED SECTIONS

A. All sections.

1.3 MEASUREMENT AND PAYMENT

A. Section 01250 – Measurement and Basis of Payment.

1.4 REFERENCES

A. ASTM 0698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb Rammer and 12 inch Drop.

B. ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.

C. ASTM D2167 - Test Method for Density and Unit Weight of Soils in Place by the Rubber Balloon Method.

D. ASTM 02487 - Classification of Soils for Engineering Purposes.

E. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

F. ASTM D3017 - Test Method for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

PART 2 PRODUCTS

2.1 SUBSOIL MATERIALS

A. Subsoil, Class "A" for Earth Embankment: Clay or clayey subsoil, and glacial till subsoil, from project excavations, substantially free of organic material, graded free of vegetative material, gravel or lumps larger than 3 inch size, and debris; conforming to ASTM D2487 group symbol CL or CH with

at least 51% passing the No. 200 sieve as determined by ASTM D1140; sand content not more than 25% by weight; capable of being broken down, mixed, compacted and kneaded to form a dense uniform; and relatively impervious earth fill.

~~B. Subsoil, Class "B": Sandy, organic or other subsoil from project excavations, graded free of vegetative material, rocks or lumps larger than 6" size, and debris.~~

2.2 TOPSOIL MATERIALS

A. Topsoil stockpiled from site stripping and clearing operations, graded free of roots, debris and rocks or lumps larger than 1-1/2 inch size and substantially free of vegetative material.

2.3 COMPOST MATERIALS

B. Compost shall be Earth Cyle 100% Compost Soil Builder from the Davenport Compost Facility.

PART 3 EXECUTION

3.1 SOIL REMOVAL

A. Excavate subsoil and topsoil from areas designated for project grading or construction.

B. Remove lumped soil, vegetative material, boulders, and rock.

C. Stockpile sufficient excavated material and topsoil on-site to construct project fills in accordance with Section 02223 - Backfilling. Waste excess material not being used for project fills off-site.

3.2 STOCKPILING

A. Separate topsoil and subsoil materials to prevent mixing.

B. Prevent contamination of stockpiled material.

C. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.3 STOCKPILE CLEANUP

A. Remove stockpile, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

**SECTION 02222
EXCAVATING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Excavation and salvaging of topsoil.
- B. Excavation and preparation of foundation for fills.
- C. Excavation of site borrow area(s).
- D. Excavation of site to planned grade and contour.

1.2 RELATED SECTIONS

- A. All sections.

1.3 MEASUREMENT AND PAYMENT

- A. Section 01250 – Measurement and Basis of Payment

1.4 FIELD MEASUREMENTS

- A. Verify that survey benchmarks and existing contours for the work site are as indicated on the drawings.

1.5 DEFINITIONS

- A. Maximum Dry Density: As defined by ASTM D698-78.
- B. Optimum Moisture Content: Determined by the ASTM standard specified to determine the maximum dry density or relative density. Field moisture content shall be determined on the basis of the fraction passing the 3/4 inch sieve.
- C. Relative Density: As defined by ASTM D4253 and D4254.
- D. Prepared Ground Surface: The ground surface after clearing, grubbing, stripping, excavation, and scarification and/or compaction.
- E. Completed Course: A course or layer that is ready for the next layer or next phase of the work.
- F. Well-Graded: A mixture of particle sizes that has no specific concentration or lack of one or more sizes. Well-graded does not define any numerical value that must be placed on the coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters. Well-graded

is used to define a material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids.

G. Waste: Excess soil from designated excavations, oversize soil or rock particles, excess stripping, borrow that is frozen or borrow that the Contractor chooses not to utilize because it is too wet or dry for immediate placement. Waste does not include trash, debris from clearing and grubbing, or any other garbage.

H. Earth Excavation shall be defined as the excavation of all types of materials that can be excavated, transported, and unloaded (without the absolute necessity of blasting) by use of heavy ripping equipment, wheel tractor-scrappers, and pusher tractors or that can be excavated and dumped into place or loaded onto hauling equipment by means of excavators equipped with attachments (such as shovel, bucket, backhoe, drag line or clam shell) appropriate to the character of the materials and the site conditions.

I. Heavy ripping equipment shall be defined as a rear-mounted, heavy duty, single tooth, ripping attachment mounted on a tractor having a power rating of 200-300 net horsepower (at the flywheel).

J. Wheel tractor-scraper shall be defined as a self-loading (not elevating) and unloading scraper having a struck bowl capacity of 12-20 yards.

K. Pusher tractor shall be defined as a track type tractor having a power rating of 200-300 net horsepower (at the flywheel) equipped with appropriate attachments.

L. Borrow: Material excavated from required excavations, designated borrow areas, or Contractor-selected borrow areas, as approved by the Engineer.

M. Backfill: Materials used to construct embankments, fill excavations and trenches, or to fill around or beneath structures or pipes.

N. Imported Material: Material obtained by the Contractor from sources off the site.

1.6 SHORING, SHEETING, BRACING, AND SLOPING

A. Install and maintain shoring, sheeting, bracing, and sloping necessary to support the sides of the excavation, to keep and to prevent any movement which may damage adjacent pavements, utilities, or structures, damage or delay the work, or endanger life and health. Install and maintain shoring, sheeting, bracing, and sloping as required by OSHA and other applicable governmental regulations and agencies.

1.7 EXCAVATION SAFETY

A. The Contractor shall be solely responsible for making all excavations in a safe manner. Provide appropriate measures to retain excavation side slopes and prevent rock falls to ensure that persons working in or near the excavation are protected.

1.8 CODES, ORDINANCES, AND STATUTES

A. Contractors shall familiarize themselves with, and comply with, all applicable codes, ordinances, statutes, and bear sole responsibility for the penalties imposed for noncompliance.

1.9 TOLERANCES

A. All excavations to finish grade shall be constructed within a tolerance of 0.1 foot except where dimensions or depths are shown or specified as minimum. All grading shall be performed to maintain slopes and drainage as shown. No unplanned reverse slopes will be permitted.

1.10 SITE INVESTIGATION AND CONDITIONS

A. The submission of a Bid shall be conclusive evidence that the Bidder has investigated the site and is satisfied as to the conditions to be encountered, as to the character, quality, and quantities of work to be performed and materials to be furnished, and as to the requirements of the Contract Documents.

B. The Contractor may make arrangements with the Owner for permission to conduct such additional subsurface investigation as may be necessary to verify existing conditions.

PART 2 PRODUCTS

2.1 MATERIALS

A. Vegetation and debris to be removed from site or wasted in locations approved by Engineer.

B. Stone or rubble to be removed from site.

C. Subsoil and topsoil which may be suitable for backfilling.

D. Subsoil and topsoil which may need to be removed from site or wasted in locations on-site approved by Engineer.

2.2 ON-SITE MATERIALS

A. General: Obtain on-site materials from required excavation for the various facilities. Bidders are cautioned that wide variations in the nature, excavation characteristics, moisture content, and consistency of the on-site materials are to be anticipated. Variations in the level of effort necessary for excavation, obtaining satisfactory moisture content and obtaining an acceptable uniform mixture of fill material is to be expected.

PART 3 EXECUTION

3.1 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Locate, identify, and protect above and below grade utilities that are to remain from damage.
- C. Notify utility companies to remove or relocate utilities where necessary to complete work.
- D. Protect plant life, and other landscape features remaining as a portion of final landscaping.
- E. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.2 TOPSOIL SALVAGING

- A. Excavate and salvage a minimum of 6" of topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.
- B. Do not excavate topsoil which is saturated due to wet weather or temporary inundation.
- C. Stockpile salvaged topsoil in area(s) on-site to depth(s) not exceeding 8 feet and protect from erosion.
- D. Reuse topsoil by spreading over disturbed bed after final grading and prior to seeding.
- E. Dispose of excess topsoil, not intended for reuse, off-site or in an area approved by the Engineer.

3.3 EXCAVATION

- A. Perform and complete all earth excavation of every description, regardless of the type, nature, or condition of material encountered, as specified, shown, or necessary to accomplish the excavation. The Contractor shall assume all responsibility for deductions and conclusions as to the nature of the materials to be excavated and the difficulties of making and maintaining the required excavations.
- B. The presence of isolated boulders or rippable rock ledges will not in itself be sufficient cause to change the definition or classification of the excavation.
- C. Excavate to the lines and grades as shown and as necessary to complete the construction. Allow for forms, working space, riprap, bedding, finish topsoil, etc., as shown or necessary. Do not carry excavation for footings and slabs deeper than the elevation shown. Excavation carried below the grade lines shown or established by the Engineer shall be repaired as specified hereinafter. Correct all over-excavated areas at the Contractor's sole expense.

D. All necessary precautions shall be taken to preserve the material below and beyond the established lines of all excavation in the soundest possible condition. Any damage to the work beyond the required excavation lines due to frost damage, wetting, drying, or the Contractor's operations shall be repaired at the Contractor's sole expense.

E. Excavation for embankment, structure foundations, and trenches shall be performed in the dry. No excavation shall be made in frozen materials without written approval.

F. Limits of excavation to safely accomplish the work shall be determined by the Contractor. Any minimum excavation limits shown on the drawings are for the purpose of material identification only and do not necessarily represent safe limits. All excavations shall be free of overhangs, and the sidewalls shall be kept free of loose material. As a minimum, the Contractor shall slope all excavations to prevent these conditions.

G. Accurate trimming of the slopes of the excavations to be filled will not be required, but such excavations shall conform as closely as practicable to the established lines and grades.

H. The method of excavation for structures is optional; however, no equipment shall be operated within 5 feet of newly completed construction. Excavation that cannot be accomplished without endangering the new structures shall be done with hand tools.

I. Contractor's method of excavation shall provide for full utilization of excavated material which is suitable for construction. Unsuitable materials shall be segregated by loads during the excavation operations, without contamination of suitable materials, and disposed of in the waste disposal area. Suitable materials shall be placed in the designated final locations directly from the excavation, or shall be placed in temporary stockpiles and later placed in the designated locations. Excavated materials which are too dry or too wet for immediate compaction shall be moistened or dried and conditioned to the proper moisture content. Moisture content alone shall not be reason for wasting material in a disposal area.

