
SPECIFICATIONS

FOR

MIDDLE SCHOOL ACCESS ROAD IMPROVEMENTS

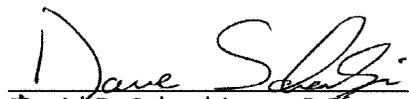
WEST BRANCH, IOWA

**SPECIFICATIONS
FOR
MIDDLE SCHOOL ACCESS ROAD IMPROVEMENTS
WEST BRANCH, IOWA**

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signed:

Date:



June 12, 2012

David R. Schechinger, P.E.

Iowa License No. 16538

My license renewal date is December 31, 2012



Detailed parts covered by this seal:

ALL

Prepared by
VEENSTRA & KIMM, INC.
Coralville,
Iowa

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MIDDLE SCHOOL ACCESS ROAD IMPROVEMENTS
WEST BRANCH, IOWA

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NOTICE OF HEARING AND LETTING

NOTICE OF PUBLIC HEARING ON PROPOSED PLANS AND SPECIFICATIONS, PROPOSED FORM OF CONTRACT AND ESTIMATE OF COST FOR CONSTRUCTION OF MIDDLE SCHOOL ACCESS ROAD IMPROVEMENTS FOR THE CITY OF WEST BRANCH, IOWA, AND THE TAKING OF BIDS THEREFOR

Notice is hereby given that the City Council of West Branch, Iowa will meet in the Council Chambers at the City Hall, 110 Poplar Street, West Branch, Iowa, on the 25th day of June, 2012 at 7:00 P.M. at which time a hearing will be held and said Council proposes to adopt plans, specifications, form of contract and estimate of cost for the construction of the Middle School Access Road Improvements and work incidental thereto for said City.

Sealed proposals will be received by the City Clerk of the City of West Branch, Iowa in the office of the City Clerk, 110 Poplar Street, West Branch, Iowa 52358, until 2 P.M. on the 22nd day of June, 2012 for the construction of the Middle School Access Road Improvements. Proposals will be opened and the amount of the bids announced by the City Clerk at the time and date specified above. Proposals will be acted upon by said City at the June 25th Council Meeting or at such later time and place as then may be fixed.

The location of the work to be done and the kinds and sizes of materials proposed to be used are as follows:

MIDDLE SCHOOL ACCESS ROAD IMPROVEMENTS

Provide all labor, equipment and materials necessary to construct approximately 310 feet of 25 foot wide 8" HMA urban section with 2.5 foot PCC curb and gutter, 166 feet of storm sewer, and 248 square yards of sidewalk. Work includes excavation, construction staking, subgrade preparation, intakes, storm sewer, surface restoration and miscellaneous associated work, including cleanup.

All work and materials are to be in accordance with the proposed plans, specifications, form of contract and estimate of cost now on file in the office of the City Clerk of West Branch, Iowa, and by this reference made a part thereof as though fully set out and incorporated herein.

At said hearing, the City Council will consider the proposed plans, specifications, form of contract and estimate of cost for the project, the same now being on file in the office of the City Clerk, reference to which is made for a more detailed and complete description of the proposed improvements, and at said time and place the said Council will also receive and consider any objections to said plans, specifications and form of contract or to the estimate cost of said improvements made by any interested party.

Notice of Hearing and Letting

All proposals and bids in connection therewith shall be submitted to the City Clerk of said City on or before the time herein set for receiving bids. All proposals shall be made on official bidding blanks furnished by the City, and any alternations in the official form of proposal will entitle the Council, at its option, to reject the proposal involved from consideration. Each proposal shall be sealed and plainly identified.

Each proposal shall be made out on a blank form furnished by the municipality and must be accompanied in a sealed envelope by either (1) a certified or cashier's check drawn on a solvent Iowa bank or a bank chartered under the laws of the United States or a certified share draft drawn on a credit union in Iowa or chartered under the laws of the United States, in an amount equal to five percent (5%) of the bid, or (2) a bid bond executed by a corporation authorized to contract as a surety in the State of Iowa, in the penal sum of five percent (5%) of the bid.

The bid security should be made payable to the CITY OF WEST BRANCH, IOWA. The bid security must not contain any conditions either in the body or as an endorsement thereon. The bid security shall be forfeited to the City as liquidated damages in the event the successful bidder fails or refuses to enter into a contract within 10 days after the award of contract and post bond satisfactory to the City insuring the faithful fulfillment of the contract and the maintenance of said work, if required, pursuant to the provisions of this notice and other contract documents. Bidders shall use the bid bond form bound in the specifications.

By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor, to the extent lawfully required under Iowa Statutes.

The City Council reserves the right to reject any or all bids and to waive informalities or technicalities in any bid and to accept the bid which it deems to be in the best interest of the City.

The Council reserves the right to defer acceptance of any proposal for a period not to exceed thirty (30) calendar days from the date of Hearing and Letting.

The successful bidder will be required to furnish a bond in an amount equal to one hundred percent (100%) of the contract price, said bond to be issued by a responsible surety approved by the City Council and shall guarantee the faithful performance of the contract and the terms and conditions therein contained and shall guarantee the prompt payment for all materials and labor and protect and save harmless the City from claims and damages of any kind caused by the operations of the Contractor, and shall guarantee the work against faulty workmanship and materials for a period of four (4) years after its completion and acceptance by the City Council.

Notice of Hearing and Letting

The work will commence within ten (10) days after written Notice to Proceed and shall be complete by August 15, 2012.

Liquidated damages in the amount of Two Hundred Dollars (\$200.00) per consecutive calendar day will be assessed for each day that work shall remain uncompleted after the end of the contract period, with due allowance for extensions of the contract period due to conditions beyond the control of the Contractor.

Payment to the Contractor for said improvements will be made in cash derived from the proceeds of the issuance and sale of such bonds and/or from such cash funds of the City as may be legally used for said purposes. Any combination of the above methods of payment may be used at the discretion of the City Council.

Payment to the Contractor will be on the basis of monthly estimates equivalent to ninety-five percent (95%) of the contract value of the work completed and payments made to material suppliers for materials ordered specifically for the project or delivered to the site during the preceding calendar month. Estimates will be prepared on the last day of each month by the Contractor, subject to the approval of the Engineer, who will certify to the City for payment each approved estimate on or before the tenth (10th) day of the following month. Such monthly payments shall in no way be construed as an act of acceptance for any part of the work partially or totally completed. Upon completion of the work and its acceptance by the Council, the Contractor will be paid an amount which, together with previous payments, will equal ninety-five percent (95%) of the contract price of the contract. Final payment of the remaining five percent (5%) will be made not less than thirty-one (31) days after completion and acceptance by resolution of the City Council of the completed contract, subject to the conditions and in accordance with the provisions of Chapter 573 of the Code of Iowa, as amended. No such partial or final payments will be due until the Contractor has certified to the City that the materials, labor and services involved in each estimate have been paid for in accordance with the requirements stated in the specifications.

The City will issue a sales tax exemption certificate applicable for all materials purchased for the project.

Plans and specifications governing the construction of the proposed improvements have been prepared by VEENSTRA & KIMM, INC. of Coralville, Iowa, which plans and specifications and the proceedings of the City Council referring to and defining said improvements are hereby made a part of this notice and the proposed contract by reference, and the proposed contract shall be executed to comply therewith.

Notice of Hearing and Letting

Copies of said plans and specifications are now on file in the office of the City Clerk, for examination by bidders. Copies are available from TECHNIGRAPHICS, 415 Highland Avenue, Suite 100, Iowa City, Iowa 52240. Contact Jill Chambers at 319-354-5950 or email jchambers@techiowa.com. A refundable deposit of \$30 is required. Please make checks to Veenstra & Kimm, Inc. Mail said deposit checks to Technigraphics, 415 Highland Avenue, Suite 100, Iowa City, Iowa 52240, Attn: Jill Chambers. Upon receiving deposit check, plans and specifications will be mailed out. When plans and specifications are returned in good condition within 14 days of the award date of the project, deposit checks will be returned.

This notice is given by order of the Council of the City of West Branch, Iowa.

CITY OF WEST BRANCH, IOWA

Don Kessler, Mayor

ATTEST:

Matt Muckler, City Administrator

INSTRUCTIONS TO BIDDERS

MIDDLE SCHOOL ACCESS ROAD IMPROVEMENTS
WEST BRANCH, IOWA

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1. DEFINITION OF TERMS

- A. "Owner", and "City" shall mean the City of West Branch, Iowa, acting through the City Council or an authorized representative of the City Council.
- B. "Person" shall mean any individual, partnership, society, association, joint stock company, corporation, estate, receiver, trustee, assignee or referee, whether appointed by a court or otherwise, and any combination of individuals.
- C. "Bidder" shall mean any person who submits a proposal to furnish the work described in the Contract Documents.
- D. "Contractor" shall mean the person with whom the Owner may enter into contract for the execution of the work specified.
- E. "Subcontractor" shall mean the person supplying materials, labor, equipment and appurtenances for the work, such person having contractual relations with the Contractor, but not with the Owner.
- F. "Engineer" shall mean VEENSTRA & KIMM, INC., Coralville, Iowa.
- G. "Standard Drawings" shall mean construction detail drawings bound with these specifications.

- H. "Work" shall mean the work to be done and the equipment, supplies and materials to be furnished under the contract, unless some other meaning is indicated by the context.
- I. "Station", "Sta." shall mean one hundred (100) linear feet measure.

2. CONTRACT DOCUMENTS

- A. Contract Documents, sometimes referred to as the "plans and specifications", shall mean and include the following parts as used herein:
 - 1. Notice of Hearing and Letting
 - 2. Instructions to Bidders
 - 3. Proposal
 - 4. Contract
 - 5. Bond
 - 6. General Conditions
 - 7. Special Conditions
 - 8. Plans List
 - 9. Detailed Specifications
 - 10. Plans listed in the Specifications
 - 11. Numbered addenda issued to the foregoing.

3. METHOD OF BIDDING

- A. Bidders shall submit unit and lump sum prices for work covered by the plans and specifications. Prices shall cover complete work and include all costs incidental thereto, unless indicated otherwise.
- B. Bids will be computed using quantities shown on Proposal. Where unit price bids are called for, quantities are approximate and only for comparison of bids. Engineer retains right to change location, quantities and combination of units be required during progress of construction. Compensation due Contractor will be computed on basis of final quantities of completed work.
- C. In the event of discrepancies between unit prices and unit price extensions listed in bidder's proposal, unit prices shall govern and unit price extensions shall be corrected, as necessary, for agreement with unit prices. The total price will be determined on the basis of corrected extensions of the unit price.
- D. Unit prices for payment items included in the specifications, but not listed in the Proposal, will be negotiated, if needed.

4. QUALIFICATIONS OF BIDDERS

- A. Bidders shall be prepared to satisfy Owner as to integrity, experience, adequacy of equipment and personnel, and financial ability to perform work specified.
- B. If successful bidder is a non-Iowa corporation, he shall submit proof to Owner prior to execution of contract that he has been authorized by Secretary of State to do business in Iowa.

5. SUBMISSION OF BIDS

- A. Bidders shall submit the Proposal stamped "Official Bid" and the Proposal stamped "Engineer's Copy". The Proposal stamped "Official Bid" is considered the original Proposal and shall be used for bidding. The copy of the Proposal stamped "Engineer's Copy" is for the use of the Engineer. The copy of the Proposal stamped "Bidder's Copy" is for the use of the Bidder. Submit in a sealed envelope. Envelope shall bear return address of the bidder and shall be addressed as follows:

To:

City Clerk
City of West Branch
110 Poplar Street
West Branch, IA 52358

Proposal for:

Middle School Access Road
Improvements

- B. Bids shall be signed by a legally authorized representative of the bidder.
- C. Bidders shall submit the specified bid security with the Proposal.

6. EVALUATION OF BIDS

- A. Award of contract will be made on the lowest, responsive, responsible bid that is in the best interest of the City of Solon.
- B. Time of completion of the work, delivery dates, experience and responsibility of the bidder will be considered in determining which bid is in the Owner's best interests.

- C. Low bid will be determined on basis of lowest responsive bid from responsible bidder.

7. WITHDRAWAL OF BIDS

- A. A bidder may withdraw his bid at any time prior to scheduled closing time for a receipt of bids, but no bid shall be withdrawn for a period of 30 calendar days from the date of receiving bids.

8. BID SECURITY

- A. Each bid shall be accompanied by bid security in the form and amount set out in the Notice of Hearing and Letting.
- B. Bid security shall be enclosed in the sealed envelope with the bid or in a separate sealed envelope.
- C. The bid security shall be forfeited and become the property of the Owner in case the Bidder fails or refuses to enter into contract and to furnish bond within 10 calendar days after his proposal shall have been accepted.
- D. Bid security of the unsuccessful bidders will be returned as soon as the successful bidder is determined or within 30 calendar days, whichever is sooner; bid security of successful bidder will be returned upon execution of contract and furnishing of bond.
- E. Bidders shall use bid bond form included with specifications.

9. EXAMINATION OF WORK

- A. Bidders shall familiarize themselves with the specifications and with all conditions which will affect construction. It will be assumed that bidders have made a personal examination of the job and the physical conditions affecting the work.

10. EXECUTION OF CONTRACT

- A. The successful bidder shall enter into a written contract with the Owner, within 10 days after acceptance of his proposal on the forms included with these specifications, for the performance of the work awarded to him.

- B. The contract, when executed, shall be deemed to include the entire agreement between the parties hereto, and the Contractor shall not claim any modification thereof resulting from any representation or promise made at any time by any representative of the Owner or any other person.

11. CONTRACT TERMINATION

- A. Provisions of law, as contained in Chapter 573A of the Code of Iowa shall apply to and be a part of this contract. Chapter 573A provides for termination of contracts for construction of public improvements when construction or work thereon is stopped because of a national emergency. The provisions of Chapter 573A shall be binding upon all parties thereto, including subcontractors and sureties upon any bond given or filed in connection therewith.

12. TAXES

- A. The City will issue a sales tax exemption certificate for all materials purchased on the project. The City will issue the appropriate tax exemption certificates and authorization letters to the Contractor and all subcontractors completing work on the project. Tax exemption certificates are applicable only for the specific project for which the tax exemption certificate is issued.
- B. Contractor shall provide a listing to the City identifying all appropriate subcontractors qualified for use of the tax exemption certificate. Contractor and subcontractors may make copies of the certificate and provide, to each supplier providing construction material, a copy of the tax exemption certificate.
- C. Successful bidder is subject to payment of Iowa income tax on income from this work in amounts prescribed by law. If successful bidder is a non-Iowa partnership, individual or association, he shall furnish evidence prior to execution of contract, that bond or securities have been posted with the Iowa Department of Revenue in the amount required by law.

13. PREFERENCE FOR LABOR AND MATERIALS

- A. By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor, to the extent lawfully required under Iowa Statutes; provided that the award of contract will be made to the lowest responsible bidder submitting the lowest responsive bid. The Iowa Reciprocal Preference Act

(SF 2160) applies to the contract with respect to bidders who are not Iowa residents.

