CITY OF MATTOON, ILLINOIS

BIDDING DOCUMENTS,
CONTRACT DOCUMENTS,
AND SPECIFICATIONS

FOR THE

RILEY CREEK CSO SATELLITE TREATMENT FACILITY – CONTRACT 1
IEPA SRF Loan #L17-4844

May 2015

VOLUME 1 OF 2

BIDDING AND CONTRACTING REQUIREMENTS

Prepared by:

CRAWFORD, MURPHY & TILLY, INC.
2750 West Washington Street
Springfield, Illinois 62702

PROFESSIONAL SEALS

MATTOON, ILLINOIS
RILEY CREEK CSO SATELLITE TREATMENT FACILITY – CONTRACT 1

LICENSED PROFESSIONAL ENGINEER TIMOTHY F. SUMNER 062-051267 STATE OF ILLINOIS expires: 11–30–15 Name: Timothy F. Sumner Date : 05/18/2015	CIVIL SHANE C. REMMERT 062-060424 LICENSED PROFESSIONAL ENGINEER OF ILLINOIS expires: 11-30-15 Name: Shane C Remmert Date : 5/18/2015
STRUCTURAL JEFF J. FICKBOHM 081-005245 LICENSED STRUCTURAL ENGINEER STATE OF ILLINOIS SPRINGFIELD, ILLINOIS expires: 11-30-16 Name: Jeff J. Fickbohm Date : 05/18/2015	ARCHITECTURAL LICENSED ARCHITECT GEORGE T. CAIN 001-016369 STATE OF ILLINOIS expires: 11-30-16 Name: [illegible] Date : 5.18.2015

PLUMBING/HVAC	PROCESS
LICENSED PROFESSIONAL ENGINEER HENRY E. CRAMER 062-049776 STATE OF ILLINOIS expires: 11-30-15 Name: Henry E Cramer Date : 05/18/15	LICENSED PROFESSIONAL ENGINEER SHANNON J. BRADY 062-059084 STATE OF ILLINOIS expires: 11-30-15 Name: Shannon J Brady Date : 5/18/15
ELECTRICAL	
LICENSED PROFESSIONAL ENGINEER LOUIS D. WELLER 062-054095 STATE OF ILLINOIS expires: 11-30-15 Name: Louis D Weller Date : 5.18.2015	

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BIDDING REQUIREMENTS

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OWNER: City of Mattoon
208 North 19th Street
Mattoon, Illinois 61938
(217) 235-5460

ENGINEER: Crawford, Murphy & Tilly, Inc.
2750 W. Washington St.
Springfield, Illinois 62702
(217) 787-8050

PROJECT: Riley Creek CSO Satellite Treatment Facility – Contract 1

Separate, sealed proposals (Bids) will be received by the City of Mattoon, 208 North 19th Street, Mattoon, Illinois 61938 until 11:00 a.m. prevailing time, **August 5, 2015** for the above Project at which time Bids will be publicly opened and read aloud. Any Bid received after the time and date specified shall not be considered.

The work includes, but is not limited to, site work, site utilities, bar screen structure and building, first flush storage tank, influent pumping station, primary treatment structure, disinfection tank, chemical feed building, foul sewer pumping station, electrical and blower equipment building, stand-by power, all associated equipment with each of these components, site piping, sediment & erosion control, and site restoration.

ANY CONTRACT OR CONTRACTS AWARDED UNDER THIS INVITATION FOR BIDS ARE EXPECTED TO BE FUNDED IN PART BY A LOAN FROM THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (ILLINOIS EPA). NEITHER THE STATE OF ILLINOIS NOR ANY OF ITS DEPARTMENTS, AGENCIES, OR EMPLOYEES IS OR WILL BE A PARTY TO THIS INVITATION FOR BIDS OR ANY RESULTING CONTRACT. THE PROCUREMENT WILL BE SUBJECT TO REGULATIONS CONTAINED IN THE PROCEDURES FOR ISSUING LOANS FROM THE *WATER POLLUTION CONTROL LOAN PROGRAM* (35IACPart 365), THE DAVIS-BACON ACT (40USC275a THROUGH 276a-5), AND THE "USE OF AMERICAN IRON AND STEEL" REQUIREMETNS AS CONTAINED IN SECTION 436 OF H.R. 3547, THE CONSOLIDATED APPROPRIATIONS ACT, 2014. THIS PROCUREMENT IS ALSO SUBJECT TO LOAN RECIPIENT'S POLICY REGARDING THE INCREASED USE OF DISADVANTAGED BUSINESS ENTREPRISES. THE LOAN RECIPIENT'S POLICY REQUIRES ALL BIDDERS TO UNDERTAKE SPECIFIED AFFIRMATIVE EFFORTS AT LEAST SIXTEEN (16) DAYS PRIOR TO THE DAY OF THE BID OPENING. THE POLICY IS CONTAINED IN THE SPECIFICATIONS. BIDDERS WILL BE REQUIRED TO COMPLY WITH THE PRESIDENT'S EXECUTIVE ORDER NO. 11246, AS AMENDED. THE REQUIREMENTS FOR BIDDERS AND CONTRACTORS UNDER THIS ORDER ARE EXPLAINED IN 41 CFR 60-4.

The successful bidder will be required to agree that not less than the prevailing rate of wages will be paid to all workmen, laborers, and mechanics performing their work under this contract.

Bidders are required to qualify to the requirements in Document 00200 - Instructions to Bidders.

The Contract Documents may be examined at the offices of the OWNER or ENGINEER.

Copies of the Contract Documents may be obtained by contractors, material suppliers and plan

rooms from the Mattoon Public Works Department at 208 North 19th Street, Mattoon, IL 61938.

Questions regarding the content of the Contract Documents shall be referred to the ENGINEER, attention Jennifer Langheim, at 217-572-1102 or jlangheim@cmtengr.com.

Each separate bid will be required to remain open for a period of 90 days after bids are opened.

Each separate bid must be accompanied by certified check or bank cashier's check payable to the Owner, or a bid bond, duly executed by the bidder as principal and having as surety thereon a surety company meeting the requirements as referenced in the Instructions to Bidders in the amount of 5% of the bid. Such checks or bid bond will be returned to all except the three lowest bidders within ten days after the opening of bids, and the remaining cash, checks or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the contract.

A Pre-Bid Meeting will be held on **July 16, 2015** at 10:00 a.m. prevailing time at City Hall. Attendance at the Pre-Bid Meeting is mandatory for all Prime Contractors submitting bids.

All proposals must be made on forms furnished by the Engineer.