J. Engineer may direct excavations to be carried below the lines and grades shown on the drawings, if, in the opinion of the Engineer, such work is necessary to ensure adequate support of the proposed embankment, structure, pipe, etc. Payment for such authorized over-excavation and subsequent backfill shall be made at the applicable unit prices for excavation and earthfill.

3.4 BORROW PIT OPERATION

A. Borrow for embankment shall come from the required excavations and borrow area(s), as designated on the plans. The location of borrow areas shall be approved by the Engineer prior to use of the borrow area.

B. All borrow pits shall be kept neat and orderly. Work pits in a systematic manner. Keep borrow pits graded to drain and take all necessary precautions to minimize erosion. The Contractor shall review excavation plans with the Engineer prior to any excavation from borrow areas. Leave all surplus

material in the borrow pits, but Contractor is to manage borrow pit operation and excavation to assure enough suitable material is excavated to complete the embankment construction volume(s) required under the contract. Do not excavate material that will not be installed on this project. Maintain access roads as necessary at Contractor's expense. Finish slopes shall be no steeper than 3H:1V. Slope to drain and blend neatly with surrounding terrain at completion of borrow operations.

3.5 REMOVAL OF WATER

A. Provide and operate equipment adequate to keep all excavations and trenches free of water. Remove all water during periods when concrete is being deposited, when pipe is being laid, during the placing of backfill, and at such other times as required for efficient and safe execution of the work. Avoid settlement or damage to adjacent property. Dispose of water in a manner that will not damage adjacent property. When dewatering open excavations, dewater a point below the bottom of the excavation when possible. Design dewatering system to prevent removal of fines from existing ground.

3.6 FOUNDATION PREPARATION FOR BACKFILL

A. General: After stripping and foundation excavation are completed, remove all loose and objectionable materials and surface irregularities. Excavate areas adjoining the embankment foundation and all creek channel or ox-bow remnants which pass through the embankment foundation to slope(s) not steeper than 2:1, or as indicated on the drawings, to create smooth transitions for proper compaction and backfilling. Prepare the excavated foundation as described hereinafter and protect the prepared embankment foundation from drying, freezing, and softening from excessive moisture until the overlying embankment is placed and compacted. After foundation preparation, the foundation surface shall be free from soft areas and surface irregularities and shall provide a firm foundation upon which embankment backfill can be placed. Obtain the Engineer's approval of the prepared foundation surface prior to placing overlying backfill material.

3.7 CONSTRUCTION ROADS

A. Construct and maintain roads necessary for temporary site access for construction. Construction roads shall not cut into the levee embankments. Any cut into levee abutments shall be repaired to the natural slope with compacted levee embankment material. Compaction shall be as specified for levee embankment. Repairs shall be made at the Contractor's expense. At the completion of the project, scarify, disc and regrade all construction roads to match the surrounding topography. Compact as required by Section 02223 - Backfilling. Spread topsoil as required by Section 02223, and seed as specified in Section 02936 - Seeding.

B. Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.

3.8 FIELD QUALITY CONTROL

A. Section 01450 - Quality Control: Field inspection and testing.

END OF SECTION

**SECTION 02223
BACKFILLING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Construction of fills, backfills, and embankments.
- B. Site grading.
- C. Compaction requirements.

1.2 RELATED SECTIONS

- A. All sections.

1.3 MEASUREMENT AND PAYMENT

- A. Section 01250 – Measurement and Basis of Payment.

1.4 REFERENCES

- A. ASTM 0698 - Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12 inch drop.
- B. ASTM 04253 - Maximum Index Density and Unit Weight of Soils using a Vibratory Table.
- C. ASTM 04254 - Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
- D. ASTM 01556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- E. ASTM 02167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- F. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in place by Nuclear Methods (Shallow Depth).
- G. ASTM 03017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Soil materials as specified in Section 02205.
- B. Aggregate Materials as specified in Section 02207.

2.2 BEDDING MATERIALS

- A. Section 02225 – Trenching.

2.3 WATER FOR COMPACTION

- A. Furnish as necessary to accomplish specified compaction.

2.4 FILTER FABRIC & EROSION CONTROL MATTING

- A. Section 02246 – Geotextiles.

2.5 COMPACTION EQUIPMENT

A. Compaction equipment shall be of suitable type and adequate to obtain the densities specified. Smooth steel-wheeled rollers will not be permitted for compaction of onsite materials; they shall be compacted with tamping foot or sheepsfoot rollers unless the Contractor can demonstrate, to the satisfaction of the Engineer, that other equipment will produce satisfactory results throughout the full depth of each lift.

B. Compaction equipment shall be operated in strict accordance with the manufacturer's instructions and recommendations. Equipment shall be maintained in such condition that it will deliver the manufacturer's rated compactive effort. If inadequate densities are obtained, larger and/or different types of additional equipment shall be provided by the Contractor. Hand-operated equipment shall be capable of achieving the specified densities.

2.6 MOISTURE CONTROL EQUIPMENT

A. Equipment for applying water shall be of a type and quality adequate for the work, shall not leak, and shall be equipped with a distributor bar or other approved device to assure uniform application. Equipment for mixing and drying out material shall consist of blades, discs, or other approved equipment.

2.7 DISPERSIVE CLAYS

A. Dispersive clays may exist on site and may require the addition of fly ash to stabilize the material if used as earth embankment fill. The first alternative will be to avoid using the material as fill. If avoiding all dispersive clays is not possible, a change order will be issued to handle the effort required to stabilize the volume of dispersive clay material used.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify stockpiled earth fill material meets requirements of Section 02205 – Soil Materials and is suitable for the intended use on the Project.

B. Verify areas to be backfilled are free of debris, and have been properly prepared in accordance with contract requirements.

3.2 PREPARATION

A. Clear and strip all vegetation, trash, and debris from areas which are to receive fill as required by Section 02230– Site Clearing.

B. Excavate and salvage topsoil in accordance with requirements of Section 02222 - Excavating.

C. Break down the sides of stump holes, test pits, and other similar cavities or depressions, where so directed, so as to flatten out the slopes. Scarify the sides of the cut or hole to provide bond between the foundation material and backfill each depression with the same type of material which is to be placed immediately above the foundation. Place, moisten and compact the backfill in accordance with the applicable provisions of this section.

D. In areas to receive fill, scarify subgrade surface to a depth of 6 inches (or greater if called out as such on plans), compact, and proof roll to identify soft spots.

E. Dewater as needed to provide proper conditions during backfilling operations.

F. Excavate unsuitable areas of subgrade as authorized by Engineer and replace with approved backfill material. Compact to density equal to requirements for subsequent backfill material.

3.3 BACKFILLING AND EMBANKMENT CONSTRUCTION

A. General:

1. Complete backfill and embankments to the lines and grades for the various zones as shown on the Drawings.
2. Protect structures and pipes from damage at all times. Select compaction equipment that will not damage the pipe or structures. Construction equipment other than that used in compacting trench backfill around pipelines shall not be operated over pipelines until the compacted backfill is to a 3-foot minimum depth over the exterior crown of the conduit or pipe. After this minimum depth of backfill is placed, the maximum loading over the pipe shall not exceed HS 10 loading as defined in AASHTO Standard Specifications for Highway Bridges until a minimum 10-foot depth of compacted backfill has been placed over the pipe. Any damage to structures or pipelines shall be repaired at the Contractor's own expense.
3. Backfill shall be brought up evenly on each side of structures.
4. Handle, and place materials in such a manner as to prevent segregation of the materials.
5. Backfill or embankment material shall be brought to the specified moisture content prior to placement and compaction, as specified under paragraph MOISTURE CONTROL. Compaction of each layer shall be as specified under paragraph COMPACTION.
6. No material shall be placed on foundation or previously placed material that is frozen, previously frozen, or is too soft, smooth, wet, dry, or that has been damaged by drying, cracking, frost, or construction activities. Prior to placement of material on or against the surfaces of natural ground, or previously placed and compacted portions of the embankment, all damaged materials that are frozen, that have become soft or loose due to exposure to weather, that contain erosion channels or cracks, or that are excessively dry shall be removed. Remove disturbed or damaged foundation material and prepare the exposed material as hereinbefore specified under PREPARATION. The surface of previously placed embankment shall be disked and recompacted as hereinafter specified and the new embankment bonded to the existing embankment. The replaced materials shall be compacted as required by these specifications for the type of material being compacted. Damaged or loosened surfaces shall be compacted as originally specified for the material being compacted. Excavating, replacing, and compacting disturbed soil, or loosening, moistening, and recompacting the surface of the previously completed portion of the embankment shall be performed as directed by the Engineer at the Contractor's sole expense.
7. No brush, roots, sod, or other perishable or unsuitable materials shall be placed in the embankment.
8. The Contractor shall maintain the embankment including sloping the surfaces to drain, preventing or repairing gullies, and maintaining surfaces free of weeds or other unauthorized vegetation, until final completion and acceptance of all the work under the Contract.