14. PAYMENT

- A. Payment will be made in accordance with the payment provisions set out in Notice of Hearing and Letting.
- B. Payment will be made on the basis of estimates prepared by Contractor and approved by Engineer, solely for the purpose of payment; approval by Engineer shall not be deemed approval of workmanship or materials.

15. APPROVAL OF MATERIALS

- A. Approval of substitutions of any materials or equipment other than that specified shall be obtained in writing from Engineer. Otherwise, it will be assumed Contractor will furnish materials or equipment specified.

16. PERIOD OF GUARANTEE AND BOND

- A. Contractor shall guarantee work for period of four (4) years from date of final acceptance as provided for in the Code of Iowa. Surety bond furnished by Contractor shall run for a like period.

17. SOIL BORINGS

- A. Soil borings have not been made along proposed route of work. Bidders shall familiarize themselves with the actual and anticipated soil conditions. Soil conditions and groundwater actually encountered during construction may vary from conditions experienced during bidding examination.
- B. Obtain approval of Owner to make soil borings along proposed route of work.

PROPOSAL

MIDDLE SCHOOL ACCESS ROAD IMPROVEMENTS
WEST BRANCH, IOWA

Name of Bidder _____

Address of Bidder _____

To: City Council
City of West Branch
110 Poplar Street
West Branch, IA 52358

The undersigned bidder submits herewith bid security amounting to five percent (5%) of the total amount of the bid which shall become the property of the City of West Branch should the undersigned fail or refuses to execute a contract and to furnish bond as called for in the specifications within the time provided.

The undersigned bidder, having examined the Contract Documents, and having familiarized himself with the nature and location of the work to be done and the conditions under which the work will be performed, hereby proposes to provide the required labor, services and materials and to perform the work described in the specifications, and addenda __, __, __, __ and __, within the time and for the sum or sums stated hereinafter on attached proposal schedule, which proposal schedule is hereby made a part of this Proposal.

The undersigned bidder certifies that this proposal is made in good faith, without collusion or connection with any other person or persons bidding on the work.

The undersigned bidder states that this proposal is made in conformity with the specifications and agrees that in the event of any discrepancies or differences between any conditions of his proposal and the specifications prepared by VEENSTRA & KIMM, INC., that the provisions of the latter shall prevail.

Bidder _____

By _____

Title _____

PROPOSAL SCHEDULE

MIDDLE SCHOOL ACCESS ROAD IMPROVEMENTS

1. Construct Middle School Access Road Improvements for the following unit and lump sum prices:

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Extended Price</u>
1.1	Construction Staking	LS	xxxxx	xxxxx	\$ _____
1.2	Traffic Control	LS	xxxxx	xxxxx	_____
1.3	Mobilization	LS	xxxxx	xxxxx	_____
1.4	Stabilizing Materials	CY	50	\$ _____	_____
1.5	Excavation	CY	256	_____	_____
1.6	Silt Fence	LF	405	_____	_____
1.7	Seeding	LS	xxxxx	xxxxx	_____
1.8	Granular Surfacing	Tons	5	_____	_____
1.9	Storm Sewer in Place, HDPE, 18"	LF	166	_____	_____
1.10	Intakes	Ea	2	_____	_____
1.11	Hydrant Adjustment	Ea	1	_____	_____
1.12	Concrete Curb & Gutter	LF	502	_____	_____
1.13	PCC Sidewalk			_____	_____
1.13.1	4"	SY	248	_____	_____
1.13.2	6"	SY	16	_____	_____
1.14	PCC Pavement	SY	69	_____	_____
1.15	HMA			_____	_____
1.15.1	Base Course, ¾"	Tons	125	_____	_____
1.15.2	Intermediate Course, ½"	Tons	65	_____	_____
1.15.3	Surface Course, ½"	Tons	65	_____	_____
1.16	Asphalt Binder, pg 58-28	Tons	16	_____	_____
1.17	Pavement Removal/Milling	SY	656	_____	_____

Total Bid (Items 1.1-1.17) \$ _____

2. The work will commence within ten (10) calendar days after the date set forth in written Notice to Proceed. All work on the project shall be completed as set out in the Notice of Hearing and Letting.
3. Liquidated damages in the amount of Two Hundred Dollars (\$200.00) per consecutive calendar day will be assessed for each day that work shall remain uncompleted after the end of the contract period with due allowance for extensions of the contract period due to conditions beyond the control of the Contractor.

4. Due allowances for extensions of the contract period due to conditions beyond the control of the Contractor shall be considered by the Owner. Inclement weather shall not be considered as a cause for extensions of the contract period for average or below average precipitation totals during the contract period.

BID BOND

KNOW ALL MEN BY THESE PRESENTS: That we,

_____ as Principal and

_____ of _____ as Surety, are held and firmly bound unto the City of West Branch, Iowa, hereinafter defined as Obligee, in the penal sum of five percent (5%) of the total amount of the bid (\$ _____), for which payment said Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

The condition of the above obligation is such that whereas the Principal has submitted to the City of West Branch, Iowa, a certain bid, in a sealed envelope, and hereby made a part hereof to enter into a contract in writing, for: Middle School Access Road Improvements.

NOW THEREFORE, if the said bid by said Principal be accepted, and the Principal shall enter into a contract with the Obligee in accordance with the terms of such bid, and give such bond as may be specified in the contract documents with good and sufficient surety for the faithful performance of such contract, for the prompt payment of labor and material furnished in the prosecution thereof, and for the maintenance of said improvements as may be required therein, then this obligation shall become null and void or in the event of the failure of the Principal to enter such contract and give such bond, the Principal shall pay to the Obligee the full amount of the bid bond, together with court costs, attorney's fees, and any other expense of recovery.

Signed and sealed this _____ day of _____, 20 ____.

Principal

By _____
Contractor's Signature

Surety

By _____
Attorney-in-Fact

CONTRACT

THIS AGREEMENT, made and entered into this _____ day of _____, 2012, by and between the City of West Branch, Iowa, party of the first part, hereinafter referred to as the "Owner", and _____ party of the second part, hereinafter referred to as the "Contractor".

WITNESSETH: THAT WHEREAS, the Owner has heretofore caused to be prepared certain specifications and proposal blanks, dated the _____ day of _____, 2012, for Middle School Access Road Improvements, under the terms and conditions therein fully stated and set forth, and,

WHEREAS, said specifications and proposal blanks accurately and fully describe the terms and conditions upon which the Contractor is willing to perform the work specified:

NOW, THEREFORE, IT IS AGREED:

1. That the Owner hereby accepts the proposal of the Contractor for the work, as follows:

2. That this contract consists of the following component parts which are made a part of this agreement and contract as fully and absolutely as if they were set out in detail in this contract:
 - A. Contract Documents, including:
 1. Notice of Hearing and Letting
 2. Instructions to Bidders
 3. Proposal
 4. Bond
 5. General Conditions
 6. Special Conditions
 7. Plans List
 8. Detailed Specifications
 9. Plans listed in the specifications.
 10. Numbered addenda issued to the foregoing.
 - B. This Instrument.
 - C. The above components are complementary and what is called for by one shall be as binding as if called for by all.
3. That payments are to be made to the Contractor in accordance with and subject to the provisions embodied in the documents made a part of this contract.
4. That this contract is executed in triplicate.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hand and seal the date first written above.

CONTRACTOR

CITY OF WEST BRANCH, IOWA

By _____

Mayor

Title _____

ATTEST:

ATTEST:

City Administrator

Title _____

BOND

KNOW ALL MEN: That we, _____,
of _____, hereinafter called the Principal, and
_____,
hereinafter called the Surety, are held and firmly bound unto the City of West Branch,
Iowa, hereinafter called the Owner in the sum of _____

_____ Dollars (\$ _____), for the payment whereof the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly, by these presents.

WHEREAS, the Principal has, by means of a written Agreement dated _____, 2012, entered into a Contract with the Owner for Middle School Access Road Improvements project, which Agreement includes a guarantee of all work against defective workmanship and materials for a period of four (4) years from the date of final acceptance of the work by the Owner, a copy of which Agreement is by reference made a part hereof;

Now, therefore, the condition of this Obligation is such that, if the Principal shall faithfully perform the Contract on his part and shall fully indemnify and save harmless the Owner from all costs and damage which he may suffer by reason of failure so to do and shall fully reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any such default,

And Further, that if the Principal shall pay all persons who have contracts directly with the Principal for labor or materials, failing which such persons shall have a direct right of action against the Principal and Surety under this Obligation, subject to the Owner's priority,

Then this Obligation shall be null and void, otherwise it shall remain in full force and effect.

Provided, however, that no suit, action or proceeding by reason of any default whatever shall be brought on this Bond after five (5) years from the date of final acceptance of the work.

And Provided, that any alterations which may be made in the terms of the Contract, or in the work to be done under it, or the giving by the Owner of any extension of time for the performance of the Contract, or any other forbearance on the part of either the Owner or the Principal to the other shall not in any way release the Principal and the Surety, or either of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety of any such alteration, extension or forbearance being hereby waived.

And Further Provided, the Principal and Surety 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 which the Owner shall retain until completion of the improvements, but the Principal and Surety shall not be liable to said persons, firms, or corporations unless the claims of said claimants against said portions of the contract price shall have been established as provided by law.

The Surety on this Bond shall be deemed and held, any contract to the contrary notwithstanding, to consent without notice:

- a. To the extension of time to the Principal in which to perform the Contract.
- b. To changes in the plans, specifications, or Contract, when such changes do not involve an increase of more than twenty percent (20%) of the total contract price, and shall then be released only as to such excess increase.
- c. That no provision of this Bond or of any other contract shall be valid which limits to less than five (5) years from the date of final acceptance of the work the right to sue on this Bond for defects in workmanship or materials not discovered or known to the Owner at the time such work was accepted.

The Bond is executed in triplicate.

Signed and Sealed this ____ day of _____, 2012.

PRINCIPAL:

Contractor

Signature

Title

SURETY:

Surety Company

Signature, Attorney-in-Fact

Name of Attorney-in-Fact

Company Name

Company Address (Including Zip Code)

Company Telephone Number

GENERAL CONDITIONS

MIDDLE SCHOOL ACCESS ROAD IMPROVEMENTS
WEST BRANCH, IOWA

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1. CONTRACT DOCUMENTS

- A. All documents listed or identified as part of contract are each and all essential and component parts of agreement between Owner and Contractor.
- B. Contract Documents shall be signed in triplicate by Owner and Contractor.
- C. Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intention of documents is to include all labor and materials, equipment and transportation necessary for proper execution of work. It is not intended that materials or work not covered by or properly inferable from any heading, branch, class or trade of the specifications shall be supplied unless distinctly noted. Materials or work described in words, which have a well known technical or trade meaning, shall

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be held to refer to such recognized standards.

2. SURETY BOND

- A. Contractor shall furnish a good and sufficient surety bond in full amount of contract prior to signing contract. Surety bond shall guarantee faithful performance of all provisions of contract and payment of all bills and obligations arising from said contract. Should surety become irresponsible during time contract is in force, Owner may require additional and sufficient sureties. Contractor shall furnish said additional sureties to satisfaction of Owner within ten (10) days after written notice to do so. In default thereof, contract may be suspended as hereinafter provided.

3. CONTRACTOR'S RESPONSIBILITY

- A. Contractor shall assume full responsibility for safekeeping of all materials and equipment and for all unfinished work until final acceptance by Owner. Materials and equipment which are damaged or destroyed from any cause shall be replaced at Contractor's expense.
- B. Contractor shall indemnify and save harmless Owner against any liens filed for non-payment of Contractor's bills in connection with contract work. Contractor shall furnish Owner satisfactory evidence that all persons who have done work or furnished materials, equipment, or service of any type, under the contract have been fully paid prior to acceptance of work by Owner.
- C. Contractor shall erect and maintain such barriers and lights as will prevent accidents as a consequence of its work. It shall indemnify and save harmless the Owner and its agents from all suits brought against Contractor for any injuries received or sustained by any person or persons by or through Contractor, its servants, or agents, in construction of work, or by or in consequence of any acts or omissions or negligence in performing contract work.

4. SUBCONTRACTS

- A. Contractor shall not assign, sub-let or transfer the whole or any part of work herein specified without written consent of Owner. Assignment, sub-letting or transfer shall not relieve Contractor from its responsibilities set forth herein.

- B. Detailed specifications are separated into titled parts for convenience or reference and to facilitate letting of contracts and subcontracts. Such arrangement shall not obligate Engineer to establish limits on contracts between Contractors and subcontractors.

5. CONTRACTOR'S EMPLOYEES

- A. Contractor shall personally supervise its work or provide a capable superintendent satisfactory to Engineer. Superintendent shall be authorized to receive instructions from Engineer.
- B. Incompetent or incorrigible employees shall be dismissed by the Contractor or its representative when requested by Engineer. Such dismissed persons shall not be permitted to return to work without written consent of Engineer.
- C. Contractor shall give preference to local labor in execution of this contract, insofar as is practicable.

6. PERMITS AND REGULATIONS

- A. In execution of work specified herein, Contractor shall conform to regulations and ordinances of any governmental body which may apply in execution of specified work. Contractor shall obtain such permits and licenses as may be required for construction of work.

7. PATENTS

- A. All fees or royalties for patented inventions, equipment or arrangements used in construction or erection of work, or any part thereof, shall be included in contract price. Contractor shall protect and hold harmless Owner against any and all claims or litigation by reason of infringement of any patent rights on any materials, equipment of construction furnished by Contractor.

8. GUARANTEE

- A. Contractor shall guarantee all work against faulty workmanship and materials for the period specified after date of final acceptance of work by Owner unless otherwise set out in "SPECIAL CONDITIONS" or "INSTRUCTIONS TO BIDDERS." Contractor shall repair or replace any defective workmanship and materials in a manner acceptable to Owner, without expense to Owner, within ten (10) days after written notification by Owner of such defect. If said repairs or replacements are not made within ten (10) days, Owner may make said repairs or replacements and charge the cost to Contractor.

General Conditions

- B. Contractor shall provide Owner with a good and sufficient surety maintenance bond in the full amount of contract prior to signing contract. Maintenance bond shall run for the period specified from time of acceptance to protect Owner from faulty workmanship and materials as outlined in preceding paragraph.

9. SHOP DRAWINGS

- A. Contractor shall provide Engineer with drawings, data and information regarding materials or equipment specified, or as may be called for by Engineer, for its review, within a reasonable time after award of contract. After review, Engineer shall return to Contractor one copy within a reasonable time after receipt.
 - 1. Submit 5 copies of all shop drawing submittals.
- B. Fabrication and shipment of materials or equipment prior to Engineer's review of drawings, data and information mentioned above shall be at Contractor's risk.

10. THE ENGINEER

- A. Engineer shall make general observation of work as agent of Owner. Engineer's general observation shall not be construed that it shall direct or control operations of Contractor.