The successful bidder will be required to furnish Performance Bond and Payment Bond satisfactory to the Owner in the amount of 100 percent of the contract amount.

The Owner reserves the rights to reject all Bids, to reject any non-responsive Bid, and to determine the low, responsive, responsible Bid.

By order of the City of Mattoon

Susan J. O'Brien
(Name)

City Clerk
(Title)

June 16, 2015

END OF DOCUMENT

1.01 DEFINED TERMS

A. Terms used in these Instructions to Bidders which are defined in the Standard General Conditions of the Construction Contract, Engineers Joint Contract Documents Committee No. 1910-8, (2002 Edition) have the meanings assigned to them in the General Conditions.

B. Terms used in these Instructions to Bidders which are defined in Document 00800 - Supplementary Conditions have the meanings assigned to them in the Supplementary Conditions.

C. Additional Terms:

1. *Bidder* -- One who submits a Bid directly to OWNER as distinct from a sub-bidder, who submits a Bid to a Bidder.
2. *Bidding Documents* -- The Bidding Requirements and the proposed Contract Documents as listed in the Table of Contents of the Project Manual (including all Addenda issued prior to the opening of Bids).
3. *Bidding Requirements* -- The Advertisement to Bid, Instructions to Bidders, Bid security form, the Bid Form with any Bid Form Supplements, and all other documents listed under Bidding Requirements in the Table of Contents of the Project Manual.
4. *Successful Bidder* -- The low, responsive, responsible Bidder.
5. The terms *Bid* or *Proposal* as used herein are interchangeable.
6. The terms *Work* and *Project* as used herein are interchangeable.
7. *Responsible Bid* -- A Bid that demonstrates the apparent ability of the Bidder to successfully meet all the requirements specified in the Bidding Documents, refer to SMSD Ordinance 2007-20 for additional requirements.
8. *Responsible Bidder* -- A Bidder submitting a Responsible Bid.
9. *Responsive Bid* -- A Bid that complies with all meaningful or material aspects of the Bidding Documents. The Bid must constitute a definite and unqualified offer to meet the material requirements of the Bidding Documents including any terms that affect price, quality, quantity or time of delivery, or are clearly identified in the Bidding Documents to be complied with at the risk of Bid rejection for non-responsiveness.
10. *Responsive Bidder* -- A Bidder submitting a Responsive Bid.

1.02 COPIES OF BIDDING DOCUMENTS

A. Complete sets of the Bidding Documents in the number and for the deposit sum stated in Document 00120 - Advertisement for Bids may be obtained from ENGINEER.

B. Complete sets of Bidding Documents shall be used in preparing Bids; neither OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

C. OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

1.03 QUALIFICATION OF BIDDERS

A. To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit within five days of OWNER's request written evidence, such as financial data, previous experience and evidence of authority to conduct business in the jurisdiction where the Project is located. Each Bid must contain evidence of Bidder's qualifications to do business in the state where the Project is located.

1.04 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

A. Before submitting a Bid, each Bidder must

1. Examine thoroughly the Contract Documents and other related data identified in the Bidding Documents.
2. Visit the site to familiarize himself with local conditions that may in any manner affect cost, progress, performance, or furnishing of the Work.
3. Familiarize himself with and consider federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost, progress, performance, or furnishing of the Work.
4. Study and carefully correlate Bidder's observations with the Contract Documents.
5. Attend Pre-Bid Meeting.

B. Reference is made to the Supplementary Conditions and Bidding Requirements for the identification of those reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which have been relied upon by ENGINEER in preparing the Drawings and Specifications. ENGINEER will make copies of such reports available to any Bidder requesting them. These reports are not guaranteed as to accuracy or completeness, nor are they part of the Contract Documents. Before submitting his Bid each Bidder will, at his own expense, make such additional investigations and tests as the Bidder may deem necessary to determine his Bid for performance of the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

C. On request OWNER will provide each Bidder access to the site to conduct such investigations and tests as each Bidder deems necessary for submission of his Bid.

D. The lands upon which the Work is to be performed, rights-of-way for access thereto and other lands designated for use by Contractor in performing the Work are identified in Division 1 - General Requirements of the Specifications or in the Drawings.

E. The submission of a Bid will constitute an incontrovertible representation by the Bidder that he has complied with every requirement of this Article 1.04 and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

1.05 INTERPRETATIONS AND ADDENDA

A. All questions about the meaning or intent of the Contract Documents shall be submitted to ENGINEER in writing. Replies will be issued by Addenda mailed or delivered to all parties recorded by ENGINEER as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids will not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

B. Addenda may also be issued to modify the Bidding Documents as deemed advisable by OWNER or ENGINEER.

1.06 BID SECURITY

A. Bid Security shall be made payable to OWNER, in an amount of five percent (5%) of the Bidder's maximum Base Bid price and in the form of a certified or bank cashier's check or a Bid Bond issued by a surety meeting the requirements of Article 5.1 of the General Conditions and executed on the form included as Document 00431 - Bid Bond.

B. The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Contract Security, whereupon it will be returned; if the successful Bidder fails to execute and deliver the Agreement and furnish the required Contract Security within 15 days of the Notice of Award, OWNER may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. Bid Security of the next two (2) lowest Bidders will be returned as soon as the Contract and Bond of the lowest Bidder has been properly executed and returned. The Bid Security of all other Bidders will be returned within ten (10) days after the Bids are opened.

C. Attorneys-in-fact who sign Bid Bonds or Payment Bonds and Performance Bonds must file with each Bond a certified and effective dated copy of their power of attorney.

1.07 CONTRACT TIME

A. The number of days within which, or the date by which, the Work is to be completed (the Contract Time) is included in the Agreement.

1.08 LIQUIDATED DAMAGES

A. Provisions for liquidated damages are set forth in the SUPPLEMENTARY CONDITIONS.

1.09 SUBSTITUTIONS

A. Where specific material or equipment is mentioned in the Specifications or on the Drawings, the provisions of Alternate Equipment of Section 6.05 of the General Conditions (substitutes or "or equal" items) will prevail unless modified by the Specifications.

B. Where substitutions of material or equipment are to be proposed, Bidder shall include in the Base Bid Amount only the products specified and shall list proposed substitutions on Document 00435 - Proposed Product Substitutions.

1.10 SUBCONTRACTORS, ETC.

A. Provide an experience statement with pertinent information as to similar projects and other evidence of qualification for each such Subcontractor, person and organization within five (5) business days of bid opening. If OWNER or ENGINEER after due investigation has reasonable objection to any proposed Subcontractor, other person or organizations, either may before giving the Notice of Award request the apparent Successful Bidder to submit an acceptable substitute without an increase in Bid price. If the apparent Successful Bidder declines to make any such substitution, the Contract shall not be awarded to such Bidder, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Security. Any Subcontractor, other person or organization so listed and to whom OWNER or ENGINEER does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER.