B. Earth Embankment:

1. Construct all earth embankment with Class "A" subsoil per Section 02205 - Soil Materials and as shown on plans.
2. The distribution and gradation of the materials shall be such that the embankment will be free from lenses, pockets, streaks, voids, or layers of material differing substantially in texture, gradation, or water content from surrounding material, except where zones of different material are specified. The combined excavating and placing operation shall be such that the subsoil materials, when placed, will be blended sufficiently to secure a high degree of uniformity. Placing of materials includes dumping, spreading, supplemental wetting or drying, mixing, and grading subsoil materials and any other operations necessary to blend the materials to form as homogeneous a layer as practicable prior to compaction. Successive loads shall be dumped and spread so as to produce a uniform distribution of the material.
3. To the extent practicable, subsoil materials shall be brought to the embankment area at the specified moisture content.
4. The materials shall be dumped in continuous horizontal layers and spread in a direction parallel to the centerline of the dam. When windrows of materials are formed as a result of the dumping operations, such windrows shall be parallel to the centerline of the embankment. After a layer has been dumped and spread, it shall be disked as necessary to break up and blend the materials. Smooth, hard surfaces and deep ruts in the surface previously placed material resulting from the passage of construction equipment during placing operations shall be removed or reworked by disking or scarifying prior to placing subsequent material. Surfaces of cut slopes, slopes in previously compacted embankment, and the edges of previously placed embankment shall be excavated with shallow benches to expose firm, moist, dense surfaces for bonding with the new embankment just prior to placing the next layer. Disking shall be performed with a heavy disk plow to the full depth of the uncompacted layer and into the surface of the underlying layer as necessary to form a good bond between layers. Remove oversize pieces which do not break up. The embankment materials shall be bladed level prior to disking and compaction, such that layers shall not exceed 8 inches loose thickness prior to disking and the underlying layer shall not be disturbed more than 2 inches after disking.
5. In any separate portion of earth embankment bedding constructed, each layer shall be constructed continuously and approximately horizontally for the width and length of such portion at the elevation of the layer. The height of any longitudinal bonding surface (parallel to the dam centerline) shall be less than 2 feet. The slope of the bonding surface shall be four horizontal to one vertical or flatter.
6. The Contractor will be permitted to construct separate portions of the earth embankment subject to the following conditions:

- a. Longitudinal bonding surfaces (surfaces parallel to the centerline of embankment) will not be permitted except as hereinbefore specified.
- b. Temporary gaps through the earth embankment for diversion of water during construction will be permitted. All transverse slopes (surfaces normal to the centerline crest of embankment) between previously completed portions of embankment and embankment to be placed shall not be steeper than 4:1.
- c. Prior to construction of embankment in the temporary openings, remove all loose, disturbed, dry, cracked, or frost damaged embankment from the bonding surface. Prepare the surface by scarifying, moistening, and compacting to provide a good bond between the embankment materials. Excavate shallow benches into the bonded surface for each layer of embankment.

3.4 STRUCTURAL BACKFILL

A. Preparations for Placing Backfill:

1. Backfill around concrete structures only after the concrete has attained the specified compressive strength indicated in Section 03300. Remove all form materials and trash from the excavation before placing any backfill. Obtain the Engineer's acceptance of concrete work and attained strength prior to backfilling.

2. Do not operate earth-moving equipment within 5 feet of walls of concrete or pipe structures for the purpose of depositing or compacting backfill material. Compact backfill adjacent to concrete or pipe structures with hand-operated tampers or other method approved by Engineer.

B. Backfill around structures using the designated materials as shown/or specified.

C. Backfill around structures in embankments with material equal to the adjacent embankment material unless otherwise shown. Place backfill in embankment areas in maximum 6-inch loose lifts for hand compaction equipment and 8-inch loose lifts where heavy compaction equipment can operate. Compact each lift as specified for the adjacent embankment material.

D. Backfill around structures not in embankments using Class A subsoil unless otherwise designated. Place backfill in loose lifts less than 6-inches thick for hand compaction equipment and 8-inches thick where heavy compaction equipment can operate, and compact each lift as specified to at least 95 percent of maximum dry density with moisture between -1 and +5 percent of optimum.

3.5 COMPACTION

A. Compact all materials by mechanical means. Flooding or jetting will not be permitted. If tests indicate that compaction or moisture content is not as specified, material placement shall be terminated and corrective action shall be taken by the Contractor prior to continued placement.

B. Embankment shall be compacted to at least the minimum values specified below:

Material	Minimum Compaction Requirement
Earth embankment	95 percent of maximum dry density

3.6 MOISTURE CONTROL

A. Prior to and during all compacting operations, maintain moisture content within the limits specified below. Maintain moisture content uniform throughout the lift. Insofar as practicable, add water to the material at the site of excavation. Supplement, if required, by sprinkling and mixing into the fill material prior to compaction. The water content of material at the time of compaction shall be as follows:

Material	Allowable Range of Moisture Content
Earth embankment	-1 to +7 percent of optimum

B. Do not attempt to compact fill material that contains excessive moisture. Aerate material by blading, disking, harrowing, or other methods, to dry the material to acceptable moisture content.

3.7 FIELD QUALITY CONTROL

A. Section 01400 - Quality Control.

B. Engineer will perform and document testing of each 1000 cubic yards of embankment fill compacted to verify conformance of material with the contract requirements for moisture content and compaction. Contractor to facilitate this testing work by leveling small test areas as necessary and backfill test areas as needed. The frequency and location of testing shall be determined solely by the Engineer. The Engineer may also elect to test any lift of fill at any time, location, or elevation.

C. Testing performed by the Engineer or requested by the owner may include laboratory compaction and/or relative density tests and field moisture and density tests. Laboratory compaction tests will be performed in accordance with ASTM 0698. Laboratory relative density tests will be performed in accordance with ASTM D4253 and 04254. Field density and moisture content will be determined by anyone or a combination of the following methods: ASTM 02922,01556,02167,03017, or other methods acceptable to the Engineer.

D. Testing will be used to determine if completed courses are in substantial conformance with the Specifications. The Contractor shall perform other testing or retesting as necessary to control the quality of the work within the specifications at the Contractor's sole expense.

E. Material which does not meet the specified compaction and moisture requirements, as determined by testing, shall be removed and replaced, or at the Contractor's option, reworked by disking, aerating, wetting, and/or recompacting at the Contractor's sole expense until the material conforms to the Specifications.

3.8 PLACING TOPSOIL

A. After backfilling and grading is completed and reviewed by the Engineer, spread topsoil over entire graded area, except to borrow areas to be submerged by permanent pool, to a minimum compacted depth of 6 inches with surface elevations as shown. Loosen the previously finished surface to a depth of 2 inches and leave in smooth condition, free from depressions or humps, ready for seeding.

3.9 SITE GRADING

A. Perform all backfilling and embankment construction to the lines and grade as shown and/or established by the Engineer, with proper allowance for topsoil where specified or shown. Shape, trim, and finish slopes to conform to the lines, grades, and cross sections shown. Make slopes free of all exposed roots and stones exceeding three inches in diameter. Neatly blend all new grading into surrounding, existing terrain. Finished site grading must be acceptable to the Owner and Engineer.

3.11 TOLERANCES

A. Top surface of soil embankment or backfill in turf areas: Plus 0 to 2 inches from prescribed grade, but do not create ponding.

B. Top Surface of soil embankment or backfill in areas to be surfaced with aggregate or concrete construction: Plus or minus 1/2 inch.

C. Top Surface of aggregate embankment fill: Plus or minus 2 inches from prescribed grade.

3.12 PROTECTION OF FINISHED WORK

A. Protect finished Work under provisions of Section 01500.

B. Reshape and re-compact fills disturbed by vehicular traffic.

END OF SECTION

**SECTION 02225
TRENCHING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Excavate trenches.
- B. Backfilling trenches.
- C. Compaction requirements.

1.2 RELATED SECTIONS

- A. All sections.

1.3 MEASUREMENT AND PAYMENT

- A. Section 01250 – Measurement and Basis of Payment.

1.4 REFERENCES

- A. ASTM 0698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.
- B. ASTM 01556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- C. ASTM 02167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- D. ASTM 02922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- E. ASTM 03017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

1.5 PROTECTION

- A. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.
- B. Underpin adjacent structures which may be damaged by excavation work, including utility lines and pipes.

C. Notify Engineer of unexpected subsurface conditions and discontinue work in affected area until notification to resume work.

D. Protect bottom of excavations and soil adjacent to and beneath pipe or structures.

E. Grade excavation top perimeter to prevent surface water run-off excavation.

F. Dewater excavations as needed at no additional cost to Owner.

PART 2 PRODUCTS

2.1 SELECT BED AND FILL MATERIALS

A. Select Subsoil: from trench or borrow area excavations, graded free of organic material, gravel larger than 1 inch size, and debris.

B. Concrete: Section 03300.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify stockpiled fill to be reused is approved.

B. Verify subgrade has been inspected and approved.

C. Verify construction material installation has been inspected and approved.

D. Verify areas to be backfilled are free of debris, snow, ice, or water, and surfaces are not frozen.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Compact subgrade surfaces to density requirements for backfill material.

3.3 EXCAVATING

A. Excavation is unclassified.

B. Excavate subsoil required for construction material installation to required grade.

C. Cut trenches sufficiently wide to enable installation of work items and to allow inspection. Comply with manufacturer's recommendations.

D. Hand trim subgrade and leave free of loose matter. Hand cut bell holes for bell and spigot pipe joints to provide uniform bearing of pipe on subgrade.

E. Remove lumped subsoil, boulders, or other unsuitable material.

F. Fill over-excavated areas under construction material bearing surfaces with approved materials per Section 02223.

G. Correct unauthorized over-excavation at no cost to Owner.

H. Remove excess subsoil not being reused from the site.

3.4 BACKFILLING

A. Backfill in accordance with requirements of Section 02223 - Backfilling.

B. Support work items to avoid displacement during placement and compaction of backfill material.

C. Properly installed and consolidate or compact bedding material required for installation being made.

D. Backfill trenches to prescribed contours and elevations. Backfill systematically, as early as possible, to allow maximum time for natural consolidation. Do not backfill over porous, wet, or spongy subgrade surfaces.

E. Place and compact select fill material per Section 02223.

F. Maintain optimum moisture content of backfill materials per Section 02223.

G. Remove surplus backfill materials from site.

H. Leave stockpile areas completely free of excess fill material.

3.5 TOLERANCES

A. Top Surface of backfilling turf areas or areas to receive subsequent fill: Plus 2 inches, but do not create ponding.

B. Top Surface of backfilling areas to be surfaced with aggregate or concrete construction: Plus or minus 1 inch.

3.6 COMPACTION TESTING

A. Compaction testing will be performed by Contractor's laboratory at the rate of 1 test per lift for each 500 linear feet of trench in accordance with ASTM D1556, ASTM D2167, or ASTM D2922.

3.7 SCHEDULE OF LOCATIONS

A. The paragraphs below identify location, fill material to be used, and density expressed as a percentage of maximum density in comparison with ANSI/ASTM 0698.