11. PLANS AND SPECIFICATIONS

- A. Engineer shall provide Contractor with 5 sets of plans and specifications after execution of contract. If additional plans and specifications are required, Contractor shall compensate Engineer for costs of printing.
- B. Engineer shall provide Contractor with additional and supplemental plans as may be required to show details of construction after approval of manufacturers' drawings and data on materials and equipment.
- C. Engineer will provide Contractor with such revised plans and specifications as may be required to show any authorized changes or extra work.

12. INTERPRETATION OF PLANS AND SPECIFICATIONS

- A. Plans and specifications shall be interpreted by Engineer. Its decision shall be final and binding on all parties concerned.

- B. Contractor will not be allowed to take advantage of errors or omissions in plans and specifications. Engineer will provide full instructions when errors or omissions are discovered.

13. LINE AND GRADE

- A. Engineer shall provide stakes showing line and grade from bench marks, base lines and other reference points. Contractor shall provide competent men and tools, stakes and other materials as required to establish temporary or permanent reference marks in connection with the work. Contractor shall perform such detailed measurements and transfer elevations as required to properly lay out and construct work.
- B. Contractor shall carefully preserve all stakes and reference points against destruction and shall promptly notify Engineer of any stakes which have been disturbed. In case of willful or careless destruction, Contractor will be charged for expense and damage from such destruction.

14. DECISIONS BY ENGINEER

- A. Engineer shall make decisions, in writing, on claims between Contractor and Owner within a reasonable time after presentation. Such decisions shall be regarded as final except for appropriate legal recourse.

15. WORKMANSHIP AND MATERIALS

- A. All work done and all materials and equipment furnished by Contractor shall conform to plans and specifications. Competent labor and tradesmen shall be used on all work. Experienced manufacturers' representatives shall be used to supervise installation of equipment.
- B. In absence of detailed specifications in other sections, all materials shall conform to standards of American Society for Testing Materials.
- C. Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, it is the intent that materials or equipment of other manufacturers, equal in quality and performance, may be substituted. Such substitution may be made only with written authorization of Engineer.
- D. Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, and additional features of items are specifically required by specifications, additional features specified shall be provided

whether or not they are normally included in standard manufacturer's items listed.

- E. Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, and specified items are or become obsolete and no longer available, Contractor shall provide acceptable equal items which are currently available at no change in contract price.
- F. When proposing "or equal" items or substitutions, Contractor shall furnish general arrangement drawings, full descriptive data, manufacturer's specifications and such performance data as required to satisfy Engineer that materials or equipment proposed are equal to that specified. Burden of proof of equality shall be responsibility of Contractor.
- G. Whenever items of materials or equipment are specified by a manufacturer's name and type and "or equal" is not listed, Contractor shall provide specified equipment without substitution, unless prior approval of Engineer is obtained for any substitution.
- H. Contractor shall abide by Engineer's decision when proposed substitutes of material or equipment are deemed to be unacceptable and in such an event Contractor shall furnish items of equipment or materials specified.
- I. Engineer reserves right to consider such factors as overall project arrangement, overall project cost, and similar factors in determining whether proposed substitutions will be acceptable.

16. ON-SITE REVIEW OR OBSERVATION

- A. All materials used and all work done by Contractor shall be subject at all times to review, observation, tests and approval by Engineer. Contractor shall furnish samples of materials for observation and tests as requested by Engineer. Contractor shall furnish any information required concerning nature or source of any proposed materials or equipment.
- B. Construction, fabrication and manufacture of equipment or materials specified herein may be observed by Engineer at plant or factory.
- C. Materials, equipment or work which do not satisfactorily meet specifications may be condemned by Engineer by written notice to Contractor. Condemned materials, equipment or work shall be promptly removed and replaced.

- D. Defective materials, equipment or work may be rejected by Engineer at any time prior to final acceptance by Owner even though said defective items may have been previously overlooked.

17. RESIDENT ENGINEER AND/OR ENGINEER TECHNICIANS

- A. Resident engineer and/or engineer technicians may be appointed by Engineer or Owner to ensure that work is performed in accordance with plans and specifications.
- B. Resident engineer and/or engineer technicians shall have authority to notify Contractor in writing of work which is not being properly performed. Contractor shall be liable for any work determined by Engineer as not being properly performed.
- C. Resident engineer and/or engineer technicians shall have no authority to permit deviation from plans and specifications and Contractor shall be liable for any deviations made without written order from Engineer.

18. TESTS

- A. Tests shall be performed by Contractor upon materials and equipment specified, to determine if the materials and equipment meet requirements of specifications, conditions of operation and guarantees of Contractor.
- B. Equipment shall be subject to factory tests specified herein. Certified evidence of tests shall be furnished when requested by Engineer.
- C. Tests shall be made in accordance with standards of American Society of Mechanical Engineers, Institute of Electrical and Electronic Engineers, American Society for Testing Materials, and other recognized standards.

19. TIME

- A. Contractor shall commence work within time specified and shall complete work within time specified in contract.

20. DELAYS

- A. Delays caused by injunction or legal actions, damages by elements, or other causes beyond control of Contractor (of which Owner shall be sole judge) shall entitle Contractor to a reasonable extension of time within which to complete work.

- B. Application for extension of time shall be made to Owner by Contractor and shall state reasons for request for extension of time.
- C. No extension of time shall be valid unless made in writing by Owner.
- D. Normal weather conditions shall not form the basis of request for extension of time. Abnormal weather conditions shall form basis of request for extension of time only to the delay in excess of that resulting from normal weather conditions.

21. CHANGES

- A. Engineer shall have the right to make changes in location and quantities of work as may be deemed advisable with consent of Owner and without notice to sureties on Contractor's bond.
- B. No change shall be made under this paragraph which will increase or decrease total contract amount more than twenty percent (20%) of original contract price and no changes shall be made in plan of improvement that would necessitate additional or different construction processes and equipment.
- C. Amount due Contractor shall be adjusted for changes in following manner:
 - 1. Where unit prices have been bid, these unit prices shall be used to compute adjustment in compensation.
 - 2. Where no such unit prices have been bid, Engineer and Contractor shall negotiate a reasonable adjustment in Contractor's compensation. Limitations on compensation in B. of "22. EXTRA WORK" shall apply to changes where compensation is negotiated.
 - 3. No changes shall be authorized unless they are shown on revised plans or in written instructions of Engineer.
 - 4. Authorized changes which require additional time to complete shall entitle Contractor to proportionate extension of time to completion which shall be determined by Engineer.

22. EXTRA WORK

- A. Required extra work not specified under this contract shall be done at an agreed price satisfactory to Contractor and Owner, or on basis of actual cost of work plus not more than fifteen percent (15%) for Contractor's overhead and profit. Actual cost shall include expense for equipment, materials, and labor and shall include no overhead items or profit. Where extra work is done by a subcontractor, with approval of Owner, there may be included in Contractor's actual cost, ten percent (10%) for subcontractor's profit.

- B. The term "extra work" as used herein shall not be construed to apply to changes described in "21. CHANGES".
- C. No compensation shall be allowed Contractor for extra work unless such work has been authorized in writing by Engineer and approved by Owner.
- D. Contractor shall submit a statement of costs to Engineer for approval when extra work is performed on an actual cost plus basis. After such a statement is approved, Engineer shall certify its correctness to Owner.

23. OWNERSHIP OF MATERIALS

- A. All materials and work covered by partial payments shall become sole property of Owner, but this provision shall not be construed as relieving Contractor from sole responsibility for all materials and work for which payments have been made, for restoration of damaged work, or as a waiver of rights of Owner to require fulfillment of all terms of contract.

24. OTHER CONTRACTS

- A. Owner reserves right to let other contracts in connection with this work. Contractor shall afford other contractors reasonable opportunity for introduction and storage of their materials and execution of their work, and shall properly connect and coordinate its work with theirs.
- B. When proper execution of Contractor's work depends upon work of another contractor, it shall inspect other work and report any defects to Engineer. Contractor's failure to inspect and report shall constitute an acceptance of other contractor's work except for defects which may develop in work after completion.
- C. To ensure proper execution of its subsequent work, Contractor shall measure work already in place and shall at once report to the Engineer any discrepancy between the executed work and drawings.

25. OWNER'S RIGHT TO DO WORK

- A. If Contractor neglects to prosecute work properly or fails to perform any provision of this contract, Owner, after three (3) days' written notice to Contractor, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor, provided, however, that Engineer shall approve both such action and amount charged to Contractor.

26. OWNER'S RIGHT TO TERMINATE CONTRACT

- A. Owner, upon certification of Engineer that there is sufficient cause to justify termination of contract, may, without prejudice to any other right or remedy, and after giving Contractor seven (7) days' notice may terminate employment of Contractor for any of following reasons:
1. Contractor makes a general assignment for benefit of its creditors, or if adjudged a bankrupt.
 2. Receiver is appointed on account of Contractor's insolvency.
 3. Contractor persistently or repeatedly fails or refuses, except when extension of time to complete is granted, to provide enough skilled workmen or proper materials.
 4. Contractor fails to make prompt payment to subcontractors for material or labor.
 5. Contractor persistently disregards laws and ordinances or instructions of Engineer.
 6. Contractor violates a provision of contract.
- B. If Owner terminates employment of Contractor, it shall take possession of premises and all materials, tools and appliances thereon. It shall finish work by whatever method it may deem expedient. In such case Contractor shall not be entitled to receive any further payment until work is finished.
- C. If unpaid balance of contract price exceeds expense of finishing the work including compensation for additional managerial and administrative services, excess shall be paid to Contractor. If expense exceeds unpaid balance, Contractor shall pay difference to Owner. Expense incurred by Owner as herein provided, and damage incurred through Contractor's default, shall be certified by Engineer.

27. CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

- A. If Engineer fails to issue any certificate for payment within fifteen (15) days after it is due, or if Owner fails to pay to Contractor within thirty (30) days of its maturity and presentation, any sum certified by Engineer, then Contractor may, upon seven (7) days simultaneous written notice to Owner and Engineer, stop work or terminate this contract. If Contractor elects to stop work by written notice, work shall be resumed promptly upon payment by Owner. If Contractor elects to terminate this contract by written notice it shall recover from Owner payment for all work executed to date of notice and any loss sustained upon any plant or materials plus a reasonable profit.

28. PAYMENTS WITHHELD

- A. Engineer may withhold or nullify the whole or a part of payment certificate, on account of subsequently discovered evidence, to such extent as may be necessary to protect Owner from loss on account of:
1. Defective work not remedied.
 2. Claims filed or reasonable evidence indicating probable filing of claims.
 3. Failure of Contractor to make payments properly to subcontractors or for materials or labor.
 4. A reasonable doubt that contract can be completed for balance then unpaid.
 5. Damage to another contractor.
 6. Claims of Owner for liquidated damages.
- B. Payments shall be made for amounts withheld when above grounds are removed.

29. ACCEPTANCE AND FINAL PAYMENT

- A. When work has been satisfactorily completed, Engineer will certify Contractor's final estimate stating that work has been completed in accordance with terms and conditions thereof with qualifications, if any, as stated. Balance found to be due Contractor according to the terms of payment shall be paid by Owner as provided in contract, provided, however, that any state laws which designate manner of final payment shall be followed in lieu of manner of final payment outlined above. Prior to receipt of final payment, Contractor shall file with Owner a receipt in full from each manufacturer, subcontractor, and dealer for all equipment and materials used on the work and a complete release of all liens, including tax liens, which may have arisen from this contract and required statements from Contractor and all subcontractors of sales and use tax paid. In lieu thereof, Owner, at its option, may accept from Contractor a statement showing balance due on all accounts.
- B. Making and acceptance of final payment shall constitute a waiver of all claims by Owner, except those arising from unsettled liens, from faulty work or materials appearing after final payment or from requirements of the specifications, and of all claims by Contractor, except those previously made and still unsettled.

30. SUSPENSION OF WORK

- A. Owner may suspend the work, or any part thereof, at any time, by giving ten (10) days' written notice to Contractor. The work shall be resumed by

General Conditions

Contractor within ten (10) days after date fixed in written notice from Owner to Contractor to do so.

- B. If work, or any part thereof, shall be suspended and if Owner does not give written notice to Contractor to resume work within one (1) year of date of suspension, Contractor may abandon suspended portion of work. Contractor will be entitled to estimates and payments for all work done on the portions so abandoned, if any.

31. CLEANING UP

- A. Contractor shall keep premises free from accumulations of waste material or rubbish caused by its employees or work. After completion of work it shall remove all its rubbish and all its tools, scaffolding and surplus materials from work site. It shall leave its work "broom clean" or its equivalent, unless more exactly specified. In case of dispute the Owner may remove rubbish and charge costs to Contractor as Engineer shall determine to be just.

32. HAZARDOUS MATERIALS

- A. The use of Asbestos Construction Building Materials (ACBM) is specifically prohibited. The Contractor, suppliers, and subcontractors shall warrant that all products used are asbestos free. In the event that a specified product contains asbestos, it shall be the responsibility of the Contractor to notify the Owner so that an appropriate substitution can be made in a timely manner so as not to delay the project.
- B. The Contractor shall provide the Owner a certificate that warrants that no materials, products, items or equipment contains any asbestos upon completion of the work of this Contract. If asbestos is found to exist in any of the materials, products, items or equipment provided as part of this Contract, the Contractor shall be financially responsible for all costs resulting from removal in accordance with an Owner approved method and replacement of an asbestos free condition to finished drawings and specifications. The financial responsibility of the Contractor shall not terminate with the end of the surety maintenance bond period, but shall continue through the life of the facility.

33. IOWA HAZARDOUS CHEMICAL RISKS RIGHT-TO-KNOW LAW

- A. Owner's responsibility:
 - 1. Owner shall provide to the Contractor a list of known hazardous chemicals within the project site to which their employees may be exposed and suggestions for appropriate protective measures.

- B. Contractor's responsibility:
1. Contractor shall inform his/her employees of the Iowa Hazardous Chemical Risks Right-to-Know Law.
 2. Contractor shall provide to the Owner a list of known hazardous chemicals that they anticipate will be used on site as well as all pertinent information relating to employee protection. Contractor's Material Safety Data Sheets (MSDS) shall be available to Owner upon request.

SPECIAL CONDITIONS

MIDDLE SCHOOL ACCESS ROAD IMPROVEMENTS WEST BRANCH, IOWA

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1. INTENT

- A. To supplement the provisions of the GENERAL CONDITIONS by outlining special conditions applicable to project.

2. LOCATION

- A. Work is located on
- B. Transportation facilities:
1. Interstate 80.
 2. County Highways X30 and F44.

3. RIGHT-OF-WAY

- A. Owner will provide easements for construction on private lands.
- B. Contractor will be provided list of construction easement widths.
- C. Confine movements of equipment and personnel, storage of materials, excavation, spoil banks, and all other construction operations within right-of-way and easements provided.
- D. Contractor will be held liable by City and adjacent property owners for damages outside right-of-way and easements; failure of Engineer to warn Contractor about incidence of trespassing does not relieve liability.