B. No Contractor shall be required to employ any subcontractor, other person or organization against whom he has reasonable objection.

1.11 PROPOSAL

A. All proposals must be made on the blank forms, included in the Bidding Documents, or on a copy of forms furnished by ENGINEER must include the following documents:

1. Document 00412 - Lump Sum Bid Form.
2. Document 00431 - Bid Bond.
3. Document 00434 – Proposed Equipment
4. Document 00435 – Proposed Product Substitutions
5. Document 00436 - Subcontractors.
6. Document 00451 - Statement of Bidder’s Qualifications.
7. Document 00452 - Affidavit of Experience.
8. Document 00454 – Bidder’s Certification.
9. Document 00455 - Non-collusion Affidavit.
10. Document 00456 – Health, Safety and Welfare Affidavit
11. Document 00457A – Bidder Certification Regarding the Use of American Iron and Steel Products.
12. EPA Form 5700-49 – Certification Regarding Debarment, Suspension, and Other Responsibility Matters.
13. Disadvantaged Business Enterprise certificates and forms as required under Document 00846 - Disadvantaged Business Enterprise Participation.

B. All blank spaces for Bid prices must be filled in. Proposal Forms must be completed in ink or by typewriter. Only one copy of complete Proposal is required.

C. Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be

shown below the signature.

D. Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.

E. All names must be typed or printed below the signature.

F. The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in the appropriate place on the Bid Form).

G. The address to which communications regarding the proposal are to be directed must be shown.

H. Conditional or qualified Bids will not be accepted.

1.12 SUBMISSION OF PROPOSALS

A. Bids shall be submitted at the time and place indicated in Document 00120 - Advertisement for Bids and shall be included in an opaque sealed envelope, marked with the Project title as shown on the Contract Documents and name and address of the Bidder and accompanied by the Bid Security and other required documents. If the Bid is sent through the mail or other delivery system the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face thereof.

B. Any Bid received after the time and date specified shall not be considered.

1.13 MODIFICATION AND WITHDRAWAL OF BIDS

A. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the scheduled opening of Bids or authorized postponement thereof.

B. Bid defects resulting in a non-responsive Bid may NOT be corrected after the Bid opening.

1.14 OPENING OF BIDS

A. Bids will be opened publicly.

B. When Bids are opened publicly they will be read aloud, and an abstract of the amounts of the base Bids will be made available after the opening of Bids.

1.15 BIDS TO REMAIN OPEN

A. All Bids shall remain open for the period set forth in Document 00412 Section 1.02, but Owner may in his sole discretion, release any Bid and return the Bid Security prior to that date.

1.16 AWARD OF CONTRACT

A. Owner reserves the right to reject any of the following:

1. Any Bid submitted after the date and time specified in the Advertisement for Bids.
2. Any Bid determined by Owner to be not a Responsible Bid.
3. Any Bid determined by Owner to be not a Responsive Bid.
4. Any Bid determined by Owner to be a conditional or qualified Bid.
5. All Bids.

B. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

C. In evaluating Bids, OWNER shall consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and alternates and unit prices if requested in the Bid forms. It is OWNER's intent to accept alternates listed on the Bid Form (if any are accepted) in any order or combination.

D. OWNER may consider the qualifications and experience of Subcontractors and other persons and organizations (including those who are to furnish the principal items of material or equipment) proposed for those portions of the Work as to which the identity of Subcontractors and other persons and organizations must be submitted as provided in the Supplementary Conditions or Specifications. Operating costs, maintenance considerations, performance data and guarantees of materials and equipment may also be considered by OWNER.

E. OWNER may conduct such investigations as he deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of the Bidders, proposed Subcontractors and other persons and organizations to do the Work in accordance with the Contract Documents to OWNER's satisfaction within the prescribed time.

F. OWNER reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to OWNER's satisfaction.

G. If the Contract is to be awarded, it will be awarded to the low, responsive, responsible Bidder, based on the total Base Bid price. Contract will be awarded after the Bid evaluation has been submitted to the Agency and Owner has received written notice of Agency approval of the award.

H. If the Contract is to be awarded, OWNER will give the Successful Bidder a Notice of Award as identified in Document 00412, Section 1.02.

I. All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout including the Act regulating wages in Illinois (Ill. Rev. Stat. Ch. 48, Sects 39s-1-12) and the Illinois Preference Act (Ill. Rev. Stat. Ch. 48, Sects 2201-2207).

J. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between Owner and the

Bidder.

1.17 PERFORMANCE AND OTHER BONDS

A. Paragraph 5.1 of the General Conditions and the Supplementary Conditions set forth OWNER's requirements as to performance and other Bonds. When the Successful Bidder delivers the executed Agreement to OWNER it shall be accompanied by the required Contract Security.

1.18 SIGNING OF AGREEMENT

A. When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by at least three unsigned counterparts of the Agreement. Within ten (10) days thereafter Contractor shall sign and deliver at least three counterparts of the Agreement to OWNER. Within ten days thereafter OWNER will deliver fully signed counterparts to Contractor. ENGINEER will identify those portions of the Contract Documents not fully signed by OWNER and Contractor and such identification shall be binding on all parties.

B. The OWNER within ten (10) days of receipt of acceptable Performance Bond, Payment Bond and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the Owner not execute the Agreement within such period, the Bidder may by WRITTEN NOTICE withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the Owner.

C. The Notice to Proceed shall be issued within thirty (30) days of the execution of the Agreement by the Owner. Should there be reasons why the Notice to Proceed cannot be issued within such period, the time may be extended by mutual agreement between the Owner and the Contractor. If the Notice to Proceed has not been issued within the thirty (30) day period or within the period mutually agreed upon, the Contractor may terminate the Agreement without further liability on the part of either party.

1.19 ILLINOIS EPA *WATER POLLUTION CONTROL LOAN PROGRAM* REQUIREMENTS

A. Bidder shall comply with requirements and procedures described in Document 00806 – STATE REVOLVING FUND LOAN REQUIREMENTS.

B. Bidder shall comply with requirements, procedures, and policies and shall furnish all required evidence in accordance with Document 00842 – Equal Opportunity Requirements.

C. Bidder shall comply with requirements, procedures, and policies and shall furnish all required evidence in accordance with Document 00846 – Disadvantaged Business Enterprise (DBE) Participation.