B. Pipe bedding: Select subsoil fill compacted to 95 percent except where concrete bedding is required.

C. Fill around concrete structures: Select subsoil fill, compacted to 95 percent.

D. Fill under aggregate surfacing or earth embankments: Select subsoil fill to prescribed subgrade elevation, compacted to 95 percent.

E. Fill under turf areas: Select subsoil to finish grade, compacted to 95 percent. Fill to finish grade with topsoil, compacted to 85 percent.

F. Aggregate fill: In accordance with Section 02223 - Backfilling.

END OF SECTION

**SECTION 02230
SITE CLEARING**

PART 1 GENERAL

1.1 SUMMARY

A. Section includes the following:

1. Protection of existing trees.
2. Removal of trees and other vegetation.
3. Topsoil stripping.
4. Clearing and grubbing.
5. Removing above-grade improvements.
6. Removing below-grade improvements.

1.2 DEFINITIONS

A. Topsoil: Friable surface soil found in a depth of not less than 4 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2 inches in diameter, and without weeds, roots, and other objectionable material.

1.3 PROJECT CONDITIONS

A. Traffic: Conduct Site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, trails, or other occupied or used facilities without permission from authorities having jurisdiction.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 PREPARATION

A. Protection of Existing Improvements: Provide protections necessary to prevent damage to existing improvements indicated to remain in place.

1. Protect improvements on adjoining properties and on OWNER's property.

2. Restore damaged improvements to their original condition, as acceptable to property OWNER.

B. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain in place against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.

1. Water trees and other vegetation to remain within limits of Work as required to maintain their health during course of construction operations.

2. Provide protection for roots over 1-1/2-inch diameter that are cut during construction operations. Coat cut faces with emulsified asphalt, or other acceptable coating, formulated for use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.

3. Repair or replace trees and vegetation indicated to remain which are damaged by construction operations, in a manner acceptable to ENGINEER. Employ a licensed arborist to repair damages to trees and shrubs.

4. Replace trees which cannot be repaired and restored to full-growth status, as determined by arborist.

C. Carefully remove items indicated to be salvaged, and store on OWNER's premises where indicated or directed.

3.2 SITE CLEARING

A. Remove trees, shrubs, grass, and other vegetation, rubble, improvements, concrete slabs, tree debris piles, or obstructions as required to permit installation of new construction. Remove similar items elsewhere on Site or premises as specifically indicated. "Removal" includes digging out and off-site disposing of stumps and roots.

1. Cut minor roots and branches of trees indicated to remain in a clean and careful manner, where such roots and branches obstruct installation of new construction.

2. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material.

a. Remove heavy growths of grass from areas before stripping.

b. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.

c. Stockpile topsoil in storage piles in areas indicated or directed. Construct storage piles to provide free drainage of surface water. Cover storage piles, if required, to prevent wind erosion.

d. Dispose of unsuitable or excess topsoil same as specified for disposal of waste material.

B. Clearing and Grubbing: Clear Site of trees, shrubs, and other vegetation, in areas called out on the plans. Removal of trees 6" diameter or greater are to be avoided unless otherwise indicated.

1. Completely remove stumps, roots, and other debris protruding through ground surface.

2. Use only hand methods for grubbing inside drip line of trees indicated to remain.

3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.

4. Place fill material in horizontal layers not exceeding 6 inches loose depth, and thoroughly compact to a density equal to adjacent original ground.

C. Remove existing above-grade and below-grade improvements as indicated and as necessary to facilitate new construction.

3.3 DISPOSAL OF WASTE MATERIALS

A. Burning is not permitted on OWNER's property.

B. Burning will be permitted only at designated areas and times directed by OWNER. Provide full-time monitoring of burning materials until fires are extinguished.

C. Transport non-combustible waste materials and unsuitable topsoil materials to designated spoil areas on OWNER's property and dispose of as directed.

D. Transport waste materials and unsuitable topsoil materials to designated spoil areas on OWNER's property and dispose of as directed.

E. Remove waste materials and unsuitable or excess topsoil from OWNER's property at CONTRACTOR's expense. CONTRACTOR shall make own arrangements for obtaining disposal areas. Proposed haul routes between the Site and disposal areas shall be submitted by CONTRACTOR to ENGINEER for approval prior to commencing this Work.

END OF SECTION

**SECTION 02240
DEWATERING**

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following:

1. Dewatering consisting of performing work necessary to lower and control groundwater levels and hydrostatic pressures to permit excavation and construction to be performed in near-dry conditions.

a. Control of surface and subsurface water, ice, and snow are part of dewatering requirements.

b. All costs for dewatering trenches shall be included in bid prices for other items of Work listed on Bid Form.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 DEWATERING

A. Provide an adequate system to lower and control groundwater in order to permit excavation, construction of structures, and placement of fill materials under dry conditions. Install sufficient dewatering equipment to pre-drain water-bearing strata above and below bottom of structure foundations, drains, sewers, and other excavations. The excavations shall be kept dry until exterior walls have been completed and until the structures have been backfilled. Drainage ditches shall not be placed within the area to be occupied by any structure except where permitted by ENGINEER. When such ditches are placed beneath the structures, they shall be backfilled with Class C concrete.

B. Reduce hydrostatic head in water-bearing strata below structure foundations, drains, sewers, and other excavations to extent that water level and piezometric water levels in construction areas are below prevailing excavation surface.

C. Prior to excavation below groundwater level, place system into operation to lower water levels as required and then operate it continuously 24 hours a day, 7 days a week until drains, sewers, and structures have been constructed, including placement of fill materials, and until dewatering is no longer required.

D. Dispose of water removed from excavations in a manner to avoid endangering public health, property, and portions of Work under construction or completed. Dispose of water in a manner to avoid inconvenience to others engaged in work about Site. Provide sumps, sedimentation tanks, and

other flow control devices as required by governing authorities. Effluent water from dewatering methods shall be sediment free or be discharged through an ENGINEER-approved sediment entrapment basin.

E. Provide standby equipment on Site, installed and available for immediate operation if required to maintain dewatering on a continuous basis in event any part of system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, perform work as may be required to restore damaged structures and foundation soils at no additional expense.

END OF SECTION

**SECTION 02246
GEOTEXTILES**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Subgrade preparation.
- B. Erosion control blanket.
- C. Turf reinforcement mat

1.2 RELATED SECTIONS

- A. All sections.

1.3 MEASUREMENT AND PAYMENT

- A. Section 01250 – Measurement and Basis of Payment.

1.4 SUBMITTALS

- A. Section 01300 – Submittals.
- B. Provide manufacturer's certificate of compliance signed by authorized official of the manufacturer attesting that the geotextile(s) meet the requirements of these Specifications. The certificate shall also state the length and width of fabric supplied on each roll.
- C. Submit manufacturer's specifications and installation instructions for turf reinforcement geotextile to be supplied.
- D. Submit manufacturer's specifications and installation instructions for filter fabric to be supplied.
- E. Submit shop drawings for erosion control blanket, filter fabric, and sediment control fabric indicating recommended patterns of geotextile layout and installation on this project.
- F. Obtain acceptance of submittals by Engineer before proceeding with work.

PART 2 PRODUCTS

2.1 GEOTEXTILES

A. Erosion Control Blanket: 100% straw fiber matrix with life of 12-24 months; North American Green S150 or approved equal.

B. Turf Reinforcement Mat: three-dimension and/or stitchbonded polypropylene geotextile, color green; LANDLOCK 450 by Propex or approved equal.

2.2 WOODEN STAKES OR WIRE STAPLES

A. Triangular wooden stakes shall be cut from standard 2x4 lumber, to length as recommended by geotextile manufacturer's instructions. Cut diagonally across the board flats to produce triangular configuration.

B. Wooden stakes shall be pressure-treated.

C. Wire staples shall be as recommended by geotextile manufacturer's instruction.

PART 3 EXECUTION

3.1 PREPARATION

A. Before placing geotextile, the subgrade shall be graded smooth, have no depressed, void, soft, or uncompacted areas, and shall be free from obstructions such as tree roots, vegetation, projecting stones, or other foreign matter.

B. Subgrade compaction and preparation shall be in accordance with Section 02223 - Backfilling and Section 02936 - Seeding as applicable.

C. Contractor shall not proceed until all unsatisfactory conditions have been remedied.

D. Contractor shall fine grade the subgrade by hand dressing where necessary to remove local deviations.

E. Seed areas to receive erosion control blanket in accordance with Section 02936 - Seeding.

3.2 INSTALLATION

A. Geotextile installation shall begin at the downstream terminal of each project segment and progress in the upstream direction where applicable.

- B. Roll geotextile vertically down slope on prepared banks.
- C. Overlap adjacent geotextile sections by a minimum of 6 inches and install stakes or staples as recommended by manufacturer.
- D. Stakes shall be oriented to be broadside to slope with straight edge of stake at 1 inch distance from overlap edge(s) along seams(s).
- E. Staples shall be set a one inch distance from overlappage(s) along seam(s).
- F. Bury berm and toe terminals of geotextile as shown in the drawings.
- G. Do not allow vehicular traffic over installed turf reinforcement.
- H. Overlap geotextile filter fabric around and above aggregate drain materials at least 18 inches at all joints.
- I. Install per manufactures specification.

END OF SECTION

**SECTION 02275
RIPRAP**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Furnish and place rock riprap where indicated on the drawings.
- B. Subgrade preparation.
- C. Grouting in place where indicated on the drawings.

1.2 RELATED STUDIES

- A. All sections.

1.3 MEASUREMENT AND PAYMENT

- A. Section 01250 – Measurement and Basis of Payment.

1.4 QUALITY ASSURANCE

- A. Test for bulk specific gravity and absorption of riprap materials in accordance with ASTM C127.
- B. Test for soundness of riprap materials in accordance with Federal Specifications SS-R-406, Method 203.01.

1.5 SUBMITTALS

- A. Section 01300-Submittals: Procedure for submittals.
- B. Submit gradation analysis of proposed riprap material.
- C. Submit a notarized certificate from supplier that riprap source is approved to provide materials for Iowa Department of Transportation work and complies with Contract Document requirements.
- D. Submit supplier's laboratory certification that riprap material from the proposed source conforms to specification requirements for specific gravity, absorption, and soundness.