4. INTERRUPTIONS TO SERVICE

- A. Existing utilities shall remain in substantially continuous operation during construction.
- B. Do work which will interrupt utility service only at times approved by Engineer; hold interruptions of service to a minimum.

5. SERVICE FACILITIES

- A. Water, electricity, compressed air, and other services shall be furnished by Contractor to meet his own requirements.

6. STORAGE OF MATERIALS AND EQUIPMENT

- A. Limited storage space for materials and equipment will be available at project sites and along easements.
- B. Storage areas shall be subject to approval of Owner and Engineer.
- C. Store materials and equipment in manner which will preserve their quality and fitness.

7. CONSTRUCTION FACILITIES BY CONTRACTOR

- A. Provide telephone at which Contractor can be reached by Owner or Engineer at all times during the working day; provide liaison between telephone and construction personnel for expeditious handling of messages.
- B. Provide suitable storage buildings necessary for proper storage of materials and equipment.
- C. Location of all construction facilities, including project construction plant and yard, subject to approval by Engineer; remove all construction facilities upon completion of work.
- D. Provide and maintain suitable sanitary facilities for construction personnel for duration of work; remove upon completion of work.
- E. Provide fence, barricades, and/or watchmen to prevent access of unauthorized persons to site where work is in progress.

- F. Provide telephone number(s) at which responsible representative of Contractor can be contacted evenings, weekends and holidays in event of emergency.

8. INSURANCE BY CONTRACTOR

- A. Provide and maintain insurance throughout construction period in the following minimum amounts:
1. Workmen's compensation and occupational disease insurance in accordance with laws of the State of Iowa covering all employees who perform any obligations assumed under the contract.
 2. Public liability and property damage liability insurance covering all operations under the contract; limits of bodily injury or death not less than \$500,000 for one person and \$1,000,000 for each accident; for property damage, not less than \$250,000 for each accident and \$500,000 aggregate for accidents during the policy period.
 3. Automobile liability insurance on all self-propelled vehicles used in connection with the contract, whether owned, non-owned, or hired; public liability limits of not less than \$500,000 for one person and \$1,000,000 for each accident; property damage limit of \$500,000 for each accident.
- B. Provide addendum language attached to the Certificate of Insurance which preserves the Owner's immunities. The addendum language is as follows:

"The Companies affording coverage and the Additional Insured, City of West Branch, Cedar County, Iowa expressly agree and state that the purchase of this policy of insurance by the insured and the listing of the City of West Branch as an Additional Insured hereunder to not waive any of the defenses of governmental immunity available to the Additional Insured under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time.

The Companies and the Additional Insured further agree that this policy of insurance shall cover only those claims not subject to the defense of governmental immunity under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time.

The Additional Insured shall be responsible for asserting any defense of governmental immunity, and may do so at any time and shall do so upon the timely written request of the Companies.

The Companies shall not deny coverage under this policy and the Companies shall not deny any of the rights and benefits accruing to the Insured or the Additional Insured under this policy for reasons of governmental immunity

Special Conditions

unless and until a court of competent jurisdiction has ruled in favor of the defense(s) of governmental immunity asserted by the Additional Insured.”.

- C. Owner shall have right at any time to require public liability insurance and property damage liability insurance greater than required in above paragraphs. Additional premiums payable solely as result of such additional insurance shall be added to bid price.
- D. Furnish certificates of insurance to Engineer made in favor of Owner showing compliance with foregoing requirements.
- E. Owner shall be listed as an additional insured by endorsement.
- F. Notification in event of liability damage: upon occurrence of any event, the liability of which is herein assumed, Contractor agrees to forthwith notify Owner, in writing, such happenings, which notice shall forthwith give details as to the happening, cause as far as can be ascertained, estimate of loss or damage done, names of witnesses, if any, and stating amount of any claim.

9. EMPLOYMENT PRACTICES

- A. Contractor, or his subcontractors, shall not employ any person whose physical or mental condition is such that his employment will endanger the health and safety of himself or others employed on the project.

10. INSPECTION BY STATE AND FEDERAL PERSONNEL

- A. Provide full access and cooperation for inspection of work by representatives of participating State and Federal agencies.

11. HISTORICAL/ARCHAEOLOGICAL FINDS

- A. If, during course of construction, evidence of deposits of historical or archaeological interest is found, cease operations affecting find and notify Owner who shall notify Iowa Department of Natural Resources and Director and Historic Preservation Officer, State Historical Department, East 12th and Grand, Des Moines, Iowa 50319. No further disturbance of deposits shall ensue until notification by Owner that work may proceed. Owner will issue notice to proceed only after state official has surveyed find and made determination to Department of Natural Resources and Owner. Compensation to Contractor, if any, for lost time or changes in construction to avoid find, determined in accordance with changed conditions or change order provisions of specifications.

12. LINE AND GRADE

- A. Construct to line and grades shown on plans or as specified hereinafter.
- B. Engineer to establish required bench marks and control points as shown on plans.
- C. Contractor will perform detailed survey and staking for location, elevation and grade of construction.
- D. These conditions supersede conflicting provisions of GENERAL CONDITIONS.
- E. Check all detailed surveys and stakeouts; assume full responsibility for accuracy and correctness thereof.
- F. Contract shall provide, without extra compensation, all men and necessary tools to make all test holes and exploration, at any time, for purpose of determining location of existing structures beneath ground surface which might conflict with work of Contractor.
- G. Contractor shall preserve all monuments, reference points, stakes and bench marks set by Engineer. In case of destruction by Contractor's negligence or carelessness, he will be charged with resulting expense of replacement, and responsibility for any mistakes or loss of time caused thereby.

13. ORDER OF CONSTRUCTION

- A. Provide Engineer with proposed schedule of construction showing dates of starting and completing various portions of work.
- B. Contractor shall establish schedule of working hours for construction, subject to approval of Engineer.
- C. Schedule construction to minimize use of street barricades and detours; clean up each portion of work as it is completed.
- D. Adequate protection shall be provided for pedestrians. If a section of sidewalk is closed, appropriate signing and barricading shall be utilized; signing and barricading shall remain in place until sidewalk is reopened for pedestrian use.
- E. Notify City and School a minimum of 48 hours prior to closing street.

PLANS LIST

MIDDLE SCHOOL ACCESS ROAD IMPROVEMENTS
WEST BRANCH, IOWA

1. PLANS

- A. The work shall conform with the following drawings (bound separately) and Standard Drawings which constitute the "plans" and are an integral part of the Contract Documents.

<u>Title</u>	<u>Drawing Number</u>	<u>Revision Number</u>
Index and Title Sheet	A.01	
Typical Section	B.01	
Details	B.02-B.05	
Demolition	D.01	
Plan and Profile – Access Road	D.02	
Survey Bench Marks	G.01	
Traffic Control	J.01	
Paving Geometry	L.01-L.02	
Plan and Profile – Storm Sewer	M.01	
Erosion Control Plan	P.01	
Earthwork Tabulation	T.01	
Cross Sections – Access Road	W.01-W.02	

DETAILED SPECIFICATIONS

MIDDLE SCHOOL ACCESS ROAD IMPROVEMENTS
WEST BRANCH, IOWA

PART 1 – GENERAL REQUIREMENTS

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1. FORM

- A. Detailed specifications are in outline form and include incomplete sentences. Omission of words or phrases is intentional. Supply omitted words or phrases by inference.

2. INTENT

- A. To set forth requirements of performance, type of equipment or structure desired, and standards of materials and construction.
- B. To require Contractor to furnish and install materials and perform all work and services described in Contract Documents, unless otherwise specifically indicated.
- C. To require Contractor to perform complete work in spite of omission of specific reference to any minor component parts.
- D. To provide for new materials and equipment, unless otherwise indicated.

3. INTERPRETATION

- A. Report errors or ambiguities in specifications to Engineer as soon as detected; Engineer will answer questions regarding and interpret intended meaning of specifications; Engineer's interpretation shall be accepted as final.

4. INFORMATION FOR ENGINEER

- A. After award of contract submit following information for Engineer's review. Total number of review copies required for distribution: 4 plus copies required by Contractor.
 - 1. Purchase orders and subcontracts without prices.
 - 2. Shipping papers for all materials.
 - 3. All materials test reports.
 - 4. Portland cement concrete mix design; submit 8 days before proposed mix is to be used.
 - a. Include certified gradation of aggregates to be used.
 - 5. Details of proposed method of sheeting, shoring and bracing.
 - 6. Manufacturer's specifications and catalog data for manholes, intakes, pipe, castings and other special items.
 - 7. Such other information as Engineer may request.
- B. Within 15 days after award of contract, provide construction schedule showing dates of starting and completing various portions of work.

5. SHOP DRAWINGS

- A. Intent of Engineer's review: to assist Contractor in interpreting plans and specifications.
- B. Contractor's responsibility: to check drawings prior to submission of coordination and conformance with contract; do not submit without checking.
- C. Engineer's review is only for general conformance with design concept of project and general compliance with information given in contract documents; any action shown is subject to requirements of plans and specifications; Contractor responsible for dimensions which must be confirmed and correlated at job site; fabrication processes and techniques of construction; coordination of work with that of all other trades and satisfactory performance of work.
- D. Prior to submission of shop drawings and catalog data to Engineer: affix Contractor's stamp with signature of responsible person to show material submitted has been checked and approved by Contractor; shop drawings submitted without appropriate stamp and signature will be returned without Engineer's review.

6. PLANS AND SPECIFICATIONS

- A. Engineer will furnish up to 5 sets of plans and specifications after award of contract. Contractor shall compensate Engineer for printing costs for additional copies required.
- B. Subcontractors will be furnished copies only at request of Contractor. Engineer will be compensated for printing costs.
- C. Provide 1 set of plans and specifications for each foreman or superintendent in charge of each crew on job.

7. STANDARDS AND CODES

- A. Do work in accordance with best present-day installation and construction practices.
- B. Conform to and test materials in accordance with applicable sections of latest revisions or tentative revisions of following codes and standards unless specifically noted to contrary.
 - 1. American Association of State Highway and Transportation Officials (AASHTO).
 - 2. American Concrete Institute (ACI).
 - 3. American Institute of Steel Construction (AISC).
 - 4. American National Standards Institute (ANSI).
 - 5. American Society for Testing and Materials (ASTM).
 - 6. American Standards Association (ASA).
 - 7. American Water Works Association (AWWA).
 - 8. American Welding Society (AWS).
 - 9. Current Iowa Manual on Uniform Traffic Control Devices (MUTCD).
 - 10. Federal Specifications (FS).
 - 11. Iowa Department of Transportation (IDOT); latest edition of standard specifications and addenda.
 - 12. Iowa Occupational Safety and Health Act of 1972 (Chapter 88, Code of Iowa 2011) (IOSHA).
 - 13. Manual of Accident Prevention in Construction by Associated General Contractors of America, Inc. (AGC).
 - 14. National Institute for Occupational Safety and Health (NIOSH).
 - 15. National Safety Council (NSC).
 - 16. Occupational Safety and Health Act of 1970 (Public Law 91-596) (OSHA).
 - 17. Standards and codes of the State of Iowa, Cedar County and applicable local standards and codes of the City of West Branch.

General Requirements

18. Other standards and codes which may be applicable to acceptable standards of the industry for equipment, materials and installation under the contract.

8. TESTS

- A. Includes all material tests or tests specified hereinafter.
- B. Owner shall employ and pay for approved testing laboratory for tests required to show compliance with specifications.
- C. Provide samples of materials required for laboratory tests.
- D. Incorporate no materials in work until laboratory tests have been furnished which show compliance of materials with the specifications.
- E. All materials subject to sampling, testing, inspection and rejection at site by Engineer.
- F. Laboratory tests include the following:
 1. Ductile iron pipe: certify that pipe conforms to ANSI A21.51.
 2. Steel casing pipe: certify that pipe conforms to ASTM A53 or A139.
 3. Cement: bin sample for entire requirement, ASTM C150.
 4. Concrete aggregates: 1 sample of each, ASTM C33.
 5. Aluminum alloys: certify that materials provided meet requirements of specifications; if specified alloys are not furnished, note on submittals and request approval of substitutions.
 6. Reinforcing and structural steel: furnish original and 1 copy of certified test report by manufacturer.
 7. Welded wire fabric: furnish original and 1 copy of certified test report by manufacturer.
 8. Other pipe: certify that pipe conforms to applicable specifications.
- G. Provide samples of excavated materials to determine moisture-density relations of soils and perform moisture and density tests during construction as specified in EXCAVATION AND BACKFILL; Contractor to pay for testing.
- H. Compaction tests on trench backfill and fill for grading: ASTM D1557; 3 tests per 200 LF of trench where compacted or ordinary backfill is specified; at each location 2 tests at intermediate depths as directed by Engineer and 1 test at surface; cooperate with Engineer and provide necessary excavations to allow compaction tests to be taken; Contractor to hire independent testing laboratory to conduct tests; Contractor to pay for compaction tests.

General Requirements

- I. Concrete compression cylinders: test 2 from trial batch for proposed mixes; ASTM C39; provide 7-day and 28-day tests.
- J. Portland cement and aggregates for concrete pavement: certify that sources are IDOT approved; provide analysis of materials used.
- K. Structural concrete: 2 concrete compression cylinders each day concrete is poured; provide 7-day and 28-day tests in accordance with ASTM C39, Contractor to hire independent testing laboratory to conduct tests; Contractor to pay for testing.
- L. Concrete pavement: 2 concrete compression cylinders for each 100 CY placed; provide at least 2 cylinders each day concrete is poured; provide 7-day and 28-day tests in accordance with ASTM C39, Contractor to pay for testing.
- M. Provide concrete for slump and entrained air testing at project site, Contractor to hire independent testing laboratory to conduct tests; Contractor to pay for testing.
- N. Provide samples of HMA materials required for laboratory tests; sampling of materials at site shall be performed by Contractor with approval of procedures by Engineer. Asphalt Surfacing: minimum of 1 lab stability and density test consisting of at least 2 briquettes; minimum of 4 in-place density tests and 1 asphaltic extraction; see HOT MIX ASPHALT PAVEMENT for additional requirements.

9. RESPONSIBILITY OF CONTRACTOR

- A. Protection of his work.
- B. Protection of all property from injury or loss resulting from his operations.
- C. Replace or repair objects sustaining any such damage, injury or loss to satisfaction of Owner and Engineer.
- D. Cooperation with Owner, Engineer and representatives of utilities in locating underground utility lines and structures. Incorrect, inaccurate or inadequate information concerning location of utilities or structures shall not relieve Contractor of responsibility for damage thereto caused by his operation.
- E. Keep cleanup current with construction operations.