D. All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over the Work shall apply to the Contract throughout including the Employment of Illinois Workers on Public Works Act (30 ILCS 570) and the Davis-Bacon Wage Act (40 USC 276a through 276a-5) as defined by the United States Department of Labor.

E. All Bidders will comply with Sec. 436 of H.R. 3547, "The Consolidated Appropriations Act, 2014", which specifies that all "iron and steel products" used in the project are produced in the United States.

1.20 ACCESS TO WORK BY AGENCY

A. Any contract entered into by the loan recipient (OWNER) and any subagreement thereunder, shall provide that representatives of the Agency (Illinois EPA) will have access to the work whenever it is in preparation or progress and that the contractor or subcontractor will provide proper facilities for such access and inspection. Such contract or subagreement must also provide that the Agency or any authorized representative shall have access to any books, documents, papers, and records of the contractor or subcontractor which are pertinent to the project for the purpose of making audit, examination, excerpts, and transcriptions thereof.

END OF DOCUMENT

PRE-BID MEETING:

PROJECT:	City of Mattoon Riley Creek CSO Satellite Treatment Facility – Contract 1
DATE:	July 16, 2015.
TIME:	10:00 A.M.
LOCATION:	Mattoon City Hall 208 North 19th Street Mattoon, Illinois 61938
PURPOSE:	1. Discuss the Bidding Requirements. 2. Receive any questions regarding the Bidding and Contract Documents and the project in general. 3. Visit the proposed construction area.
ATTENDANCE:	Mandatory.

END OF DOCUMENT

CITY OF MATTOON

RILEY CREEK CSO SATELLITE TREATMENT FACILITY – CONTRACT 1

SUBMITTED BY: _____

_____

SUBMITTED TO: CITY OF MATTOON

1.01 The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents to complete all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the Contract Documents.

1.02 BIDDER accepts all of the terms and conditions of the Information for Bidders, including without limitation those dealing with the disposition of Bid Security. The OWNER shall issue a Notice of Award or shall reject all Bids within ninety (90) days of the day of the Bid opening. BIDDER will sign the Agreement and submit the Contract Security and other documents required by the Contract Documents within fifteen days after the date of OWNER's Notice of Award.

1.03 In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

A. BIDDER has examined copies of all the Contract Documents and of the following addenda:

Date	Number
_____	_____
_____	_____
_____	_____
_____	_____

(Receipt of all of which is hereby acknowledged) and also copies of Document 00120 - Advertisement for Bids and Document 00200 - Instructions to Bidders.

B. BIDDER has examined the site and locality where the Work is to be performed, the legal requirements (federal, state and local laws, ordinances, rules and regulations) and the conditions affecting cost, progress or performance of the Work and has made such independent investigations as BIDDER deems necessary.

1.04 The OWNER requires all BIDDERS to make the following certification as a part of their bids:

A. "In conjunction with this bid or any other bid for a public contract within the State of Illinois, the BIDDER warrants and certifies that the BIDDER has not violated the bid-rigging prohibition of P.A. 85-1295 (Ill. Rev. Stat. ch 38, par 33E-3), within the last five (5) years, and has not violated the bid rotation prohibition of P.A. 85-1295 (Ill. Rev. Stat. ch 38, par 33E-4), at any time."

B. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or a corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for himself any advantage over any other Bidder or over OWNER.

1.05 By submission of the bid, each Bidder certifies, and in the case of a joint Bid each party thereto certifies as to his own organization, that in connection with the Bid:

A. The prices in the Bid have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other Bidder or with any competitor;

B. Unless otherwise required by law, the prices which have been quoted in the Bid have not knowingly been disclosed by the Bidder, prior to opening, directly or indirectly, to any other bidder or to any competitor; and

C. No attempt has been made or will be made by the Bidder to induce any other person or firm to submit or not to submit a bid for the purpose of restricting competition.

1.06 Each person signing the Bid shall certify that:

A. He or she is the person in the Bidder's organization responsible within that organization for the decision as to the prices being bid and that he or she has not participated, and will not participate, in any action contrary to 1.05.A through 1.05.C above; or

B. He or she is not the person in the Bidder's organization responsible within that organization for the decision as to the prices being bid but that he or she has been authorized to act as agent for the persons responsible for such decision in certifying that such persons have not participated, and will not participate, in any action contrary to 1.05.A through 1.05.C above, and as their agent shall so certify; and shall also certify that he or she has not participated, and will not participate, in any action contrary to 1.05.A through 1.05.C above.

1.07 The BIDDER proposes to accept as full payment for the construction work specified herein the amount computed below based on the following unit price and lump sum amounts. The BIDDER agrees that the unit price and lump sum amounts represent a true measure of the labor and materials required to perform the Work, including all allowances for overhead and profit for each type and unit of work called for on these Contract Documents. The amounts shall be shown in figures.

1.08 BIDDER will complete the Work for the following lump sum price(s):

A. General conditions $_____

Total Base Bid Amount $_____

in writing _____

(Payment under Total Bid Amount shall include all Contract Work)

1.09 NOTE:

A. The Total Bid Lump Sum Amount shall include all equipment, accessories and work required as specified in the Contract Documents and as shown on the plans. The successful Bidder will be required to furnish a more detailed breakdown of costs prior to submitting the first request for payment to the Engineer.

B. BIDDER agrees that the Work will be substantially completed and completed on or before the dates or within the number of calendar days indicated in the Agreement.

C. BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.

1.10 The following documents are attached to and made a condition of this Bid:

A. Required Bid Security in the form of _____ or executed Document 00431 - Bid Bond.

B. Document 00434 – Proposed Equipment

C. Document 00435 – Proposed Product Substitutions

D. Document 00436 - Subcontractors

E. Document 00451 - Statement of Bidder's Qualifications

F. Document 00452 - Affidavit of Experience

G. Document 00454 – Bidder's Certification

H. Document 00455 - Non-collusion Affidavit

I. Document 00456 – Health, Safety and Welfare Affidavit

J. Document 00457A – Bidder Certification Regarding Use of American Iron & Steel

Products

K. Evidence of affirmative steps taken as required by Document 00846 – Disadvantaged Business Enterprise (DBE) Participation.

L. Completed USEPA Form 5700-49, Certification Regarding Debarment, Suspension, and Other Responsibility Matters.

1.11 Communications concerning this Bid shall be addressed to:

The address of BIDDER indicated in Article 1.13 below

OR

To the following address: (Circle one)

_____

_____

_____

_____

1.12 The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meanings assigned to them in the General Conditions or as modified in the Supplementary Conditions.