PART 2 PRODUCTS

2.1 ROCK RIPRAP

A. Broken limestone, dolomite, quartzite, or granite from an approved source as described in Materials I.M. 409 of Iowa Department of Transportation (DOT) Standard Specification and meeting the following requirements.

- A minimum of 50% of the stone is to be composed of beds or slabs more than 5 inches thick.
- A minimum of 10% of the beds or slabs are to be thick enough to produce the required weight of either the stone or concrete, with the greatest dimension not more than two times the smallest dimension.

B. Individual rock fragments shall be dense, sound and free from cracks, seams and other defects conducive to accelerated weathering.

C. Rock fragments shall be angular to sub-rounded in shape.

D. Least dimension of a fragment shall not be less than one-third the greatest dimension of the fragment.

E. Bulk specific gravity (saturated surface-dry basis) not less than 2.5 as determined by ASTM C127.

F. Absorption not more than 2 percent as determined by ASTM Method C127.

G. Weighted average loss in five cycles of soundness testing according to Federal Specification SS-R-406, Method 203.01 shall be not more than 20 percent when sodium sulphate is used or 25 percent when magnesium sulfate is used.

H. Gradation(s) as indicated on the drawings and Bid Form for Rock Riprap shall conform to Iowa DOT Class C and E Revetment gradations and material requirements as per Section 4130.01 of the Iowa DOT Standard Specification:

Class C

- Nominal top size of 450 lbs
- At least 50% of the stones are to weigh more than 275 lbs
- At least 90% of the stones are to weigh more than 75 lbs

Class E

- Nominal top size of 250 lbs
- At least 50% of the stones are to weigh more than 90 lbs
- At least 90% of the stones are to weigh more than 5 lbs
- The Engineer may approve using revetment containing material larger than 250 lbs

2.2 COBBLES

A. Cobble material is equivalent to Erosion Stone supplied by LG Everest. 50 lbs top weight with materials size ranging from 4" to 10" and D50 of 8".

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify stockpiled riprap material is acceptable to Engineer.

3.2 PREPARATION

A. Excavate subgrade in accordance with Section 02222- Excavating, for placement of rock riprap to indicated depth with finished surface at lines and grades indicated on the drawings.

B. Remove all sharp or protruding objects from subgrade surface.

C. Install filter fabric (when called out on plans) in accordance with Section 02246-Geotextiles and drawings.

3.3 PLACEMENT

A. Place riprap at the locations and to the depths indicated on the drawings.

B. Construct riprap to the full course thickness in one operation and in such a manner as to avoid significant displacement of the underlying materials.

C. Place riprap such that material in place is reasonably homogeneous with larger fragments uniformly distributed, firmly in contact one to another with smaller fragments and spalls filling voids between larger fragments.

D. Place riprap in a manner to prevent damage to structures.

E. Place riprap fragments by hand where necessary to prevent damage to permanent works. Smaller fragments shall not be a substitute for larger ones, and flat slabs shall be laid on edge.

3.4 GROUTING

A. Where indicated on drawings, use concrete to grout completed and accepted riprap construction.

B. Consolidate concrete to fill voids and float finish around exposed riprap surface fragments.

C. Apply curing compound per Section 03300.

END OF SECTION

SECTION 02722
SITE STORM SEWERAGE SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. HDPE Pipe
- B. FES for HDPE
- C. Solid wall PVC Pipe
- D. Slotted Wall PVC Pipe
- E. Pipe joints and fittings
- F. Appurtenant structures and accessories

1.2 RELATED SECTIONS

- A. All sections.

1.3 MEASUREMENT AND PAYMENT

- A. Section 01250 – Measurement and Basis of Payment.

1.4 REFERENCES

- A. ASTM C138/C138M (2012a) Standard Test Method for Density ("Unit Weight"), Yield, and Air Content (Gravimetric) of Concrete.
- B. ASTM C150/C150M (2012) Standard Specification for Portland Cement.
- C. ASTM C403/C403M (2008) Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance.
- D. ASTM C495 (2007) Compressive Strength of Lightweight Insulating Concrete.
- E. ASTM C497 (2005) Concrete Pipe, Manhole Sections, or Tile.
- F. ASTM C581 (2003; E 2008; R 2008) Standard Practice for Determining Chemical Resistance of Thermosetting Resins Used in Glass-Fiber-Reinforced Structures, Intended for Liquid Service.

- G. ASTM C939 (2010) Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method).
- H. ASTM C942 (2010) Compressive Strength of Grouts for Preplaced-Aggregate Concrete in the Laboratory.
- I. ASTM D1784 (2011) Rigid PVC Compounds and Chlorinated PVC Compounds.
- J. ASTM D2321 (2014) Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
- K. ASTM D2412 (2011) Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading.
- L. ASTM D3034 (2014) Standard Specification for Type PSM PVC Sewer Pipe and Fittings.
- M. ASTM D3212 (2007; R2013) Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- N. ASTM D3262 (2011) "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Sewer Pipe.
- O. ASTM D3350 (2012) Polyethylene Plastics Pipe and Fittings Materials,
- P. ASTM D3681 (2006) Standard Test Method for Chemical Resistance of "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe in a Deflected Condition.
- Q. ASTM D3839 (2008) Underground Installation of "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe.
- R. ASTM D4161 (2001; R 2010) "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe Joints Using Flexible Elastomeric Seals.
- S. ASTM F1697 (2009) Standard Specification for Poly(Vinyl Chloride) (PVC) Profile Strip for Machine Spiral-Wound Liner Pipe Rehabilitation of Existing Sewers and Conduit.
- T. ASTM F1741 (2008) Standard Practice for Installation of Machine Spiral Wound Poly (Vinyl Chloride) (PVC) Liner Pipe for Rehabilitation of Existing Sewers and Conduits.
- U. ASTM F2620 (2012) Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings.
- V. ASTM F477 (2010) Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- W. ASTM F585 (1994; R 2007) Standard Practice for Insertion of Flexible Polyethylene Pipe into Existing Sewers.
- X. USACE EM 385-1-1 (2008; Errata 1-2010; Changes 1-3 2010; Changes 4-6 2011; Change 7 2012) Safety and Health Requirements Manual.

- Y. ASTM A760/A760/A760M-01a – Standard Specification for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains.
- Z. AASHTO M252, Type S (For HDPE Pipe).
- AA. AASHTO M294, Type S (For HDPE Pipe).
- BB. AASHTO M326, Standard Specification for Polyethylene (PE) Liner Pipe, 300- to 1600-mm Diameter.
- CC. ASTM F714, Standard Specification for Polyethylene (PE) Pipe (SDR-PR) Based on Outside Diameter.
- DD. AWWA C906-99.
- EE. AWWA C900 Standard for Polyvinyl Chlorine (PVC) Pressure Pipe, 4 inch through 12 inch for Water.

1.5 SUBMITTALS FOR REVIEW

- A. Section 01300 – Submittals: Procedures for submittals.
- B. Submit shop drawings for all pipe and pipe appurtenances to be provided.
- C. Submit certification by supplier(s) that pipe and appurtenances to be provided comply with project specifications and requirements.
- D. Submit shop drawings for materials and installation procedures
- E. Submit a detailed work plan to include but not limited to the following:
 - a. Proposed construction sequencing and scheduling.
 - b. Plan for removal of any obstructions encountered.
 - c. Areas requiring special construction techniques.
 - d. Proposed methods for flow control or by-pass to divert excessive flow away from a section of pipe if the need arises during the installation process.
 - e. Joints, gaskets, proposed Resins, Coatings, and other pertinent information as applicable
 - f. Dates of excavation and pipe placement, along with proposed work hours.
 - g. Manufacturer's recommendation regarding methods for repair of damage to pipe following installation.

1.6 SUBMITTALS FOR INFORMATION

- A. Section 01300 – Submittals: Procedures for submittals

- B. For all types of pipe to be used for the project, submit manufacturer's recommended procedures for pipe installation and for field repairs.
- C. For all types of pipe to be used for the project, submit the pipe manufacturer's supporting data of the design strength.
- D. Submit Grout mix design and test break results for that particular design.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Prevent injury or abrasion to liner pipe during loading, transportation, and unloading. Do not drop pipe from cars or trucks, nor allow pipe to roll down skids without proper restraining ropes. Use suitable pads, strips, skids, or blocks for each pipe during transportation and while awaiting installation in the field. Liner pipe shall be moved by machinery in a controlled manner. Do not allow liner pipe to roll down the levee embankment at any time. Handle and store in accordance with the manufacturer's published recommendations. Remove slip liner pipe with cuts, gashes, nicks, abrasions, or any such physical damage which is deeper than 10 percent of the wall thickness from the site and replace with undamaged pipe at no additional cost to the Owner.

PART 2 PRODUCTS

2.1 PIPE MATERIALS

- A. HDPE Solid Wall Pipe PE3608 IPS SDR 32.5 manufactured by Isco, Driscoplex 4000 SDR 32.5 manufactured by Performance Pipe, or approved equal. Pipe segment shall be marked on the inside and outside with a coded number which identifies the manufacturer, SDR, size, materials, machine, date and shift on which the pipe was extruded.
- B. Flared End Section: Standard End Section for HDPE Pipe from Contech Engineered Solutions, or approved equal.
- C. Solid Wall PVC Pipe: conforming to ASTM D 3034 or F949 as manufactured by Contech Construction Products, Inc. or equivalent.
- D. Slotted Wall PVC underdrain pipe: 1/16 maximum size slots or perforations and geotextile sock, conforming to ASTM D 3034 or F949 as manufactured by Contech Construction Products, Inc. or equivalent.

2.2 FITTINGS

- A. Fittings for PVC Pipe: As recommended and provided by the pipe manufacture.
- B. Fittings for HDPE Pipe: As recommended and provided by the pipe supplier.