General Requirements

- F. Maintain set of record drawings of any changes made as work progresses which may vary from contract drawings.
 - G. Comply with all Federal, State of Iowa and City of West Branch, Iowa laws and ordinances.
10. TEMPORARY WORK
- A. Make all temporary connections necessary for maintaining utility service during course of work.
 - B. Construct temporary drains or bulkheads to keep work in the dry.
11. BARRICADES AND LIGHTS
- A. Erect and maintain barricades and lights in conformance with current Manual of Uniform Traffic Control Devices (MUTCD) for protection and warning of pedestrians and vehicles. All barricades, lights and/or watchmen at expense of Contractor.
 - B. Engineer will not allow work to proceed until all signs, barricades and lights are in place; requirements for type of signs and number of signs will be strictly enforced; improper signing during construction will constitute "improper work" and Engineer will cause Contractor to suspend work.
 - C. All signs, barricades, and other traffic control devices used on the project shall be furnished, installed and maintained by Contractor; all traffic control devices shall be maintained in a state of good repair and shall be cleaned and washed periodically as needed.
 - D. Certain sections of public streets and sidewalks can be closed with the following restrictions:
 - 1. Adequate protection shall be provided for pedestrians; if a section of sidewalk is closed, appropriate signing and barricading shall be utilized; signing and barricading shall remain in place until sidewalk is opened for pedestrian use.
 - 2. Notify City 24 hours prior to street closing.
 - E. At the end of each working day place barricades and lights as required; maintain barricades and lights at all times including non-working hours; maintain lights in operable condition at all times.

12. FINAL REVIEW AND ACCEPTANCE

- A. Notify Engineer when installation is considered complete and ready for final review.
- B. Owner will accept work and make final payment to Contractor:
 - 1. When Engineer has certified that he has reviewed the work of the Contractor and stated that the work is complete and in conformance with the plans and specifications.
 - 2. When Contractor has filed with Owner or Engineer documents called for in specifications.
 - 3. When all government agencies involved have indicated, in writing, work is complete and acceptable.

PART 2 - SPECIAL CONSTRUCTION

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| 1. GENERAL | 4. TRAFFIC CONTROL |
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| 3. CONSTRUCTION STAKING | |

1. GENERAL

- A. Procedures outlined below are not intended to fully cover all special procedures or emergencies which may arise during construction but are offered as an aid to Contractor in planning work; Contractor will cooperate with City and Engineer to minimize inconvenience, construction delays and interruptions to continuous operation of existing sewer system.
- B. Determine location of underground utilities and piping before starting work; locations of underground appurtenances are approximate and not guaranteed by City or Engineer.
- C. Remove and replace all signs, mail boxes and other appurtenances which interfere with construction operations; replace damaged signs at no cost to Owner.
- D. Remove and replace culverts as required for construction; if damaged, replace in kind with new culvert.
- E. Limit construction operations to property, rights-of-way and easements provided by City; provide flagmen, barricades, lights, signs and detours as necessary to reroute traffic around construction areas.
- F. Arrange with operating utilities for relocation or temporary removal of utilities in conflict with construction and for services needed during construction.
- G. Dispose of materials removed during construction at locations as designated and directed by Engineer.
 - 1. Dispose of waste products containing putrescible materials at approved landfill.
 - 2. Dispose of surfacing, broken concrete or rubble, brush, trees, excess excavated materials or spoil not suitable for backfill at approved landfill unless otherwise directed by Engineer.

Special Construction

- H. Provide snowfence around all open trenches or open structures when left unattended.
- I. Clean up and provide surface restoration as construction progresses.
- J. Submit complete detailed construction procedure schedule after award of contract for planning, scheduling and controlling construction of project.
- K. Contractor will be expected to provide adequate personnel and equipment to perform work within specified time of construction.
- L. If delays in delivery of materials become apparent, notify City and Engineer promptly; take action to accomplish one of the following:
 - 1. Substitute alternate materials with approval of City and Engineer.
 - 2. Expedite delivery of materials.
- M. Extensions of contract period will be given consideration upon written request of Contractor; request must include valid supporting data and bonafide reasons for requesting extension; City expects work to be complete and ready for final acceptance within completion time specified.
- N. Protect survey markers of lot corners.

2. COOPERATION WITH OTHERS

- A. Advise all utilities prior to excavating in area where construction might affect underground gas, electrical, telephone or water service.
 - 1. Advise Owner of proposed construction schedule as it relates to storm and sanitary sewer services and water mains.
 - 2. Advise telephone company of proposed construction schedule as it relates to telephone service.
 - 3. Advise power company of proposed construction schedule as it relates to electrical power.
 - 4. Advise gas company of proposed construction schedule as it relates to gas service.
 - 5. Advise City Water Superintendent of proposed construction schedule as it relates to water service.
 - 6. Advise cable television company of proposed construction schedule as it relates to cable television service.
- B. Cooperate with State and Federal regulatory agencies in matters under their jurisdiction over construction operations.

- C. Cooperate with local governmental agencies; secure necessary building permits and arrange for inspections at proper time.

3. CONSTRUCTION STAKING

- A. Contractor responsible for providing all necessary construction staking to allow for project construction.
- B. Contractor responsible for accuracy and completeness of all construction staking.
- C. Owner or Engineer may review accuracy of construction staking at its own discretion at any time.

4. TRAFFIC CONTROL

- A. Provide barricades, signs and lights to protect vehicular and pedestrian traffic during construction; comply with GENERAL REQUIREMENTS; see plans for details.
- B. Conform to requirements of MUTCD.

5. PAYMENT

- A. No separate payment will be made for work covered under this part of the specifications except as set forth below. Include all costs in appropriate unit prices.
- B. Construction Staking, LS: Lump sum price includes all costs for labor, equipment and material to provide all construction staking and re-staking necessary for complete construction of the project.
- C. Traffic Control, LS: Lump sum price includes furnishing signs, flagmen, barricades, flashers, channelizing devices and other miscellaneous traffic control items specified or required by City of West Branch during construction; includes set up, removal and miscellaneous associated work.
- D. Mobilization, LS: Lump sum price includes:
 - 1. Partial Payment
 - a. For projects exceeding \$500,000, a partial payment of mobilization will be made after receipt of a signed contract. This partial payment will be

Special Construction

either 10% of the contract price for this item or 1% of the original project sum, whichever is less.

- b. When 5% of the original project sum is earned, either 25% of the contract price for this item or 2.5% of the original project sum, whichever is less, will be paid.
 - c. When 10% of the original project sum is earned, either 50% of the contract price for this item or 5% of the original project sum, whichever is less, will be paid.
 - d. When 25% of the original project sum is earned, either 100% of the contract price for this item or 10% of the original project sum, whichever is less, will be paid.
2. Full Payment
- a. Upon completion of all work on the project required by the contract, full payment will be made for this contract item, including any amount not paid as a partial payment.

PART 3 – EXCAVATION, BACKFILL AND SITEWORK

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| 5. SHEETING, SHORING AND BRACING | 12. SILT FENCE |
| 6. DEWATERING | 13. GRANULAR SURFACING |
| 7. EXISTING UTILITIES | 14. PAYMENT |

1. GENERAL

- A. Excavate all materials encountered to depth indicated or specified; comply with safety rules of state and federal governments.
- B. Schedule work to keep streets, roads and utilities in usable condition; avoid inconvenience to property owners insofar as practicable during construction.
- C. Remove, replace and repair items such as fences, culverts, signs, hanging wires, shrubbery, flowers, trees and other obstructions to accommodate construction equipment or to facilitate excavation.
- D. Remove trees, plantings and shrubbery where shown on plans; remove other plantings only with written authorization of Engineer; any plantings removed or damaged for convenience of Contractor: replace with equal plantings at no cost to Owner.
- E. Pile excavated material suitable for backfill in an orderly manner sufficient distance back from edge of excavation to avoid slides or cave-ins; 2' minimum clear distance; cast dirt as directed by Engineer.
- F. Remove spoil not suitable for backfill; waste at disposal area designated by Engineer; removal is incidental to construction; include cost in unit price for sewer.
- G. Where new work crosses existing utilities or utility services, excavate in advance of pipe laying; determine crossing arrangement including exact construction line and grade.
- H. Excavate in open cut under existing streets, utilities and structures except as noted on plans or as modified by Engineer.

- I. Reference to percent maximum density: soil density not less than the stated percent of maximum density for soil as determined by ASTM D698 Moisture-Density Relations of Soils, using 5.5-lb. Rammer and 12-in. Drop (Standard Proctor Method).
- J. In event contaminated soil is discovered cease construction immediately and notify Engineer.
- K. Install signing and barricades for traffic control in accordance with Manual on Uniform Traffic Control Devices; include cost in appropriate unit or lump sum Price.

2. DEFINITIONS

- A. Earth: all materials, including clay, silt, sand, gravel, hardpan, disintegrated shale, highly weathered and broken limestone, debris, junk, brick, loose stones and boulders which can be removed by use of suitable excavating equipment and pneumatic tools.

3. EXCAVATION FOR STRUCTURES

- A. Includes excavation, manholes and other appurtenances.
- B. Excavate as required to firm, undisturbed soil; if excavation is carried below bottom of foundations as shown on plans, fill with Class B concrete or pipe bedding material as directed by Engineer at no expense to Owner.
- C. Provide sheeting, shoring and bracing where required to hold walls of excavation or to protect existing structures, pavement or utilities or to provide safety for workmen.
- D. When unstable material is encountered which will not, in opinion of Engineer, provide suitable foundation, Engineer will authorize in writing and direct removal and replacement with granular bedding material; authorized overexcavation and backfill will be paid for as Stabilizing Material.
 - 1. Authorized remedial measures not covered by contract unit prices will be paid for as Extra Work.

4. TRENCH EXCAVATION

- A. Keep width of trench as narrow as possible and still provide adequate room for backfill and jointing.
- B. Keep sides of trench as nearly vertical as practicable; maintain vertical walls of excavation below top of pipe. Use sheeting and shoring as required to protect pavement not shown for removal.
- C. Bottom of sewer trench:
 - 1. Provide hand shaped trench bottom in undisturbed earth for pipe support; if trench depth is overexcavated, backfill with pipe bedding to elevation of top of hand shaped section.
 - 2. Where type of sewer pipe bedding requires granular material it is referred to as Pipe Bedding on Standard Drawings and specifications.
 - 3. Excavate full depth by machine; place pipe bedding in bottom of trench if trench depth exceeds depth for hand shaped pipe support.
 - 4. Pipe bedding: sharp, clean crushed stone; comply with the following graduation, dependent upon pipe diameter.

<u>Sieve</u>	<u>Pipe Diameter</u>	
	<u>8"-18"</u>	<u>Over18"</u>
1-½"	% Passing	% Passing
1"	100	100
¾"	80-90	95-100
½"	35-70	35-70
⅜"	20-40	25-50
No. 4	0-5	10-30
		0-5

- a. Engineer may authorize change in gradation subject to materials available locally at time of construction.
- 5. Compact pipe bedding by rodding or slicing with shovel.
- 6. Provide bell holes at each pipe joint in pipe bedding; provide access around circumference of pipe for proper jointing.
- 7. Pipe bedding is incidental to construction; include cost in unit price for Sewer Pipe in Place.
- D. When unstable material is encountered which may not provide a suitable foundation for pipe:
 - 1. Notify Engineer immediately.

Excavation, Backfill and Sitework

2. Engineer will investigate questionable material to determine its suitability for pipe foundation.
3. If material is considered unsuitable for foundations, Engineer will specify and authorize remedial measures in writing.
4. If removal of unsuitable material is authorized:
 - a. Replace with stabilizing material.
 - b. Stabilizing material: sharp, clean crushed stone; comply with following gradation:

<u>Sieve</u>	<u>% Passing</u>
2-1/2"	100
2"	90-100
1-1/2"	35-70
1"	0-15
1/2"	0-5

- c. Place pipe bedding on top of stabilizing material.
 - d. Authorized overexcavation and stabilizing material will be paid for as Stabilizing Material.
 5. Authorized remedial measures not covered by contract unit prices will be paid for as Extra Work.
- E. Excavate by hand:
 1. Under tree roots 3" and larger.
 2. Under and around utilities.
 3. Where overhead clearance prevents use of machine.
 4. To protect trees and shrubs where shown on plans.
- F. Trenches in parks, parkings, lawns, street rights-of-way, pastures and farm fields:
 1. Remove top 18" of topsoil and store in segregated stockpiles for backfill prior to trench excavation.

5. SHEETING, SHORING AND BRACING

- A. Construct tight sheeting, shoring and bracing to hold walls of excavation where shown on plans or at other locations, to provide safety for workmen, to protect existing utilities or structures or to permit construction in the dry; provide method to contain work within construction limits.
- B. Sheeting, shoring and bracing is incidental to construction; include cost in appropriate unit price.

6. DEWATERING

- A. Do all work in the dry; obtain Engineer's approval on methods of dewatering.
- B. Provide for handling of water encountered during construction.
- C. Lay no pipe in or pour no concrete on excessively wet soil.
- D. Prevent surface water from flowing into excavation; remove water as it accumulates.
- E. Divert stream flow away from areas of construction.
- F. Do not pump water onto adjacent property without approval of Engineer.
- G. Include cost of dewatering in unit cost for sewer in place.

7. EXISTING UTILITIES

- A. Locations of utility lines, mains, cables and appurtenances are in accordance with information provided by utility companies and from records of Owner; confirm locations of underground utilities by excavating ahead of work; Contractor fully responsible for damage to utilities during construction.
- B. Conflicting utilities not shown on plans, except services: notify Engineer immediately.
- C. Utility services are not generally shown on plans; protect services during construction.
- D. Water main and sanitary sewer conflicts: notify Owner and Engineer immediately; provide all necessary shut-down, repair and relocation where conflicts occur; furnish labor, equipment, pipe and fittings; when broken due to carelessness, repair is incidental to construction.
- E. Utility lines, poles and appurtenances, except water mains and sewer lines, in direct conflict with line and grade of work will be relocated by utility company before or during construction at no expense to Contractor unless plans direct Contractor to perform work; Owner will advise utility companies of lines, poles and appurtenances to be moved after award of contract; cooperate with utility companies in relocation of lines, poles and appurtenances.

Excavation, Backfill and Sitework

- F. Support and protect, by timbers or other means, all utility pipes, conduits, poles, wires or other apparatus not to be moved; protective measures subject to approval of Engineer.
- G. No utility or utility service will be moved to accommodate equipment, method of operation or for convenience of Contractor when utility or utility services does not conflict directly with line and grade of work; arrange with utility company for relocation with approval of new location by Owner and Engineer; relocation is incidental to construction.

8. SURFACE REMOVAL

- A. Remove existing street, road, and driveway surfacing, minimum of 1' outside edge of trench where open cut construction is specified; see plans for designation of street surfacing.
- B. Dispose of waste material at disposal area designated by Engineer.
- C. Surfacing removal is incidental to construction; include in unit price for sewer construction.