SUBMITTED on _____, 20____.

1.13 If BIDDER IS:

A. AN INDIVIDUAL

By_____ (SEAL)
(Individual's Signature)

_____
(Individual's Name)

doing business as _____

Business address: _____

_____

_____

Phone No. _____

B. A PARTNERSHIP

By_____ (SEAL)
(Firm Name)

_____
(Signature of General Partner)

_____
(Name of General Partner)

Business address: _____

_____

_____

Phone No. _____

C. A CORPORATION

By_____
(Corporation name)

_____
(State of Incorporation)

By_____
(Signature of person authorized to sign)

_____
(Name and title of person authorized to sign)

(Corporate Seal)

Attest _____
(Signature of Secretary)

_____
(Name of Secretary)

Business address: _____

_____

_____

Phone No. _____

D. A JOINT VENTURE

By_____
(Signature)

_____
(Name)

_____
(Address)

_____
(Telephone No.)

By_____
(Signature)

_____
(Name)

_____
(Address)

_____
(Telephone No.)

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above).

END OF DOCUMENT

BIDDER (Name and Address):

_____
_____
_____

SURETY (Name and Address of Principal Place of Business):

_____
_____
_____

OWNER (Name and Address):

_____
_____
_____

BID

BID DUE DATE: _____
PROJECT (Brief Description Including Location):

_____
_____
_____

BOND

BOND NUMBER: _____
DATE: (Not Later Than Bid Due Date): _____
PENAL SUM: _____

IN WITNESS THEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized agent, officer, or representative.

BIDDER	SURETY
_____(Seal)	_____(Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature and Title	Signature and Title (Attach Power of Attorney)
Attest: _____	Attest: _____
Signature and Title	Signature and Title

Note:
1. Above addresses are to be used for giving required notice.
2. Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.
3. Surety companies executing BONDS must be named in current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department, and be authorized to transact business in the State of Illinois.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Documents.

3. This obligation shall be null and void if:

3.1. Owner accepts Bidder's bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Documents, or

3.2. All bids are rejected by Owner, or

3.3. Owner fails to issue a notice of award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue notice of award agreed to in writing by Owner and Bidder, provided that the time for issuing notice of award including extensions shall not in the aggregate exceed 120 days from Bid Due Date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after Bid Due Date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notice required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of the Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "bid" as used herein includes a bid, offer or proposal as applicable.

END OF DOCUMENT

1.01 The Total Base Bid Amount includes only those products specified in the Bidding Documents. Following is a list of substitute products which Bidder proposes to furnish on this project, with the difference in price being added to or deducted from the Total Bid Amount.

1.02 Bidder understands that the acceptance of any proposed substitution is at the Owner's option. Approval or rejection of any substitutions listed below will be indicated after executing the Contract.

1.03 PRODUCT SUBSTITUTION LIST

MANUFACTURER'S NAME AND PRODUCT	ADD	DEDUCT

1.04 Bidder's proposal shall be in accordance with the provisions of Section 01630 - Product Substitution Procedures.

1.05 EVALUATION

A. Contract award will be made in accordance with Instructions to Bidders. Only the successful Bidder's Proposed Product Substitution List will be evaluated.

1.06 SIGNATURE OF BIDDER

_____
Individual or Corporate Name

By _____

Address _____

_____

END OF DOCUMENT

1.01 The following information gives the name, business address, and portion of work (description of work to be done) for each subcontractor that will be used in the work if the Bidder is awarded the Contract. No subcontractor doing work in excess of ten percent (10%) of the total amount of the bid and who is not listed shall be used.

A. Type of Work: Cast in Place Concrete

Dollar Value of Work:_____

Name:_____

Address:_____
Street City

B. Type of Work: Masonry

Dollar Value of Work:_____

Name:_____

Address:_____
Street City

C. Type of Work: Site Mechanical

Dollar Value of Work:_____

Name:_____

Address:_____
Street City

D. Type of Work: Process Mechanical

Dollar Value of Work:_____

Name:_____

Address:_____
Street City

E. Type of Work: Building Mechanical

Dollar Value of Work: _____

Name: _____

Address: _____
Street City

F. Type of Work: Electrical

Dollar Value of Work: _____

Name: _____

Address: _____
Street City

G. Type of Work: Sitework

Dollar Value of Work: _____

Name: _____

Address: _____
Street City

1.02 SIGNATURE OF BIDDER

_____
Individual or Corporate Name

By _____
(Signature of Authorized Individual)

_____
(Name of Authorized Individual)

Address _____

_____

END OF DOCUMENT

(To be submitted by each BIDDER)

All questions must be answered and the data given must be clear and comprehensive. If necessary, questions may be answered on separate attached sheets. Qualification statements made herein shall reflect the BIDDER (Individual, partnership or corporation) proposing to enter into contract for the work and not prior business experience of the BIDDER. The BIDDER may submit any additional information he desires.

1. Name of BIDDER. _____

2. Permanent main office address, including City, State and Zip Code. Also list telephone and fax numbers.

   _____

   _____

   Telephone: ( ) _____ Fax: ( ) _____

3. When organized. _____

4. If a corporation, where incorporated. _____

5. How many years have you been engaged in the construction of municipal improvements of the same type contemplated herein under your present firm or trade name? _____

   How many years have you been engaged in the construction of municipal improvements of the same type contemplated herein under a past firm or trade name? _____

6. Contracts already on hand for the proposed construction period: (Schedule these showing gross amount of each contract and the appropriate anticipated dates of start and completion).

Contract Name & Description	Gross Amount	Start Date	Comp. Date

7. General character of work performed by your company. _____

_____

_____

_____

_____

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

If so, where and why? _____

_____

_____

_____

_____

_____

9. Have you ever defaulted on a contract? _____

If so, where and why? Give full details. _____

_____

_____

_____

_____

_____

10. List major contracts recently completed by you in the past two years stating approximate gross value for each, and the month and year completed and a reference with telephone number who may be contacted for each. (OWNER or ENGINEER). List major components for each project.