C. Provide Transition Gaskets and Adapters as needed for connecting pipes or pipe fittings of different materials.

D. Rodent guards: As recommended and provided by pipe supplier(s).

2.3 JOINTS

A. Joints for PVC Pipe: Elastomeric rubber compression ring, joints conforming to ASTM F477.

B. Joints shall be watertight over the range of head pressure expected for the pipe.

C. Joints for HDPE Pipe: As supplied by manufacture, or fusion procedures conforming to ASTM F2620. Joints shall be capable of being joined into a continuous length by an interlocking method such that joints meet the requirements of ASTM D3212. Screw-type or threaded joints will not be allowed unless a positive lock is included in the joint system or the perimeter of the joint is extrusion welded at the bearing assembly, prior to insertion.

D. Internal beads resulting from butt fusion shall be limited to a 6 mm 0.25 inch projection perpendicular to the inside wall of the pipe. Trim beads larger than 6 mm 0.25 inch 360 degrees around the interior of the pipe. External beads resulting from butt fusion need not be trimmed unless the bead projection will negatively impact pipe installation or migration of annulus grout.

2.4 UV PROTECTIVE END TREATMENT

A. All slip liner pipes constructed of materials that are not UV stabilized (i.e. fiberglass pipe) that terminate at an open end or headwall shall receive a factory-applied coating on the interior surface of the pipe to resist deterioration from ultraviolet radiation. The UV protective coating shall be applied for a distance inside the pipe equal to two times the inside diameter of the liner pipe. In the event that field cutting is necessary, no additional coating will be required for the cut end.

a. Coating color shall be light gray or similar shade.

b. Nicks, scratches and minor abrasions to the coating shall be touched up in the field following final installation.

2.6 TRASH RACKS AND APPURTENANCES

A. Section 05500 – Metal Fabrications.

PART 3 EXECUTION

3.1 PREPARATION AND INSPECTION

- A. The Engineer makes no guarantee regarding the information, data, and physical condition of underground facilities or existing pipes.

3.2 CONTROL OF FLOW

- A. Provide for maintenance and control of flow as necessary for effective inspection and satisfactory installation of the pipe. Such work may include by-pass pumping or berming.

3.3 INSTALLATION

- A. Install Solid-Wall High Density Polyethylene (HDPE) Liner Pipe in accordance with ASTM F585, manufacturer's recommendations and the provisions of this Section. In the event of a conflict, the most restrictive of the three shall govern.
- B. Allow the installed pipe to relax and cool following installation in accordance with manufacturer's recommended time, but not less than 24 hours, prior to any reconnection of lines, grouting of the annulus, or backfilling of the insertion pit. Staged grouting is essential, especially for larger diameter pipes, in order to keep thermal expansion low and to prevent a reduction in the pipe diameter.
- C. Attached and install Flared End Section per manufacturers specifications.

3.4 TESTING AND ACCEPTANCE

- A. Rework: Remove any material that has not received prior approval from the Engineer or is not accepted as suitable work by the Engineer and replaced or repaired to the satisfaction of the Engineer with an approved method/material at the Contractor's sole expense. Materials left in place, but not meeting these Specifications, will be paid for at a reduced price.

3.5 ACCEPTANCE INSPECTION

- A. After all work is completed, perform an inspection of each pipe that received a pipe liner, documenting the post-installation conditions. For pipes large enough and safe to enter, a walk-through inspection with digital photography is preferred when confined space entry procedures are followed.
 - a. Infiltration of ground water through the pipe will be a basis for non-acceptance.
 - b. All connections shall be accounted for and be unobstructed.
- B. Defects: All defects discovered during the post-installation inspection shall be corrected before the work under the Contract will be considered for Substantial Completion. After the defects, if any, are corrected in accordance with manufacturer's recommendations, the affected pipe segments shall be inspected a second time as a follow-up inspection. All follow-up inspections will be performed by the Contractor, and all costs associated with such follow-up inspections associated with the correction of work shall be borne by the Contractor.

END OF SECTION

02722-7

**SECTION 02936
SEEDING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Preparation of seedbed.
- B. Seeding, mulching and fertilizer.
- C. Seedbed protection.
- D. Maintenance.

1.2 RELATED SECTIONS

- A. All sections.

1.3 MEASUREMENT AND PAYMENT

- A. Section 01250 – Measurement and Basis of Payment.

1.4 REFERENCES

- A. FSO-F-241 - Fertilizers, Mixed, Commercial.

1.5 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.6 REGULATORY REQUIREMENTS

- A. Comply with regulatory agency requirements for fertilizer and herbicide composition.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. All materials furnished in accordance with the requirements of this specification shall be delivered, where applicable, in sealed, unbroken packages bearing the brand and maker's name, and shall be stored on platforms and be properly covered to protect them from the weather and damage.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.8 COORDINATION

A. Coordinate work under provisions of Section 01039.

1.9 SUBMITTALS

A. Section 01300-Submittals: Procedure for submittals.

B. Submit seed mix products.

1.9 MAINTENANCE SERVICE

A. Maintain seeded areas immediately after placement and until a dense stand grass is well established and exhibits a vigorous growing condition two months after date of germination and over 70% of the ground is covered, as estimated by the field representative. Maintain seeded areas for a minimum of six months after application of the seeding materials. The Engineer reserves the right to accept seeded areas before completion of the six month period.

PART 2 PRODUCTS

2.1 SEED

A. Weed seed content not to exceed 1% by weight. Seed blend to be Certified Interagency Blue Tag and the certified Blue Tag shall be attached to **every** bag of seed.

B. Grass Seed Mix – Low Grow Grass Mixture as distributed by United Seeds, Inc., [website: www.unitedseeds.com](http://www.unitedseeds.com), or approved equal.

C. Bioswale Bed Mix (Plugs) – Deep cell plugs of the following species:

Scientific Name	Common Name	Spacing
Carex vulpinoidea	Brown Fox Sedge	24" O.C.
Carex breviar	Plains Oval Sedge	24" O.C.
Carex muskingumensis	Palm Sedge	24" O.C.
Panicum virgatum	Switchgrass	24" O.C.
Iris virginica	Great Blue Flag Iris	18" O.C.
Juncus effusus	Soft Rush	24" O.C.
Elymus virginicus	Virginia Wild Rye	24" O.C.

D. Bioswale Slope Mix – Seeding mixture of the follow species:

Scientific Name	Common Name	% of mix
Panicum virgatum	Switchgrass	20%
Carex vulpinoidea	Brown Fox Sedge	10%
Pascopyrum smithii	Western Wheatgrass	20%
Carex brevior	Pains Oval Sedge	10%
Bouteloua gracilis	Blue Grama Grass	20%
Elymus virginicus	Virginia Wild Rye	20%

E. Floodplain Seed Mix – Floodplain Mixture or approved equal as distributed by United Seeds, Inc.; [website: www.unitedseeds.com](http://www.unitedseeds.com), or approved equal.

F. A cover crop of Oats or Annual Rye will be uniformly drilled on all areas which seeding and mulching/matting. On areas not accessible to machinery, the seed may be uniformly broadcast and will be covered by use of a harrow. Cover crop seeding is to be completed within 7 calendar days, weather permitting, after earthwork is terminated.

2.2 SOIL MATERIALS

A. Topsoil: As specified in Section 02205.

2.3 ACCESSORIES

A. Mulch: Prairie hay or wheat straw are acceptable materials.

B. Fertilizer: Commercial composite fertilizer, uniform in composition, dry and free flowing. It shall bear the manufacturer's guaranteed statement of analysis which shall be 5-10-5 for original fertilization and 10-6-4 for refertilization with 50% organic nitrogen. Any fertilizer which becomes caked or otherwise damaged, rendering it unsuitable for use, will not be accepted.

C. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.

D. Erosion Control Blanket or Turf Reinforcement Mat: Section 02246 - Geotextiles.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that prepared soil base is ready to receive the work of this section.

3.2 PREPARATION OF SEEDBED

A. Prepare seedbed to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes into level areas.

B. Remove foreign materials, weeds and undesirable plants and their roots. Remove contaminated soil. Remove all debris and stones having any dimension greater than one inch.

C. Scarify subsoil to a depth of 4 inches to provide a seedbed loose enough to allow proper operation of the grass drill and mulch application equipment. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.

D. Rake finish surface smooth.

3.3 RATE OF APPLICATION:

- | | |
|-------------------------|--|
| A. Initial Fertilizing: | 1.5 lbs of Nitrogen per 1,000 SF. |
| B. Grass Seed Mix: | 32.0 PLS Pounds per Acre |
| Bioswale Bed Mix: | 1 plug per 2.5 SF, place per construction plans |
| Bioswale Slope Seed Mix | ½ PLS Pounds per SF |
| Floodplain Seed Mix: | 20.0 PLS Pounds per Acre |
| D. Refertilizing: | Spring: 0.5 lbs of Nitrogen per 1,000 SF.
Fall: 1.5 lbs of Nitrogen per 1,000 SF. |
| E. Prairie Hay Mulch: | 2 tons per acres |
| F. Wheat Straw Mulch: | 3 tons per acres |

3.4 FERTILIZING

A. Apply fertilizer to all seeded areas of composition and at a rate which will provide 40 pounds of available nitrogen and 40 pounds of available phosphate per acre.

B. Apply fertilizer in accordance with manufacturer's instructions.

C. Apply after preparation of topsoil.

D. Do not apply fertilizer at same time or with same machine as will be used to apply seed.

E. Mix thoroughly into upper 2 inches of topsoil.

F. Lightly water to aid the dissipation of fertilizer.

3.5 SEEDING

A. Apply seed after fertilizing using approved mechanical power-drawn drills equipped with press wheels or drag chains, or broadcast-type seeders. Do not use hydraulic seeders without written authorization from the Engineer. Using a standard lawn roller, harrow or hand rake and compact any areas seeded using a broadcast-type seeder or hydraulic seeder. Maintain a planting depth of ½ to ¾ inches when using a mechanical power-drawn drill.

B. The seed mixtures to be furnished will be uniformly drilled on all areas accessible to machinery, applying half the quantity in one direction, and the remaining quantity at right angles to it. On areas not accessible to machinery, the seed may be uniformly broadcast, and well covered by use of a harrow.