9. BACKFILL FOR STRUCTURES

- A. Backfill after concrete or masonry has cured, and waterproofing, if specified, has been inspected and approved by Engineer.
- B. Backfill with material removed from excavation; use no debris, frozen earth, large clods, stones or other unsuitable material.
- C. Backfill simultaneously on all sides of structure; save structure from damage at all times.
- D. Compact backfill at manholes to density not less than specified for adjacent trench.
- E. Terminate at elevation shown on plans; dispose of excess excavation as directed by Engineer.
- F. Prepare backfill for surface restoration as specified for adjacent trench.

10. TRENCH BACKFILL

- A. Backfill trench immediately after Engineer has recorded location of connections and appurtenances and testing has been completed, or at Engineer's direction.
- B. Allow no more than 50' of trench to be open at one time; construct manholes and appurtenances and backfill as work progresses; do not leave trenches open more than 24 hours; fence all open trenches with snowfence; place steel posts at maximum 8' intervals.
- C. Use no large stones, large clods, organic matter, rubbish, frozen or unsuitable materials, in backfill.
- D. Backfill simultaneously on both sides of pipe to prevent displacement.
- E. Hand place and carefully compact backfill to 1' over top of pipe.
- F. Backfill to 1' over top of sewer in layers not to exceed 6"; moisten if required; compact to 90% maximum density; compact backfill above 1' over top of pipe to minimum 90% maximum density.
- G. Fill upper 18" portion of trench with topsoil where construction area is to be seeded; shape roadways and ditches to original grades, replace surfacing material where trench is in streets, driveways or parking areas.
- H. New line below existing water or gas main: backfill under existing water or gas main with pipe bedding material; compact to 95% maximum density; length of pipe bedding material backfill at elevation of existing utility: equal to depth of excavation below utility; pipe bedding material backfill is incidental to sewer construction.
- I. If removal of sheeting disturbs compacted backfill, recompact backfill to comply with specifications.
- J. If settlement of any trench occurs within period of guarantee and bond; refill, compact, level off and restore surfacing.

11. SURFACE RESTORATION

- A. Parks, parkings, lawns, street and railroad rights-of-way, pastures and farm fields: replace 18" of topsoil removed during excavation.

Excavation, Backfill and Sitework

- B. Replace damaged flowers, shrubbery and trees with new plantings of equal type and quality at no cost to Owner; trees removed because of conflict with alignment of pipe shall not be replaced, except where shown on plans.
- C. Grade tops of trenches to smooth, uniform lines without large lumps, clods or debris.
- D. Dispose of all brush and rubbish as directed by Engineer.
- E. Seed all areas disturbed by construction unless otherwise shown on plans directed by Engineer.
- F. Prepare site for seeding by discing, harrowing and hand raking or other means following site grading; work soil to depth of 3".
- G. Precede seeding with uniform application of commercial grade fertilizer at rate per acre of 20 lbs. of nitrogen, 40 lbs. of phosphorous and 20 lbs. of potassium (400 lbs. of fertilizer grade 5-10-5 per acre, or approved equal); cultivate area 3" deep and work with harrow within 24 hours before seeding; smooth surface to eliminate clods and lumps before seeding.
- H. Seeding in street parkings, lawns and developed areas, (Type 1):
 - 1. Seed at rate of 4 lbs. per 1,000 SF with following mixture proportioned by weight:

<u>Seed</u>	<u>Percent</u>
Kentucky Bluegrass	35
Annual Rye	25
Perennial Rye	20
Creeping Red Fescue	10
Chewing Fescue	10

- I. Cover seed by rolling with cultipacker, or by dragging or hand raking.
- J. Mulch all seeded areas; mulch: dry oat straw at rate of 4,000 lbs. per acre; stabilize mulch with tiller designed to anchor mulch to soil.
- K. Water seeded area sufficiently to saturate seed bed; continue watering all areas until growth is established; City will furnish water at no cost to Contractor.

Excavation, Backfill and Sitework

L. Contractor responsible for turning over to Owner full stand of grass; replant or redevelop bare spots or areas not attaining full stand of grass during first growing season.

M. Surface restoration is incidental to construction.

12. SILT FENCE

A. Install silt fences to keep soil from migrating off-site until grass has been established. Location as noted on plans. Contractor responsible for removal of silt fences. Comply with IDOT standard detail for silt fences.

13. GRANULAR SURFACING

A. Provide granular surfacing as shown on plans and as directed by Engineer.

B. Material: Class A crushed stone conforming to IDOT Section 4120.04.

C. Place and compact granular shoulders.

D. Minimum thickness: 6".

E. Construction of earthen shoulders is incidental to construction.

14. PAYMENT

A. No separate payment will be made for work covered in this part of the specifications except as set forth below. Contract unit prices shall include all costs for each item of work.

B. If items, for which no unit prices are shown on Proposal, are required during construction, contract price shall be adjusted on basis of unit price negotiated with Contractor.

C. Stabilizing Material, CY: Unit price includes additional excavation, dewatering, labor, materials, equipment and incidentals for providing stabilizing material in place of unsuitable foundation materials and where directed and authorized by Engineer; measurement will be computed by average end area method within specified trench width limit or neat lines of foundations.

1. Excludes pipe bedding shown on plans and Standard Drawings or specified which is incidental to construction.

Excavation, Backfill and Sitework

- D. Excavation, LS: Lump sum price includes all labor, materials and equipment necessary to excavate, haul, compact, and grade areas in vicinity of storm sewer and street improvements as shown on plans.
 - 1. Estimated quantity based on average end area method. Contractor shall assure himself as to the accuracy of estimated quantities.

- E. Silt Fence, LF: Unit price includes cost of equipment, labor, materials and incidentals necessary to install silt fences at locations determined in the field by Engineer and as required to comply with Contractors erosion control plan and miscellaneous associated work.
 - 1. Silt fence necessary to be removed and reinstalled because silt fence is full will be measured and paid for at the unit bid price for linear feet of silt fence.

- F. Seeding, LS: Lump price includes furnishing all labor, materials and equipment necessary for site preparation, fertilizing, seeding, straw mulch, watering and miscellaneous associated work.

- G. Granular Surfacing, Tons: Unit price includes full compensation for labor, materials and equipment necessary to place granular surfacing at locations shown on plans.
 - 1. Does not include temporary granular surfacing for pavement, driveway, or Sidewalk.

PART 4 - PIPES AND STRUCTURES

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1. WORK INCLUDED

A. All sewers, piping, intakes, and appurtenances.

2. GENERAL

A. Before installation, verify all measurements including:

1. Location of appurtenances and connections to existing sewers.
2. Type and location of joints on existing sewers at points of connection.
3. Outside diameter of existing sewers.

B. Make necessary field measurements to determine pipe laying lengths; work pipe into place without forcing or springing.

C. Details of existing pipe not guaranteed.

3. PIPE MATERIALS

A. Reinforced concrete pipe (RCP): ASTM C76, tongue and groove Class III, Wall B; install on hand shaped trench bottom (Class C bedding).

B. High Density Polyethylene (HDPE): AASHTO M 294, Type S corrugated exterior and smooth interior; ASTM D3350 minimum resin Cell Classification 335420C; minimum pipe stiffness at 5% deflection according to ASTM D2412.

4. PIPE JOINTS

A. Reinforced concrete pipe: provide cold applied bituminous jointing material as recommended by pipe manufacturer.

B. High Density Polyethylene: provide integral bell and spigot joints with elastomeric seals complying with ASTM F477; coat gasket and joint with soap-based lubricant immediately prior to closing the joint.

5. JOINT PROTECTION AND INSPECTION

- A. Carefully protect joints from injury while handling and storing pipe.
- B. Use no deformed, gouged or otherwise impaired joints.
- C. Clean bell and spigot surface of dirt and foreign matter before jointing pipe.
- D. Make joints in strict accordance with manufacturer's recommendations.

6. SEWER PIPE INSTALLATION

- A. Before laying pipe, verify all measurements at site; make necessary field measurements to accurately determine sewer make-up lengths or closures.
- B. Begin at lowest point in line; lay groove or bell ends pointing upstream.
- C. Keep pipe free of all dirt and foreign material.
- D. Use no defective pipe; check each length for defects and hairline cracks at ends prior to lowering into trench.
- E. Lower pipe carefully into trench; lay true to line and grade.
- F. Provide a smooth and uniform invert; hand shape trench bottom; bear spigots against bell shoulders.
- G. Pull joints together with equipment recommended by pipe manufacturer; do not use backhoe to push joints together.
- H. Line and grade:
 - 1. Provide, install and operate laser light equipment for line and grade control.
 - 2. Provide and install detection equipment to constantly monitor laser light to prevent movement or drift of light from line and grade.
 - 3. Check line and grade of each pipe with laser light.
 - 4. Provide stakes for line and grade as specified hereinbefore.
- I. Continuously check alignment of sewer by flashing light between manholes or between last piece of pipe laid and opening at downstream manhole. Correct misalignment, displacement or otherwise defective sewer at Contractor's expense.

7. CONNECTIONS BETWEEN DISSIMILAR PIPE

- A. Provide manufactured adaptor or coupling; if not available: provide concrete collar 6" thick and 12" each way from joint; reinforce with 6x6-W2.9 x W2.9 welded wire fabric.
- B. Cover joint with burlap diaper band; bind at edge with No. 9 tie wires.

8. WATER MAIN CONFLICTS

- A. Notify Engineer of any water service line conflicts.

9. INTAKES

- A. Construct intakes as shown on standard drawing and as noted on plans.
- B. Intake castings:
 - 1. Curb grate: Construct Nyloplast intakes according to Manufacturer's installation drawings, or equal.
 - 2. Secure frame to intake with anchor bolts.
- C. pvc Drainage basins; use where shown on plans for temporary intakes; pvc body, H-20 rating, HDPE pipe; adapters at outlets to fit pipe connection shown on plans.

10. PAYMENT

- A. No separate payment will be made for work covered in this part of the specifications except as set forth below. Contract unit prices include all costs for each item of work.
- B. Storm Sewer Pipe in Place, LF:
 - 1. Unit price includes furnishing pipe, flared end sections, handling, laying, hand shaped trench bottom, materials, trench excavation, dewatering, connections between dissimilar pipes, sheeting, shoring and bracing and miscellaneous associated work.
 - 2. Does not include additional cost of sheeting left in place at Engineer's direction, extra pipe bedding and sand backfill at Engineer's direction; Engineer will direct Contractor to use crushed stone pipe bedding material where trench is excavated below bottom of pipe and hand shaping of trench bottom below pipe is not in undisturbed earth.

Pipes and Structures

3. Length will be measured along centerline of pipe from end of flared end section to inside face of structure or intake wall with no deduction for intakes in between.
- C. Intakes, Ea.: Unit price includes furnishing, installing, excavating, concrete, frame and cover, blocks, reinforcing, backfill and miscellaneous associated work.
- D. Hydrant Adjustment, Ea.: unit price includes furnishing and installing hydrant barrel extension, excavation, backfill, painting, and miscellaneous associated work.

PART 5 – PORTLAND CEMENT CONCRETE PAVEMENT

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| 5. MIXING | 11. DRIVEWAY APPROACH AND SIDEWALK CONSTRUCTION |
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1. GENERAL

- A. This part of the specifications includes construction of portland cement concrete pavement, curb and gutter, and sidewalks, using preset forms on prepared subgrade or subbase.
 - 1. Prepare subgrade or subbase as specified in EARTHWORK AND INCIDENTALS FOR PAVEMENT.
 - 2. Construct curb and gutter as specified hereinafter.
- B. Non-reinforced portland cement concrete pavement includes deformed tie bars and joints as shown on plans.

2. MATERIALS

- A. Portland cement: ASTM C150, Type I.
- B. Admixtures:
 - 1. Air entraining: ASTM C260; no admixtures containing chlorides will be permitted.
 - 2. Retarding: a suitable retarding admixture may be used during hot weather, with approval of Engineer.
 - 3. Calcium chloride not permitted.
- C. Fine aggregate:
 - 1. Clean, hard, durable particles of natural sand, free from injurious amounts of silt, shale, coal, organic matter or other deleterious substances.
 - 2. Deleterious substances: not more than 2.0% shale and coal by weight retained on No. 16 sieve.
 - 3. Organic matter: other than coal, not more than standard reference color; ASTM C40.

Portland Cement Concrete Pavement

4. Conform to following sieve analysis:

<u>Sieve Size</u>	<u>% Passing</u>
3/8"	100
No. 4	90-100
No. 8	70-100
No. 200	0-1.5

5. Percent passing one sieve and retained on next higher number sieve not more than 40% when sieved through 4 and 8 numbered sieves.
6. Mortar strength at 7 days not less than 1.5 times standard sand strength when tested in accordance with IDOT Laboratory Test Method 212.

D. Coarse aggregate:

1. Clean, hard, durable particles of crushed limestone free from injurious amounts of objectionable materials.
2. Objectionable materials not more than:

	<u>Percent</u>
Clay lumps	0.5
Coal and carbonaceous shale	0.5
Sticks (wet weight)	0.1
Total of all shale and coal combined	1.0
Organic material other than coal and sticks	0.0
Unsound chert particles retained on 3/8" sieve	3.0

- a. Chert particles breaking into three or more pieces in freezing and thawing test, IDOT Laboratory Test Method 211, Method A, are considered unsound.
3. Conform to following sieve analysis:

<u>Sieve Size</u>	<u>% Passing</u>
1-1/2"	100
1"	50-90
3/4"	30-80
1/2"	20-75
3/8"	5-55
No. 4	0-10
No. 8	0-5
No. 200	0-1.5

Portland Cement Concrete Pavement

4. Percent of wear, AASHTO T96, Grading A or B, not to exceed 35 for gravel, 50 for crushed stone which contains 90% or more calcium carbonate or 45 for all other crushed stone.
 5. Particle durability: IDOT Section 4115.04, Class 2 or Class 3.
- E. Water: clean and clear, free from salt, oil, acid, strong alkalis, vegetable matter or other substances injurious to concrete.
1. Water may be heated for cold weather paving operations; anti-freezing agents not permitted.
- F. Reinforcing steel:
1. Deformed bars: billet steel; ASTM A615, Grade 40; epoxy coated.
 2. Plain and smooth dowel bars: carbon steel; ASTM A306, Grade 60; epoxy coated.
 3. Welded wire fabric: ASTM A185.
- G. Metal expansion tubes:
1. Fabricated steel tubes; conform to requirements of IDOT; provide tubes with internal diameter 1/16" larger than dowel bar; bar stop capable of withstanding 20 lb. push, minimum.
- H. Metal keyways:
1. Fabricated 24 gauge sheet steel; conform to requirements of IDOT; provide lengths in multiples of tie bar spacing; punch to receive tie bars.
- I. Supports for reinforcing steel:
1. Support tie bars as required to place and maintain correct location during construction.
 2. Welded wire fabric supports: heavy gauge wire, welded or bent to form four-legged chair.
 3. Support dowel bars at expansion and contraction joints.
- J. Joints:
1. Bituminous joint filler and sealer: hot poured joint filler: ASTM D3405; use with backer rope; comply with IDOT 2301.25.
 2. Preformed expansion joint filler: asphalt saturated fiber strips; AASHTO M213; furnish in strips of plan dimensions; use IDOT preformed joint seal.
- K. Liquid curing compound: IDOT 4105.05; do not use in areas to receive asphalt overlay; use plastic or burlap.
- L. Plastic film: opaque, white pigmented polyethylene plastic, 0.00085" minimum thickness, use only once if less than 0.0034" thick.