Project No. 1 _____
Owner _____
Address _____
Telephone: (____) _____ Fax: (____) _____
Contact Person _____
Engineer _____
Address _____
Telephone: (____) _____ Fax: (____) _____
Completion Date _____
Approximate gross value _____
Major project components _____

Project No. 2 _____
Owner _____
Address _____
Telephone: (____) _____ Fax: (____) _____
Contact Person _____
Engineer _____
Address _____
Telephone: (____) _____ Fax: (____) _____
Completion Date _____
Approximate gross value _____
Major project components _____

Project No. 3 _____
Owner _____
Address _____
Telephone: (____) _____ Fax: (____) _____
Contact Person _____
Engineer _____
Address _____
Telephone: (____) _____ Fax: (____) _____
Completion Date _____
Approximate gross value _____
Major project components _____

Project No. 4 _____
Owner _____
Address _____
Telephone: (____) _____ Fax: (____) _____
Contact Person _____
Engineer _____
Address _____
Telephone: (____) _____ Fax: (____) _____
Completion Date _____
Approximate gross value _____
Major project components _____

Project No. 5 _____
Owner _____
Address _____
Telephone: (____) _____ Fax: (____) _____
Contact Person _____
Engineer _____
Address _____
Telephone: (____) _____ Fax: (____) _____
Completion Date _____
Approximate gross value _____
Major project components _____

11. List your major equipment available for this contract.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

12. Attach description of experience in construction work similar in importance to this project. Bidders must demonstrate through examples past project experience that they have successfully bid, bonded, contracted for and completed municipal improvements of the same type contemplated herein, as the prime bidder/Contractor under their present business organization.

13. Attach resumes and/or description of background and experience of the principal members of your organization including the officers, project manager, field superintendent(s).

14. Provide the names, address, telephone number and contact for any subconsultants/subcontractors to be used on this project.

Subconsultant/subcontractor No. 1:

Name _____

Address _____

Telephone: (____) _____ Fax: (____) _____

Contact Person _____

Subconsultant/subcontractor No. 2:

Name _____

Address _____

Telephone: (____) _____ Fax: (____) _____

Contact Person _____

Subconsultant/subcontractor No. 3:

Name _____

Address _____

Telephone: (____) _____ Fax: (____) _____

Contact Person _____

Subconsultant/subcontractor No. 4:

Name _____

Address _____

Telephone: (____) _____ Fax: (____) _____

Contact Person _____

Subconsultant/subcontractor No. 5:

Name _____

Address _____

Telephone: (____) _____ Fax: (____) _____

Contact Person _____

Subconsultant/subcontractor No. 6:

Name _____

Address _____

Telephone: (____) _____ Fax: (____) _____

Contact Person _____

15. Credit available. _____

_____

_____

_____

16. Give bank or financial reference including name and phone number of individual who can discuss your line of credit.

Institution Name _____

Address _____

Telephone: (____) _____ Fax: (____) _____

Contact Person _____

Institution Name _____

Address _____

Telephone: (____) _____ Fax: (____) _____

Contact Person _____

17. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner? _____

18. (a) Have you ever been a party to or otherwise involved in any action or legal proceeding involving matters related to race, color, nationality or religion? _____

If so, give full details. _____

_____

_____

_____

_____

_____

(b) Have you ever been accused of discrimination based upon race, color, nationality, or religion in any action or legal proceedings, including any proceeding related to any Federal Agent? _____

If so, give full details. _____

_____

_____

_____

_____

_____

19. Give proposed bonding company, agent's name and phone number.

Bonding Company Name _____

Agent’s Name _____

Address _____

_____

Telephone: (____) _____ Fax: (____) _____

20. The undersigned hereby authorizes and requests any person, or firm or corporation to furnish any information requested by the Owner in verification of the recitals comprising this Statement of Bidder's Qualifications.

Contractor's Registration Number: _____

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

_____
(Name of Bidder)

By_____
(Signature of authorized person)

_____
(Name of authorized person)

Title _____

State of _____)

) SS

County of _____)

_____, being duly sworn, deposes and says that he is

, of _____
(Name of Organization)

And that the answers to the foregoing questions and all statements therein contained are true and correct.

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

_____
(Notary Public)

My commission expires on the _____ day of _____, 20__.

END OF DOCUMENT

BIDDING REQUIREMENTS
Document 00452 - Affidavit of Experience

(This Affidavit must be executed)

STATE OF_____)
ss
COUNTY OF _____)

_____being duly sworn,

says that he is _____, of
(Sole Owner, Member of Firm, Corporate Official)

_____ which
(Individual, Firm or Corporate Name)

has done work for the following parties of the general kind and approximate magnitude required under this contract:

_____

_____

_____

an that _____owns or has available for
(He, Said Firm Said Corporation)
immediate use on the proposed work the following plant and equipment:

_____

_____

and that _____will be assigned to the work under
(Name of Superintendent)
this contract, and that his experience in this kind of work is as follows:

_____

_____

Signature _____

Subscribed and sworn to before me this _____ day of _____ A.D. 20____.

_____ (SEAL)
Notary Public

END OF DOCUMENT

IN COMPLIANCE WITH ARTICLE 33E TO THE "CRIMINAL CODE OF 1961"

I _____, do hereby certify that:
Name

1. I am _____ of the _____
Position Firm

and have authority to execute this certification on behalf of the firm;

2. This firm is not barred from bidding on this contract as a result of a violation of either Section 33E-3, Bid-rigging, or Section 33E-4, Bid Rotating, as set forth in Article 33E to the "Criminal Code of 1961".

Name of Firm _____

Signature_____

Title _____

Date _____
Corporate Seal (where appropriate)

On this _____ day of _____ 20___ ,

before me appeared (Name) _____
to me personally known, who, being duly sworn, did execute the foregoing affidavit, and did

state that he or she was properly authorized by (Name of Firm)_____

_____ to execute the affidavit and did so as his or her free act and deed.

Notary Public _____ Commission Expires_____

Notary Seal

END OF DOCUMENT

(This Affidavit must be executed)

STATE OF _____)
) SS
COUNTY OF _____)

_____

Being first duly sworn, deposes and says that he is _____

(Sole Owner, a Partner, President, Secretary, etc.) of _____

_____ the party making the foregoing proposal or bid; that such bid is genuine and not collusive or sham; that said Bidder has not colluded, conspired, connived, or agreed, directly or indirectly with any Bidder or person, to put in a sham bid, or that such other person shall refrain from bidding, and has not in any manner, directly or indirectly sought by agreement or collusion or communication or conference, with any person, to fix the bid price of affiant or any other Bidder, or to fix any overhead, profit, or cost element of said Bid price, or of that of any other Bidder, or to secure any advantage against the Owner, or any person interested in the proposed Contract; and that all statements contained in said proposal or bid are true; and further, that such Bidder has not, directly or indirectly submitted this Bid, or the contents thereof, or divulged information or data relative thereto to any association or to any member or agent thereof.