C. Do not sow seed on a windy day, or when the ground is frozen, wet or otherwise non-tillable. Do not seed area(s) in excess of that which can be mulched on same day.

D. Cover newly seeded area with mulch or erosion control blankets. Mulch or erosion control blankets shall be applied within twenty four (24) hours after planting seed.

E. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.

F. Dormant seeding preferably done when ground is not frozen according to methods above. If ground is frozen, apply seed with a no-till or slit seeder.

3.6 SEEDING SEASONS

A. Grass Seed Mix:

1. Spring: March to June
2. Fall: NA
3. Dormant: November to February

B. Bioswale Bed Mix:

1. Spring: March to June
2. Fall: NA
3. Dormant: NA

C. Bioswale Slope Seed Mix:

1. Spring: March to June
2. Fall: NA
3. Dormant: Mid November to March

D. Floodplain Seed Mix:

1. Spring: March to June
2. Fall: NA
3. Dormant: December to March

C. All disturbed soil areas shall be treated during the seeding season. Alternative dates authorized by the Engineer do not alter any warranty or establishment conditions or requirements. Perform dormant seeding after November 1. Do not perform seeding or fertilizing operations if the ground is wet, frozen, or otherwise untilable. Do not perform seeding or fertilizing operations when conditions do not allow for a uniform distribution of materials.

D. Cover Crop: As indicated on the cover crop seed mixes.

3.7 SEED PROTECTION

A. Where indicated by the drawings or the Engineer, install erosion control blanket or turf reinforcement mat (TRM) in accordance with Section 02246.

B. Except where erosion control blanket or TRM is required, apply mulch to all seeded areas. Place the mulch covering loosely enough to allow sunlight to penetrate and air to slowly circulate. Place the mulch covering at a thickness that shades the ground, reduces the rate of evaporation, and prevents or reduces erosion due to water or wind. Mulch shall be crimped into the ground by use of a weighted disk or other approved methods.

3.8 MAINTENANCE

A. Water as necessary to establish a dense healthy stand of grass. Water should be applied so that the topsoil is wet to a depth of two inches. Apply one complete coverage to the seeded area in an eight-hour period.

B. Control growth of weeds. Apply appropriate herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.

C. After the seed mixture has germinated, reseed all areas which have failed to show a uniform stand of germinated seed. Maintain all seeded areas until acceptance. Suggested maintenance items shall include, but not be limited to any or all of the following, whichever are necessary:

1. Regrading.
2. Refertilizing.
3. Reseeding.

4. Re-Hydromulching or repositioning or replacing erosion control blankets.
5. Watering.
6. Weeding.
7. Rolling.
8. Filling in eroded areas.

D. Second fertilization and overseeding shall be done:

1. In the Fall after a Spring seeding.
2. In the Spring after a Fall seeding.

E. Notify the OWNER in writing when the second fertilization and overseeding is to be done.

END OF SECTION

**SECTION 03100
CONCRETE FORMWORK**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Formwork for cast-in place concrete, Including shoring, bracing and anchorage.
- B. Openings for other work.
- C. Form accessories.
- D. Form stripping.

1.2 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

- A. Section 03300 - Cast-In-Place Concrete: Supply of concrete accessories for placement by this section.

1.3 RELATED SECTIONS

- A. All sections.

1.4 REFERENCES

- A. Act 347 - Recommended Practice for Concrete Formwork
- B. PS-1 - Construction and Industrial Plywood

1.5 MEASUREMENT AND PAYMENT

- A. Section 01250 – Measurement and Basis of Payment.

1.6 DESIGN REQUIREMENTS

- A. Design, engineer and construct formwork, shoring and bracing to conform to code requirements; resultant concrete to conform to required shape, line and dimension.

1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 301.

1.8 REGULATORY REQUIREMENTS

A. Conform to applicable codes for design, fabrication, erection and removal of formwork.

1.9 COORDINATION

A. Coordinate work under provisions of Section 01039.

B. Coordinate this Section with other Sections of work which require attachment of components to formwork.

C. If formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement before proceeding, request instructions from Engineer.

PART 2 PRODUCTS

2.1 FORM MATERIALS

A. Form Materials: At the discretion of the Contractor, but suitable for producing required quality of concrete construction.

2.2 FORMWORK ACCESSORIES

A. Form Ties: Snap-off type, galvanized metal, fixed or adjustable length, cone type, 1 inch back break dimension, free of defects that could leave holes larger than 1 inch in concrete surface.

B. Form Release Agent: Colorless mineral oil which will not stain concrete, absorb moisture or impair natural bonding or color characteristics of coating intended for use on concrete.

C. Corners: Chamfer, rigid plastic or wood strip 3/4 x 3/4 inch size; maximum possible Lengths.

D. Nails, Spikes, Lag Bolts, Through Bolts, and Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

B. Remove free standing water before placing concrete.

3.2 EARTH FORMS

A. Hand trim sides and bottom of earth forms. Remove loose soil prior to placing Concrete.

3.3 ERECTION- FORMWORK

A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.

B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.

C. Arrange and assemble formwork to permit dismantling and stripping damage concrete during stripping.

D. Align joints and make watertight. Keep form joints to a minimum.

E. Obtain approval before framing openings in structural members which are not indicated on drawings.

F. Provide chamfer strips and exposed external corners.

3.4 APPLICATION - FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.

B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

3.5 INSERTS, EMBEDDED PARTS, AND OPENINGS

A. Provide formed openings where required for items to be embedded in or passing through concrete work.

B. Locate and set in place items which will be cast directly into concrete.

C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.

D. Install accessories in accordance with manufacturer's instructions, straight, level, and plumb. Ensure items are not disturbed during concrete placement.

E. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.

F. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

3.6 FORM CLEANING

A. Clean forms as erection proceeds, to remove foreign matter within forms.

B. Clean formed cavities of debris prior to placing concrete.

C. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

D. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

3.7 FORMWORK TOLERANCES

A. Construct formwork to maintain tolerances required by ACI 301.

3.8 FIELD QUALITY CONTROL

A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.

3.9 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

C. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

END OF SECTION

**SECTION 03200
CONCRETE REINFORCEMENT**

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Reinforcing steel bars, wire fabric and accessories for cast-in-place concrete.

1.2 RELATED SECTIONS

A. All sections.

1.3 MEASUREMENT AND PAYMENT

A. Section 01250 - Measurement and Basis of Payment.

1.4 REFERENCES

A. ACI 301 - Structural Concrete for Buildings.

B. ASTM A82 - Cold Drawn Steel Wire for Concrete Reinforcement.

C. ASTM A184 - Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.

D. ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.

E. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.

F. AWS D12.1 - Welding Reinforcement Steel, Metal Inserts and Connections in Reinforced Concrete Construction.

G. CRSI - Placing Reinforcing Bars.

H. ASTM A884 - Epoxy-Coated Steel Wired and Welded Wire Fabric for Reinforcement.

I. CRSI 65 - Recommended Practice for Placing Bar Supports, Specifications and Nomenclature.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Shop Drawings: Indicate bar sizes, spacing, locations, and quantities of reinforcing steel and wire fabric, bending and cutting schedules, and supporting and spacing devices.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with CRSI Manual of Practice ACI 301.

1.7 QUALIFICATIONS

A. Design reinforcement under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of Iowa.

1.8 COORDINATION

A. Coordinate work under provisions of Section 01039.

B. Coordinate with placement of formwork, formed openings and other work.

PART 2 PRODUCTS

2.1 REINFORCEMENT

A. Reinforcing Steel: ASTM A615, 60 ksi yield grade; deformed billet steel bars, Unfinished.

B. Reinforcing Steel Fabricated Deformed Steel Bar Mats: ASTM A184, ASTM A615, grade 60 ksi steel bars or rods, unfinished.

C. Stirrup Steel: ASTM A82, unfinished.

D. Welded Steel Wire Fabric: ASTM A185 Plain Type; in flat sheets or coiled rolls; Unfinished.

2.2 ACCESSORY MATERIALS

A. Tie Wire: Minimum 16 gage annealed type.

B. Chairs, Bolsters, Bar Supports, and Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions.

2.3 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI Manual of Practice or ASTM A184.

B. Weld reinforcement in accordance with AWS D12.1.

C. Locate reinforcing splices not indicated on drawings, at point of minimum stress.

PART 3 EXECUTION

3.1 PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position.

B. Do not displace or damage vapor barrier.

C. Accommodate placement of formed openings.

D. Conform to applicable code for concrete cover over reinforcement.

END OF SECTION

**SECTION 03300
CAST-IN-PLACE CONCRETE**

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Cast-in-place concrete

1.2 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

A. Section 03100 -Concrete Formwork

1.3 RELATED SECTIONS

A. All sections

1.4 MEASUREMENT AND PAYMENT

A. Section 01250 - Measurement and Basis of Payment

1.5 REFERENCES

A. ACI 301 -Structural Steel Concrete for Buildings

B. ACI 302 -Guide for Concrete Floor and Slab Construction

C. ACI 304 -Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete

D. ACI 305R -Hot Weather Concreting

E. ACI 306R -Cold Weather Concreting

F. ACI 308 -Standard Practice for Curing Concrete

G. ASTM 03405 -Concrete Joint Sealer, Hot-Poured Elastic Type

H. ASTM D1751 -Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction
(Non-extruding and Resilient Bituminous Types)

I. ASTM C33 -Concrete Aggregates

J. ASTM C94 -Ready-Mixed Concrete

K. ASTM C150 -Portland Cement

L. ASTM C260 -Air Entraining Admixtures for Concrete

M. ASTM C494 -Chemicals Admixtures for Concrete

N. ASTM C618 -Fly Ash and Raw or Calcinated Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

1.6 SUBMITTALS

A. Submit under provisions of Section 01300

B. Submit aggregate gradation analysis and notarized certification that aggregate supplier IS approved aggregate source for Iowa Department of Transportation.

C. Submit proposed mix design of each class of concrete for review before commencement of work. Submit notarized certification by supplier that concrete supplied meets project requirements.