M. Fly ash: permitted as substitute for portland cement when source and mix design is in conformance with Iowa DOT Standard Specifications and Supplemental Specifications.

3. STORAGE AND PROTECTION OF MATERIALS

A. Aggregates:

1. Store fine and coarse aggregate in separate stockpile; avoid contamination of aggregates; place fine aggregate with more than 5.0% moisture in separate stockpile and allow to drain.
2. Stockpile coarse aggregate and unscreened gravel in horizontal layers; maximum depth: 4'.
3. Handle aggregates to avoid frequent variations in specific gravity, sieve analysis or moisture content; prevent variations of more than 0.5% in moisture content of aggregates in successive batches.
4. Coarse aggregate having absorption greater than 0.5%: wet 1 hr. before use.
5. Place fine aggregate in proportioning bin only when uniform moisture content can be maintained in successive batches for one day's run.

B. Cement:

1. Store cement in suitable weatherproof structure; prevent loss of cement during handling.
2. Use cement containing lumps only after careful screening through 20 mesh screen; retest in accordance with ASTM C150 before use.

4. PROPORTIONS FOR MIX

A. Mix proportions for street pavement, curb and gutter, drive approaches and sidewalks adjacent to street pavement:

1. Basic absolute volumes of materials per unit volume of concrete as per IDOT Section 2301.04:

	<u>M-4</u>	<u>C-4</u>
Cement Minimum	0.156	0.118
Water	0.160	0.160
Entrained Air	0.06	0.06
Fine Aggregate	0.312	0.331
Coarse Aggregate	0.312	0.331

2. Above quantities based on specific gravity of cement: 3.14; specific gravity of aggregates: 2.65; air voids: 6.0%.

Portland Cement Concrete Pavement

3. Air entraining admixture: produce $6.5\% \pm 1.5\%$ air voids in fresh concrete measured by pressure method.
 4. Use C-4 mix except use M-4 mix where shown on plans.
- B. Proportion adjustments:
1. Basis: when actual quantity of concrete is more than 101% or less than 99% of calculated quantity or if combination of materials does not produce quality of concrete specified.
 - a. Fine aggregate shall not exceed 50% of total aggregate in any adjustment.
 - b. Do not exceed maximum water-cement ratio specified.
- C. Water quantity and concrete consistency:
1. Use proper amount of mixing water to produce concrete of uniform consistency; adapt to mix, characteristics of materials used, methods of consolidation, weather conditions and slope of finished surface.
 2. Modify proportion if maximum water-cement ratio does not produce workability; increase cement to aggregate proportion to produce specified degree of workability without exceeding maximum water-cement ratio.
- D. Tests on trial batches and concrete placed at project site:
1. Slump: ASTM C143; 1-1/2" to 3" for machine finished concrete; 4", maximum, for hand finished concrete.
 2. Air voids, of fresh concrete, by pressure method: ASTM C231; $6.5\% \pm 1.5\%$.
 3. Minimum compressive strength: ASTM C39; 3,100 psi when tested at 3 days and 4,000 psi when tested at 28 days.
 4. Quantity of compression cylinders as specified in GENERAL REQUIREMENTS; cast, protect and cure cylinders in accordance with ASTM C31.
5. MIXING
- A. Batch mix:
1. Handle batches and charge mixer to insure complete introduction of batches separately without loss of materials; add water with other materials.
 2. Do not allow batch volume of mixed concrete to exceed mixer size designation number.
 3. Size designations: as shown in Concrete Mixer Standards of Mixer Manufacturers Bureau of Associated General Contractors of America, Inc. in effect at time of manufacture of mixer.
 4. If uniform concrete cannot be produced with maximum batch volume; reduce batch volume and/or increase mixing time.

- B. Ready-mix:
 - 1. Applies to either central plant-mixed concrete or central plant-proportioned, truck-mixed concrete.
 - 2. Time lapse from addition of water until placing on subgrade: not to exceed 30 min. when concrete is hauled in non-agitating trucks; 1-1/2 hrs. when hauled in truck mixers or agitating trucks; provide reliable re-set revolution counter on truck mixer.
 - 3. Place concrete in plastic and workable condition; do not re-temper partially hardened concrete.

6. EQUIPMENT REQUIREMENTS FOR PAVEMENT CONSTRUCTION

- A. Batch or ready-mix plant: IDOT 2001.06, 2001.20 and 2001.21.
 - 1. Automatic cut-off gates at cement batching scale not required.
 - 2. Scales and measuring devices certified at Contractor's expense.
- B. Concrete mixing equipment: IDOT 2001.21.
- C. Forms: IDOT 2301.07 A1 and A2.
- D. Form-line excavating machine: IDOT 2301.07 A5 or B1.
- E. Steel-shod template: IDOT 2301.07 A6 or B2.
- F. Consolidating and finishing equipment: IDOT 2301.07 A7 or B3.
- G. Equipment for hand methods: IDOT 2301.07 D and E.
- H. Alternate equipment and methods for finishing and consolidating pavement may be permitted by Engineer if satisfactory operation and construction on previous projects can be demonstrated.

7. PAVEMENT CONSTRUCTION

- A. Setting and removing forms:
 - 1. Set forms accurately to required grade and alignment on properly compacted subgrade or subbase; for forms to support mechanical subgrader, mechanical spreader, mechanical finisher or other similar heavy equipment, excavate with machine designed to shape subgrade for forms.
 - 2. Set base of form at or below subgrade elevation and with top of form at pavement surface elevation at edge of slab.
 - a. Extra height forms may be used to back up integral curb; set base at or below subgrade elevation and top of form at top of curb elevation.

Portland Cement Concrete Pavement

- b. Comply with IDOT 2301.9A if base of form is set below subgrade elevation; additional excavation and concrete at no cost to Owner.
 3. Secure forms in place to maintain grade and alignment while concrete is placed and finished.
 - a. If voids occur under forms, remove forms and bring special backfill to proper elevation as specified in EARTHWORK AND INCIDENTALS FOR PAVEMENT.
 - b. Check form joints with 10' straight edge; adjust forms to proper grade and alignment.
 4. If supporting soil becomes softened by rain or standing water so form is inadequately supported, reset form on suitable material before placing concrete.
 5. Oil forms before concrete is placed; prevent adherence of concrete.
 6. Leave side forms in place not less than 6 hours after concrete is placed; if form removal causes damage to concrete, leave remaining forms in place longer than 6 hours, as required.
 7. Remove forms with care to prevent cracking, spalling or overstressing concrete; remove form stakes prior to raising forms.
 8. Clean forms before resetting.
 9. Forms not required where abutting existing pavement.
- B. Concrete and steel placement:
1. Uniformly moisten subgrade or place plastic film, specified hereinbefore, on prepared subgrade or subbase; lap plastic film 12", minimum.
 2. Adjust manhole and other castings within area to be paved to conform to finished surface; clean outside of casting.
 3. Place dowel and tie bars as shown on plans or specified; secure in position by approved method.
 4. Place concrete to full depth of pavement in single operation; do not pile concrete more than 8" above design elevation of surface; allow no segregation of material when concrete is deposited on subgrade.
 5. Carefully place concrete and subgrade to require minimum re-handling; minimize disturbance of reinforcement.
 6. Vibrate and consolidate to prevent formation of voids; do not displace or distort reinforcement.
- C. Finishing:
1. Begin finishing operations promptly after concrete has been placed and consolidated.
 2. Screed surface to grade and crown shown on plans.
 3. Finish surface with 10' long lightweight float; finish from both sides simultaneously if pavement is placed to full width of street with one pass of paving machine.

Portland Cement Concrete Pavement

4. Provide uniformly gritty surface with Astroturf drag; round edges of pavement to 1/8" radius.
 5. Check pavement surface with 10' long straightedge; maximum permissible deviation: 1/8"; grind high spots, over 1/8", with carborundum grinding wheel.
- D. Construct joints as shown on plans and specified; seal as specified hereinafter.
1. Provide transverse contraction joints every 15 LF of portland cement concrete pavement.
 2. Round edges of concrete adjacent to header boards and expansion joint material to 1/8" radius.
 3. Provide supplemental vibration adjacent to header boards and expansion joint material as required.
 4. Begin saw cutting as soon as concrete can be sawed without objectionable tearing of sawed edges; complete such work within 24 hours after concrete is placed.
 5. For weather conditions, end of day's work, or when 30 min. elapse between concrete placement, install header board and 3/4" smooth dowels 1'-3" long at 1'-6" spacing through header board; grease protruding ends prior to next concrete placement.
- E. Seal all joints before pavement is opened to Contractor's forces and general traffic; seal only dry and clean joint surfaces; slightly under-fill joints, keep sealer off of adjacent pavement.
1. Heat joint sealer to required temperature in thermostatically controlled heating kettle approved by Engineer; do not overheat.

8. CURING AND PROTECTION

- A. Apply liquid curing compound in fine spray to form continuous, uniform film on surface and vertical edges of pavement and curbs.
1. Apply compound with power sprayer, operating at 40 psi or less; rate of application: 0.03 gal. per square yard (1 gal. per 300 SF); do not dilute compound.
 2. Apply to pavement surface after finishing and after surface moisture has disappeared; apply to pavement edges within 30 min. after forms are removed.
- B. Apply plastic or burlap cover where liquid curing compound not permitted; keep continuously damp for 48 hours after placement of concrete.

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C. Concrete pavement in place for less than 36 hours shall be protected during cold weather as follows:

<u>Forecast or Actual Temperature</u>	<u>Protection</u>
35° to 32°F.	One layer of burlap for concrete placed after October 1.
31° to 25°F.	Two layers burlap or one layer plastic film on one layer burlap.
Below 25°F.	One layer burlap or plastic film and 6" layer of straw or hay.

1. Burlap: AASHTO M182, Class 3.
2. Commercial insulation may be substituted for straw or hay, when approved by Engineer.
3. Protect straw, hay or insulation from disturbance by wind; leave in place for 5 days, minimum, or until pavement is opened to traffic.
4. Lap plastic film 18" at junctions.

D. Concrete damaged by rain or freezing shall be removed and replaced at Contractor's expense.

9. RESTRICTIONS

A. Weather:

1. Place no concrete when stormy or inclement weather prevents good workmanship, when subgrade is frozen or if air temperature is 38°F. or below; use no aggregates containing frozen lumps.
2. With favorable weather conditions, start paving operations when temperature of concrete delivered to subgrade is 40°F. or higher.
3. Continue paving operations as long as concrete temperature requirement is met and air temperature remains above 38°F.

B. Night operation:

1. Place no concrete when darkness prevents good workmanship in placing and finishing.
2. Do not place or finish concrete under artificial light.

Portland Cement Concrete Pavement

C. Use of pavement:

1. Time for opening pavement for use will be determined by results of tests on cylinders taken during concrete placement.
2. Pavement may be opened to Contractor's forces after 2 days for purpose of removing coverings if tests of cylinders from section show compressive strength of 2,750 psi or higher.
3. Open pavement to general traffic when authorized by Engineer.
4. Concrete placed in cold weather may require additional curing time, as directed by Engineer; keep all vehicles off pavement until such curing time has been completed.

10. DEFECTS

- A. Pavement containing fractures, spalls, more than one random crack per panel or other defects: remove and replace at no cost to Owner; rout and seal random cracks including placement of saw cut and epoxy cemented tie bars at 30" centers transverse to crack where crack is 1/8" or wider.
- B. Water ponding deeper than 1/4" in gutter: remove and replace panel, or grind gutter in adjacent panels to drain; Owner reserves the right to select method of correcting defects at no cost to Owner.
- C. Remove and replace pavement more than 0.50" deficient in thickness.

11. DRIVEWAY APPROACH AND SIDEWALK CONSTRUCTION

- A. Conform to details shown on Standard Drawing and plans for driveway approaches and sidewalks; prepare subgrade as specified under EARTHWORK AND INCIDENTALS FOR PAVEMENT.
- B. Remove existing concrete as shown on Standard Drawings or plan; use saw or other devices to cut smooth, even lines perpendicular to existing pavement surface.
- C. Concrete materials:
 1. Portland cement, admixtures, fine aggregate and water; as specified for pavement.

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2. Coarse aggregate: as specified for pavement, except conform to following sieve analysis:

<u>Sieve Size</u>	<u>% Passing</u>
1-1/2"	100
1"	95-100
1/2"	25-60
No. 4	0-10
No. 8	0-5
No. 200	0-1.5

- D. Concrete mix: use IDOT Section 2301.04 C-4 mix as specified for street pavement.
- E. Forms: use wood or steel forms adequately staked and braced for all exposed slab edges; secure forms in place to maintain grade and alignment while concrete is placed and finished.
1. Set base of form at subgrade elevation or below with top of form at pavement surface elevation at edge of slab; set forms on properly compacted materials.
 2. Oil forms before concrete is placed.
 3. Leave forms in place not less than 24 hours after concrete is placed.
 4. Remove forms with care to prevent cracking, spalling or overstressing concrete.
- F. Concrete placement: as specified for plain pavement; provide supplemental vibration or spading at edges, joints and other areas where honeycombing may occur.
- G. Screed to uniform lines; finish surface with wood or cork float.
- H. Construct expansion joints as shown on plans; seal joints after concrete has cured; use applicable materials specified for pavement expansion joints.
- I. Cure and protect driveway approaches and sidewalks as specified for pavement.
- J. Restrictions on construction and use of pavement apply to driveway approaches and sidewalks.

12. PAYMENT

- A. No separate payment will be made for work covered under this part of the specifications except as set forth below. All other items are incidental to

Portland Cement Concrete Pavement

construction. Surfacing damaged by Contractor beyond removal limits replaced by Contractor at no cost to Owner.

- B. Concrete Curb and Gutter, LF: Unit price includes cost of equipment, labor, materials and incidentals necessary to complete work required for construction of new portland cement concrete curb and gutter as specified. Gutter thickness 6". Measurement based on length along back of curb.
- C. Sidewalk, SY: Unit price includes furnishing all labor, equipment and materials necessary to complete work required for removal of existing walks, construction of new portland cement concrete sidewalks including subgrade preparation, forming, placing, consolidating, testing, finishing, jointing, curing, and miscellaneous associated work including cleanup.
 - 1. Sidewalk thickness: minimum thickness is 4" except at section through driveways where minimum thickness is 6" and except at pedestrian curb ramps where minimum thickness is 6" and thickened to 8" where sidewalk forms or abuts curb.
 - 2. 6" thick sidewalk sections through driveways will be paid for as 6" thick sidewalk; all other sidewalk including pedestrian curb ramps and thickened edges will be paid for as 4" thick sidewalk.
- D. Portland Cement Concrete Pavement, SY: Unit price includes cost of equipment, labor and materials and incidentals necessary to complete work required for construction of new portland cement concrete pavement as specified and shown on plans.