_____
Affiant

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

_____
Notary Public

My Commission Expires: _____

END OF DOCUMENT

(This Affidavit must be executed)

STATE OF _____)
) SS
COUNTY OF _____)

_____

Being first duly sworn, deposes and says that he is _____

(Sole Owner, a Partner, President, Secretary, etc.) of _____

_____ the party making the foregoing proposal or bid; that said Bidder has not received any citations, complaints, summons, decisions, determinations, judgments, or other allegations or findings of any violation of state or federal laws which protect the health, safety, or welfare of workers, including but not limited to, Occupational Safety & Health Administration (OSHA), Family Medical Leave Act (FMLA), Fair Labor Standards Act (FLSA), Americans with Disabilities Act (ADA), Age Discrimination in Employment Act (ADEA), National Labor Relations Act (NLRA), the Federal Civil Rights Act, The Illinois Human Rights Act, the Illinois Wage and Hour Law, and the Prevailing Wage Act, filed against it or any entity with whom it is submitting the bid, including joint ventures and partners, and also including parent and subsidiary corporations or entities. If said Bidder has received any of the aforementioned violations, he shall include (as an attachment to this Affidavit) a complete, accurate, and truthful listing and description of all citations, complaints, summons, decisions, determinations, judgments, or other allegations or findings of any violation of state or federal laws which protect the health, safety, or welfare of workers.

Any Bidder who willfully fails or refuses to include the information required in the preceding paragraph, or whose report is substantially incomplete, inaccurate, or untruthful, shall be disqualified and its bid rejected.

The OWNER may reject any bid and disqualify any bidder whose report, or subsequent inquiry into the matters contained in such report, reveals any of the following:

That there has been a finding, determination, or judgment by an agency of the state or federal government charged with the responsibility of enforcing laws and regulations which protect the health, safety, or welfare of workers, as enumerated above, or otherwise, that the bidder has violated such a statute or regulations, and that such violation was:

1. found to have been part of a pattern of similar violations, or one of three or more similar violations committed within the two years immediately preceding the submission of the bid, or

2. classified by an agency of the state or federal government as serious, or

3. one which threatened the health or safety of the workers employed by the bidder, or

4. one resulting in the payment of back wages and benefits of $5,000 or more, or

5. one that resulted or could have resulted in the debarment of the bidder from contracting with the state or federal government, or any agency thereof.

_____
Affiant

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

_____
Notary Public

My Commission Expires: _____

END OF DOCUMENT

Bidder Certification Regarding the Use of American Iron and Steel Products

_____, do hereby certify that:
Name

1. I am_____(title) of the _____(company, partnership, etc.) and have authority to execute this certification on behalf of the firm.

2. This firm is aware that all iron and steel products used for this project must be produced in the United States per Section 436 (a) – (f) of the Consolidated Appropriations Act, 2014.

3. This firm is aware that the use of American iron and steel products applies to all projects for the construction, alteration, maintenance, or repair of publically owned treatment works (POTW) or public water systems.

4. This firm understands the term "iron and steel products" refers to the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

5. I am aware that this requirement applies to all portions of the project that are subcontracted.

Name of Firm_____

Signature_____

Title _____

Date _____

Corporate Seal (where appropriate)

Use of American Iron and Steel

Sec. 436. (a)(1) None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products used in the project are produced in the United States.

(2) In this section, the term `iron and steel products' means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

(b) Subsection (a) shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency (in this section referred to as the `Administrator') finds that--

(1) applying subsection (a) would be inconsistent with the public interest;

(2) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or

(3) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

(c) If the Administrator receives a request for a waiver under this section, the Administrator shall make available to the public on an informal basis a copy of the request and information available to the Administrator concerning the request, and shall allow for informal public input on the request for at least 15 days prior to making a finding based on the request. The Administrator shall make the request and accompanying information available by electronic means, including on the official public Internet Web site of the Environmental Protection Agency.

(d) This section shall be applied in a manner consistent with United States obligations under international agreements.

(e) The Administrator may retain up to 0.25 percent of the funds appropriated in this Act for the Clean and Drinking Water State Revolving Funds for carrying out the provisions described in subsection (a)(1) for management and oversight of the requirements of this section.

(f) This section does not apply with respect to a project if a State agency approves the engineering plans and specifications for the project, in that agency's capacity to approve such plans and specifications prior to a project requesting bids, prior to the date of the enactment of this Act.

SRF Location: Mattoon, IL
SRF Project No: L17-4844

United States Environmental Protection Agency
Washington, DC 20460

Certification Regarding
Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and

(d) Have not within a three-year period preceding this application / proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

_____
Typed Name & Title of Authorized Representative

_____ _____
Signature of Authorized Representative Date

☐ I am unable to certify to the above statements. My explanation is attached.

INSTRUCTIONS

Under Executive Order 12549, an individual or organization debarred or excluded from participation in Federal Assistance or benefit programs may not receive any assistance award under a Federal program, or a subagreement thereunder for $25,000 or more.

Accordingly, each prospective recipient of an EPA grant, loan, or cooperative agreement and any contract or subagreement participant thereunder must complete the attached certification or provide an explanation why they cannot. For further details, see 40 CFR 32.510, Participants Responsibilities, in the attached regulation.

Where to Submit

The prospective EPA grant, loan, or cooperative agreement recipient must return the signed certification or explanation with its application to the appropriate EPA Headquarters or Regional office, as required in the application instructions.

A prospective prime contractor must submit a completed certification or explanation to the individual or organization awarding the contract.

How to Obtain Forms

EPA includes the certification form, instructions, and a copy of its implementing regulation (40 CFR Part 32) in each application kit. Applicants may reproduce these materials as needed and provide them to their prospective prime contractor, who, in turn, may reproduce and provide them to prospective subcontractors.

Additional copies / assistance may be requested from:

Compliance Branch
Grants Administration Division (PM-216F)
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460
(Telephone: 202 / 475-8025)

È MPLOYMENT
(820 ILCS 265/) Substance Abuse Prevention on Public Works Projects Act.

(820 ILCS 265/1)
Sec. 1. Short title. This Act may be cited as the Substance Abuse Prevention on Public Works Projects Act.
(Source: P.A. 95-635, eff. 1-1-08.)