1.7 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01700

B. Accurately record actual locations of embedded utilities and components which are concealed from view

1.8 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301

B. Acquire cement and aggregate from same source for all work

C. Conform to ACI 30SR when concreting during hot weather

D. Conform to ACI 306R when concreting during cold weather

1.9 COORDINATION

A. Coordinate work under provisions of Section 01039

B. Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories

PART 2 PRODUCTS

2.1 CONCRETE MATERIALS

A. Cement: ASTM C150, Type IIA -Air Entraining

B. Fine and Coarse Aggregates: From Iowa Department of Transportation approved source.

C. Coarse Aggregate: Crushed Limestone of the following gradation

Total Percent Retained	Optimum	Minimum	Maximum
1-1.5 inch sieve	0	0	0
1 inch sieve	0	0	8
¾ inch sieve	22	10	34
3/8 inch sieve	70	55	85
No. 4 sieve	94	88	100
No. 20 sieve	97	94	100

D. Fine Aggregate: Sand/Gravel of the following gradation.

Total Percent Retained	Optimum	Minimum	Maximum
1 inch sieve	0	0	0
No. 4 sieve	13	3	23
No. 10 sieve	40	30	50
No. 30 sieve	72	60	84
No. 200 sieve	98.5	97	100
Clay Lumps	Less than 0.5% by weight		

E. Water: Clean and not detrimental to concrete

2.2 ADMIXTURES

A. Air Entrainment: ASTM C260

B. Chemical: ASTM C494

C. Fly Ash: ASTM C618

2.3 ACCESSORIES

A. Curing Compound: FS TT-C-800, Type 1, 30 percent solids

B. Joint Sealant: ASTM D3405

C. Non-Shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days.

D. Joint Filler Type A: ASTM 01751, ASTM 0994; Asphalt impregnated fiberboard or felt, 1 inch thick

E. Water Stops: Bulb-type, ribbed water stop, 9-inches wide, 3/8-inch web thickness, bulb I.D. 7/8-inch, bulb O.D. 1 3/8-inch, Green streak #738, or approved equal.

2.4 CONCRETE MIX

A. Mix and deliver concrete in accordance with ASTM C94

B. Select proportions for normal weight concrete in accordance with ACI 301

C. Provide concrete to the following criteria:

1. Mix Design similar to Iowa Department of Transportation Class C Concrete
2. Compressive Strength (28 days): 4,000 psi, minimum
3. Slump: 3 to 4 inches
4. Maximum Water/Cement Ratio: 0.53.

D. Use accelerating admixtures in cold weather only when approved by Engineer. Use of admixtures will not relax cold weather placement requirements.

E. Use set retarding admixtures during hot weather only when approved by Engineer

F. Add air entraining agent to normal weight concrete mix for work exposed to exterior (5% to 7.5% by volume of plastic concrete)

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site conditions under provisions of Section 01039

B. Verify requirements for concrete cover over reinforcement

C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

3.2 PREPARATION

- A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions
- B. In locations where new concrete is dowelled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout
- C. Moisten subgrade to minimize absorption of water from fresh concrete

3.3 PLACING CONCRETE

- A. Place concrete in accordance with ACI 301.
- B. Notify Engineer at least 24 hours prior to commencement of operations.
- C. Ensure reinforcement, inserts, embedded parts, and formed joint fillers are not disturbed during concrete placement
- D. Install joint fillers and sealant in accordance with manufacturer's instructions
- E. Separate slabs on grade from vertical surfaces with 1 inch thick joint filler
- F. Extend joint filler from bottom of slab to within 1 inch of finished slab surface
- G. Install joint devices in accordance with manufacturer's instructions
- H. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- I. Place concrete continuously between predetermined expansion, control, and construction joints
- J. Saw cut joints within 24 hours after placing. Use 3/16 inch thick blade, cut into 1/4 depth of slab thickness.
- K. Screed slabs on grade, maintaining surface tolerance of maximum 1/4 inch deviation from finish grade in 10ft.

3.4 CONCRETE FINISHING

- A. Provide concrete surfaces to be left exposed with sand float finish

3.5 CURING AND PROTECTION

- A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury

- B. Exclude vehicular traffic from standard concrete slab components for at least seven (7) days
- C. Cure concrete in accordance with ACI 308 or by applying curing compound in accordance with manufacturer's recommendations
- D. Leave forms in place until concrete has cured sufficiently to support its own weight and allow form removal without damage to the concrete

3.6 FIELD QUALITY CONTROL

- A. Testing and analysis will be performed in accordance with ACI 301
- B. Take three concrete test cylinders for every 100 or less cubic yards of each class of concrete placed each day
- C. Take one additional test cylinder during cold weather and cure on-site under same conditions as concrete it represents
- D. Deliver test cylinders to an independent laboratory for testing at 7 days and 28 days with one spare
- E. Submit copies of each test to the Owner and the Engineer

3.7 PATCHING

- A. Allow Engineer to inspect concrete surfaces immediately upon removal of forms
- B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Engineer upon discovery.
- C. Patch imperfections in accordance with ACI 301

3.8 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Need for and extent of repair or replacement of defective concrete will be determined by the Engineer
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon expressed approval of Engineer of the procedure proposed by Contractor for each individual defective area.

3.9 CONCRETING IN COLD WEATHER

A. When the atmosphere temperature may be expected to drop below 40°F at the time concrete is delivered to the work site, during placement, or at any time during the curing period, the following provisions also shall apply:

1. The temperature of the concrete at time of placing shall not be less than 50°F nor more than 90°F. The temperature of neither aggregates nor mixing water shall be more than 100°F just prior to mixing with the cement.
2. When the daily minimum temperature is less than 40°F, concrete structures shall be insulated or housed and heated after placement. The temperature of the concrete and air adjacent to the concrete shall be maintained at not less than 50°F or more than 90°F for the duration of the curing period.
3. Methods of insulating, housing and heating the structure shall conform to "Recommended Practice for Cold Weather Concreting," ACI Standard 306.
4. The use of accelerations or antifreeze compounds will not be allowed.
5. When dry heat is used to protect concrete, means of maintaining an ambient humidity of at least 40% shall be provided unless the concrete has been coated with curing compound as specified in Section 3.6 or is covered tightly with an approved impervious material.

3.10 CONCRETING IN HOT WEATHER

A. When climatic or other conditions are such that the temperature of the concrete may reasonably be expected to exceed 90°F at the time of delivery at the work site, during placement, or during the first 24 hours after placement, the following provisions also shall apply:

1. The Contractor shall maintain the temperature of the concrete below 90°F during mixing, conveying, and placing. Methods used shall conform to "Recommended Practice for Hot Weather Concreting," ACI Standard 605.
2. The concrete shall be placed in the work immediately after mixing. Truck mixing shall be delayed until only time enough remains to accomplish it before the concrete is placed.
3. Exposed concrete surfaces which tend to dry to set too rapidly shall be continuously moistened by means of fog sprays or otherwise protected from drying during the time between placement, and finishing and after finishing.
4. Finishing of slabs and other exposed surfaces shall be started as soon as the condition of the concrete allows and shall be completed without delay.

5. Concrete surfaces exposed to the air shall be covered as soon as the concrete has hardened sufficiently and shall be kept continuously wet for at least the first 24 hours of the curing period, and for the entire curing period.

**SECTION 05500
METAL FABRICATIONS**

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Shop fabricated ferrous metal items, galvanized.

1.2 RELATED SECTIONS

A. All applicable sections.

1.3 MEASUREMENTS AND PAYMENTS

A. Section 01250 - Measurement and Basis of Payment.

1.4 REFERENCES

A. ASTM A36 – Structural Steel

B. ASTM A153 – Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

C. ASTM A283 – Carbon Steel Plates, Shapes, and Bars.

D. ASTM A307 – Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

E. ASTM A325 – High Strength Bolts for Structural Steel Joints.

F. SSPC – Steel Structures Painting Council.

G. ASTM A53 - Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless

H. ASTM A595 - Steel Tubes, Low-Carbon or High-Strength Low-Alloy, Tapered for Structural Use

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

1.6 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on Drawings.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Trash Rack: Grating Pacific 2 1/4" x 3/16" 19-G-4 Trash Rack (or approved equal)
- B. Steel Channel: ASTM A36 C12x25 Steel Channel galvanized to ASTM A153 for galvanized component.
- C. Orifice Plate: 5/16" 303 or 304 Stainless Steel Plate
- D. Safety Grate: HALAA PS4X5H Safety Grate (or approved equal)
- E. Steel Pipe: ASTM A53, Grade B, Schedule 40, Stainless or Galvanized Steel
- F. Steel Tube: ASTM A595, Stainless or Galvanized Steel
- G. Anchor Bolts: Stainless Steel or ASTM A307 galvanized to ASTM A153 for galvanized component or stainless steel. Material must be consistent with object that is being bolted.
- H. Bolts, Nuts, Brackets and Washers: Stainless Steel or ASTM A325 galvanized to ASTM A153 for galvanized component. Material must be consistent with object that is being bolted.
- I. Shop and Touch-up primer for galvanized surfaces: SSPC 20, Type I, inorganic.
- J. Chemical Anchors: Power-fast epoxy injection gel (warm weather) or acrylic-100 anchor (cold weather) as manufactured by Powers Fastener and Distributed by Concrete Industries, Inc., or approved equal.

2.2 FABRICATION

- A. Fit and shop assemble in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Continuously seal joined members by continuous welds along all adjoining edges.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.3 FINISHES

- A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- B. Smooth any rough or sharp edges or areas.
- C. Coat bare metal edges or areas with touch up primer for galvanized surfaces.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Beginning of installation means erector accepts existing conditions.

3.2 PREPARATION

- A. Supply items required to be cast into concrete with setting templates, to appropriate sections.

3.3 INSTALLATION

3.4 INSTALL ITEMS PLUMB AND LEVEL, ACCURATELY FITTED, FREE FROM DISTORTION OR DEFECTS.

- A. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- B. Obtain Engineer approval prior to site cutting or making adjustments not scheduled.
- C. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.
- D. Install necessary and required accessories.
- E. Check installed fabrications for proper and easy operation where applicable.

3.5 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: ¼ inch.
- B. Maximum Offset from True Alignment: ¼ inch.