PART 6 – REINFORCING STEEL

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1. WORK INCLUDED

A. Includes all reinforcing steel and wire fabric.

2. REINFORCING STEEL

A. Billet steel bars: ASTM A615, Grade 60.

B. Bend cold to conform with required details; bend bars in fabricating shop before delivery to site.

C. Space properly and tie securely in position before placing concrete; tie with minimum No. 18 tie wires as directed by Engineer.

D. Lap bars 48 diameters, unless noted otherwise on plans.

E. Remove scale, rust, dirt or other coatings which may impair bond; comply with ACI 318.

F. Install reinforcing steel in correct position with preformed wire bar bolsters and spacers.

G. Place concrete only after reinforcing system is in place and approved by Engineer; install reinforcing system plumb and true; tie securely; reinforcing must remain in proper position without distortion or displacement of individual bars or system during pour.

H. Pavement tie bars and dowels: epoxy coated, IDOT approved.

3. WIRE FABRIC

A. Electrically welded wire fabric: ASTM A185 and A82.

B. Size and mesh: as shown on plans or specified.

C. Place securely where shown on plans.

Reinforcing Steel

D. Lap fabric not less than 6".

E. Remove scale, rust, dirt and other bond-impairing materials.

4. PAYMENT

A. No separate payment will be made for work covered under this part of the specifications. Include all costs in applicable unit prices for items to which work pertains.

PART 7 – HOT MIX ASPHALT PAVEMENT

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1. WORK INCLUDED

- A. Hot asphalt mix base, intermediate and surface mixtures of aggregate, mineral filler and asphalt binder; heated, mixed, spread and compacted to dimensions shown on plans.
- B. Construction of hot mix asphalt pavement on prepared subgrade or subbase.
- C. Preparation of subgrade; as specified in EARTHWORK AND INCIDENTALS FOR PAVEMENT.
- D. Meet requirements of IDOT Section 2303, except asphalt binder and samples will not be measured and paid for separately. Include in cost for hot mix asphalt pavement.
- E. Certified plant inspection not required
- F. Includes minor full depth HMA fillets at abutments to existing pavements.
- G. Includes roto milling existing pavement where shown on plans.

2. MATERIALS

- A. Asphalt binder:
 - 1. Petroleum asphalt binder, IDOT 4137.
 - 2. Performance grade asphalt PG 64-22.
- B. Other materials: meet requirements of IDOT Section 2303.02.

3. PAVING PLANT AND EQUIPMENT

A. Meet requirements of IDOT Section 2303.02.F.

4. JOB MIXING FORMULA

A. Certify that sources of aggregates and binder are IDOT approved. Provide analyses of samples of materials to be used.

B. Base course: Type A 3/4" mixture size, 300K ESAL, min. 60% crushed particles.

C. Intermediate course: Type A 1/2" mixture size, 300K ESAL, min. 60% crushed particles.

D. Surface course: Type A 1/2" mixture size, 300K ESAL, min. 60% crushed particles.

5. SURFACE PREPARATION

A. Remove all loose and foreign material from pavement surface; provide clean surface for placement of asphaltic concrete paving mixture.

B. Surface must be dry prior to application of tack coat and asphaltic concrete paving mixtures.

C. Set grade of fixtures to finished pavement grade or side slope grade.

6. BASE AND SURFACE COURSES

A. Spread with finishing machine in areas of uniform width.

B. Adjust forward speed of finishing machine as necessary to provide least amount of stopping.

C. Place in thicknesses as shown on plans.

D. Use string line to maintain edge alignment.

E. At exposed edges, slope base and surface courses at 45° from vertical; smooth and compress with finishing machine.

F. Make provisions for clean, sharp edges by sawing or other means.

Hot Mix Asphalt Pavement

- G. Do not rake or disturb layer spread by machine; do all hand raking in area before placement with finishing machine.
- H. Allow all courses to cool to air temperature before placing additional course
- I. Surfaces requiring three or more adjacent passes of finishing machine:
 - 1. Outer lanes laid first.
 - 2. Closure of surface made by interior lanes near centerline.
- J. Surfaces requiring two adjacent passes of finishing machine; complete to full width within 24 hours.
- K. Spread no more hot mix asphalt than can be finished in daylight hours.
- L. If surface of layer becomes dirty, clean and reapply tack coat, at no expense to Owner.
- M. Provide approved weight tickets for hot mix asphalt incorporated into pavement.

7. HANDLING AND DELIVERY

- A. Control handling and manipulation of hot mix asphalt paving mixture from mixer to final spread to maintain uniform composition; prevent segregation of course particles.
- B. Maintain continuous and uniform delivery rate to provide least amount of stopping of spreading unit.
- C. Keep all trucks covered when delivering asphalt mixture to job site.
- D. Do not use cleaning solutions such as kerosene, distillate or petroleum fractions over pavement surfaces.
 - 1. Do not carry such cleaning solutions on spreading unit.
 - 2. Wait 5 hours before using spreader unit after cleaning with above materials.
- E. Keep hand tools clean by heating and scraping.

8. HAND SPREADING

- A. Use hand method of spreading only in areas not accessible to finishing machine.
- B. Do not dump truckloads of hot mix asphalt paving mixture on area to be hand spread.

- C. Spread uniformly with hot rakes and shovels; smooth with lute.
- D. Use hand rakes designated for use with asphalt mixture s.
- E. Do not stand on loose mixture while raking.

9. ROLLING

- A. Roll each layer to proper density.
- B. Use power or driving roll for initial contact.
- C. Begin at edge and work toward centerline; reverse trip lapping 2/3 to 3/4 of previous track.
- D. Stagger ends of roller tracks not less than 3' in a manner that tracks will not hold water on surface.
- E. Do not pass roller over end of course unless laying has been discontinued.
- F. Following initial rolling, start intermediate rolling to close surface tears and voids.
 - 1. Roll entire area not less than four times.
 - 2. Roll until pavement has a density not less than 94% of density obtained in laboratory on mixture.
 - 3. Meet requirements of Class IC Compaction, IDOT Section 2303.03.D.

10. JOINTS

- A. Separate longitudinal construction joints between courses at least 3".
- B. Separate transverse construction joints at least 6'.
- C. Pave along longitudinal joints to secure closure of joint and full compression of mixture with smooth surface after compaction.
- D. Saw transverse joints at right angles to centerline of pavement.
- E. Provide paper or burlap under ramp at end of day's run.

11. SMOOTHNESS

- A. After second rolling, check base course and surface course with 10' straight edge in direction of rolling.

- B. For variations greater than 1/4" in base and binder courses and 1/8" in surface course: heat bumps to soften mixture; smooth with rakes; roll to obtain proper density.
- C. For depressions 1/2" and smaller: heat and loosen surface; add mixture free of coarse particles; lute to proper elevation and roll to obtain proper density.
- D. For depressions greater than 1/2": remove asphaltic concrete paving mixture; replace with fresh mixture; compact and roll to proper density.
- E. Pavement smoothness testing in accordance with IDOT Section 2316 is not required.

12. LIMITATIONS ON OPERATIONS

- A. Do not apply asphaltic concrete paving mixtures at pavement temperatures of less than 40°F.; do not apply to wet or damp surface.
- B. Place no asphaltic concrete paving mixtures between November 15 and April 15 of following year without written approval of Owner and Engineer.

13. SAMPLES

- A. Provide and test uncompacted samples of each mixture at location designated by Engineer in accordance with IDOT Section 2303.04.D.; split sample with Owner not required.
- B. Cut samples and test from any course or from finished pavement in accordance with IDOT Section 2303.04; cut additional samples as directed by Engineer if deficiencies occur in pavement thickness, density or stability.
 - 1. If cores taken are less than the specified thickness or density, adjustments in payment will be made in accordance with IDOT section 2303.06.
- C. Engineer will require changes in mix design, or placement and compaction procedures if asphalt mixture or pavement density fail to meet requirements specified.

14. PAYMENT

- A. No separate payment will be made for work covered under this part of the specifications, except as set forth below.

Hot Mix Asphalt Pavement

- B. Hot Mix Asphalt Base Course, Tons: Unit price includes furnishing labor, materials, equipment, sampling and testing, and incidentals for constructing paving as shown on plans; measurement based on delivery tickets at job site, subject to adjustment based on core samples.
- C. Hot Mix Asphalt Intermediate Course, Tons: Unit price includes furnishing labor, materials, equipment, sampling and testing, and incidentals for constructing paving as shown on plans; measurement based on delivery tickets at job site.
- D. Hot Mix Asphalt Surface Course, Tons: Unit price includes furnishing labor, materials, equipment, sampling and testing, and incidentals for constructing paving as shown on plans; measurement based on delivery tickets at job site, subject to adjustment based on core samples.

PART 8 – EARTHWORK AND INCIDENTALS FOR PAVEMENT

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1. GENERAL

- A. This part of the specifications includes earthwork and incidentals to complete grading for placement of pavement.
- B. Reference to percent maximum density shall mean a soil density not less than the stated percent of maximum density of optimum moisture content for soils as determined by ASTM D698 Moisture-Density Relations of Soils using 5.5-lb. Rammer and 12-in. Drop. (Standard Proctor Method).
- C. Do work in accordance with best present-day installation and construction practices.

2. STRIPPING

- A. Strip vegetation and organic materials within construction limits; remove from project site and dispose of removed materials at site obtained by Contractor.
- B. Grade and shape earth surfaces within construction limits to specified cross section; finish earth surfaces as specified hereinafter.
- C. Grade and shape borrow site earth surfaces to drain; finish earth surfaces as specified hereinafter.
- D. Stockpile excess on-site excavated materials at location as directed by Engineer; stockpile excess topsoil in segregated stockpile; excess excavated materials remain property of Owner.
- E. Include costs associated with stripping and grading in unit price for excavation.

3. SURFACING REMOVAL

- A. Remove existing surfacing to limits shown on plans.
 - 1. Cut vertically and horizontally on straight lines; saw cut full depth of surfacing.
 - 2. Portland cement concrete pavement: remove to nearest joint or as directed by Engineer and as shown on plans; cut steel as necessary.
 - 3. Asphalt pavement: cut to a neat line. Mill or grind asphalt paving to break up surface into particles that can be blended with granular subbase. Asphalt shall be processed such that 100% of the material is a nominal 2" maximum size. Material shall be of sufficiently stable quality to resist distortion during pavement construction.
 - 4. Milling of existing surfacing can include 2" asphalt surfacing and any depth of granular base material beneath paving that is required to facilitate milling operation. Milled pavement is to be blended evenly with existing granular base material and stockpiled for reuse beneath new paving.
 - 5. If remaining surfacing along saw cut line becomes cracked or broken during construction, provide additional saw cuts, surface removal and surface replacement as directed by Engineer at no cost to Owner.
- B. Dispose of waste and excess material not suitable for reuse at acceptable disposal area.

4. EXCAVATION

- A. Excavate to subgrade required for pavement construction.
- B. Dispose surplus excavated material as directed.
- C. Provide temporary drainage facilities to prevent damage to public or private interests when necessary to interrupt natural drainage or flow of artificial drains.
- D. Restore original drains as soon as work will permit.
- E. Contractor liable for damage resulting from neglect to provide for interrupted natural or artificial drainage.
- F. Do not damage pavement or disturb subgrade beneath existing pavement which will not be removed.
- G. Provide topsoil backfill behind curbs unless specified otherwise.

Earthwork and Incidentals for Pavement

- H. Grade and shape earth surfaces within grading limits to specified cross section; finish earth surfaces as specified hereinafter.
- I. Include all earthwork cost in lump sum price for Excavation.

5. SUBGRADE PREPARATION

- A. Provide uniform composition at least 6" below pavement subbase for full width of pavement plus 2' beyond edge of pavement; roll and scarify materials, mix and re-compact, or otherwise treat to produce a uniform condition.
- B. Remove and dispose of stones over 4" in size from loosened portion of subgrade.
- C. Construct subgrade with uniform density for a width of proposed pavement plus 2' beyond edge of pavement; density: not less than 95% maximum density.
- D. In areas where roller cannot compact; provide approved selected material; 12" minimum thickness; compact to 95% maximum density with vibrator tamper.
- E. Construct subgrade such that after rolling, surface will be at required grade and cross section.
- F. Fill depressions that develop during rolling with suitable material; continue rolling until subgrade is uniformly firm, properly shaped and true to grade and cross section.
 - 1. Maintain until pavement is placed.
 - 2. Remove materials which will not compact readily under roller; replace with materials which will compact readily; again roll that portion of subgrade.
- G. If ruts or other objectionable irregularities form in subgrade during construction, reshape and re-roll subgrade before placing pavement; fill ruts or other depressions with material similar to other subgrade material.

6. SUBGRADE TREATMENTS

- A. Use only to correct subgrade condition where specified density cannot be obtained by other methods prior to placement of pavement.
- B. Granular subbase for pavement: use uniform mixture of granular material, uniformly moistened, placed on prepared subgrade; Contractor may use as suitable material to fill depressions in subgrade, such use considered incidental to construction at Contractor's expense.

Earthwork and Incidentals for Pavement

1. Use crusher run limestone, crusher run sandstone, limestone screenings, soil aggregate, pit run gravel or a mixture of sand or pit run gravel with crushed limestone or limestone screenings.
 2. Use mixture uniform in composition, with no visible segregation of constituent materials.
 3. If constituent materials are proportioned, blend to homogeneous mixture before placing on subgrade.
 4. Not more than 5% of finished mixture shall be retained on sieve having square openings equal to one-third nominal thickness of subbase and not more than 25% shall pass No. 200 sieve.
- C. Lime subgrade treatment for concrete pavement:
1. Provide lime, 20 lbs. per square yard, in top 6" of subgrade.
 2. Mix until uniform consistency is obtained; add water as required for optimum moisture content and compact to specified density.
 3. Lime: use hydrated lime: ASTM C207, Type N.

7. ABUTTING PAVEMENTS

- A. Drill into existing portland cement concrete slabs abutting new portland cement concrete construction and install dowels as detailed in IDOT Standard Road joint detail RD; dowels 18" long at 12" centers; ¾" dowels for 7" thick pavement; cost is incidental to pavement construction.

8. PAYMENT

- A. No separate payment will be made for work covered in this part of the specifications. Include all costs in appropriate unit price.
- B. Pavement Removal / Milling, SY: Unit price includes all labor, materials and equipment necessary for removing and/or pulverizing existing surfacing and granular subbase as shown on plans including saw cutting, milling, blending, loading, hauling, stockpiling, or disposal of materials.