(820 ILCS 265/5)
Sec. 5. Definitions. As used in this Act:
"Accident" means an incident caused, contributed to, or otherwise involving an employee that resulted in death, personal injury, or property damage and that occurred while the employee was performing work on a public works project.
"Alcohol" means any substance containing any form of alcohol including, but not limited to, ethanol, methanol, propanol, and isopropanol.
"Alcohol concentration" means: (1) the number of grams of alcohol per 210 liters of breath; or (2) the number of grams of alcohol per 100 milliliters of blood.
"Drug" means a controlled substance as defined in the Illinois Controlled Substances Act or cannabis as defined in the Cannabis Control Act for which testing is required by an employer under its substance abuse prevention program under this Act. The term "drug" includes prescribed medications not used in accordance with a valid prescription.
"Employee" means a laborer, mechanic, or other worker employed in any public works by anyone under a contract for public works.
"Employer" means a contractor or subcontractor performing a public works project.
"Public works" and "public body" have the meanings ascribed to those terms in the Prevailing Wage Act.
(Source: P.A. 95-635, eff. 1-1-08.)

(820 ILCS 265/10)
Sec. 10. Substance abuse prohibited. No employee may use, possess, distribute, deliver, or be under the influence of a drug, or use or be under the influence of alcohol, while performing work on a public works project. An employee is considered to be under the influence of alcohol for purposes of this Act if the alcohol concentration in his or her blood or breath at the time alleged as shown by analysis of the employee's blood or breath is at or above 0.02.
(Source: P.A. 95-635, eff. 1-1-08.)

(820 ILCS 265/15)
Sec. 15. Substance abuse prevention programs required.
(1) Before an employer commences work on a public works project, the employer shall have in place a written program which meets or exceeds the program requirements in this Act, to be filed with the public body engaged in the construction of the public works and made available to the general public, for the prevention of substance abuse among its employees. The testing must be performed by a laboratory that is certified for Federal Workplace Drug Testing Programs by the Substance Abuse and Mental Health Service Administration of the U.S. Department of Health and Human Services. At a minimum, the program shall include all of the following:

``

(A) A minimum requirement of a 9 panel urine drug test plus a test for alcohol. Testing an employee's blood may only be used for post-accident testing, however, blood testing is not mandatory for the employer where a urine test is sufficient.

(B) A prohibition against the actions or conditions specified in Section 10.

(C) A requirement that employees performing the work on a public works project submit to pre-hire, random, reasonable suspicion, and post-accident drug and alcohol testing. Testing of an employee before commencing work on a public works project is not required if the employee has been participating in a random testing program during the 90 days preceding the date on which the employee commenced work on the public works project.

(D) A procedure for notifying an employee who violates Section 10, who tests positive for the presence of a drug in his or her system, or who refuses to submit to drug or alcohol testing as required under the program that the employee may not perform work on a public works project until the employee meets the conditions specified in subdivisions (2) (A) and (2) (B) of Section 20.

(2) Reasonable suspicion testing. An employee whose Supervisor has reasonable suspicion to believe the employee is under the influence of alcohol or a drug is subject to discipline up to and including suspension, and be required to undergo an alcohol or drug test. "Reasonable suspicion" means a belief, based on behavioral observations or other evidence, sufficient to lead a prudent or reasonable person to suspect an employee is under the influence and exhibits slurred speech, erratic behavior, decreased motor skills, or other such traits. Circumstances, both physical and psychological, shall be given consideration. Whenever possible before an employee is required to submit to testing based on reasonable suspicion, the employee shall be observed by more than one supervisory or managerial employee. It is encouraged that observation of an employee should be performed by a supervisory or managerial employee who has successfully completed a certified training program to recognize drug and alcohol abuse. The employer who is requiring an employee to be tested based upon reasonable suspicion shall provide transportation for the employee to the testing facility and may send a representative to accompany the employee to the testing facility. Under no circumstances may an employee thought to be under the influence of alcohol or a drug be allowed to operate a vehicle or other equipment for any purpose. The employee shall be removed from the job site and placed on inactive status pending the employer's receipt of notice of the test results. The employee shall have the right to request a representative or designee to be present at the time he or she is directed to provide a specimen for testing based upon reasonable suspicion. If the test result is positive for drugs or alcohol, the employee shall be subject to termination. The employer shall pay all costs related to this testing. If the test result is negative, the employee shall be placed on active status and shall be put back to work by the employer. The employee shall be paid for all lost time to include all time needed to complete the drug or alcohol test and any and all overtime according to the employee's contract.

(3) An employer is responsible for the cost of developing, implementing, and enforcing its substance abuse prevention program, including the cost of drug and alcohol testing of its employees under the program, except when these costs are covered under provisions in a collective bargaining agreement. The testing must be performed by a laboratory that is certified for Federal Workplace Drug Testing Programs by the Substance Abuse and Mental Health Service Administration of the U.S. Department of Health and Human Services. The contracting agency is not responsible for that cost, for the cost of any medical review of a test result, or for any rehabilitation provided to an

``

employee.

(Source: P.A. 95-635, eff. 1-1-08.)

(820 ILCS 265/20)

Sec. 20. Employee access to project.

(1) An employer may not permit an employee who violates Section 10, who tests positive for the presence of a drug in his or her system, or who refuses to submit to drug or alcohol testing as required under the employer's substance abuse prevention program under Section 15 to perform work on a public works project until the employee meets the conditions specified in subdivisions (2) (A) and (2) (B). An employer shall immediately remove an employee from work on a public works project if any of the following occurs:

(A) The employee violates Section 10, tests positive for the presence of a drug in his or her system, or refuses to submit to drug or alcohol testing as required under the employer's substance abuse prevention program.

(B) An officer or employee of the contracting agency, preferably one trained to recognize drug and alcohol abuse, has a reasonable suspicion that the employee is in violation of Section 10 and requests the employer to immediately remove the employee from work on the public works project for reasonable suspicion testing.

(2) An employee who is barred or removed from work on a public works project under subsection (1) may commence or return to work on the public works project upon his or her employer providing to the contracting agency documentation showing all of the following:

(A) That the employee has tested negative for the presence of drugs in his or her system and is not under the influence of alcohol as described in Section 10.

(B) That the employee has been approved to commence or return to work on the public works project in accordance with the employer's substance abuse prevention program.

(C) Testing for the presence of drugs or alcohol in an employee's system and the handling of test specimens was conducted in accordance with guidelines for laboratory testing procedures and chain-of-custody procedures established by the Substance Abuse and Mental Health Service Administration of the U.S. Department of Health and Human Services.

(3) Upon successfully completing a rehabilitation program, an employee shall be reinstated to his or her former employment status if work for which he or she is qualified exists.

(Source: P.A. 95-635, eff. 1-1-08.)

(820 ILCS 265/25)

Sec. 25. Applicability. This Act applies to a contract to perform work on a public works project for which bids are opened on or after January 1, 2008, or, if bids are not solicited for the contract, to a contract to perform such work entered into on or after January 1, 2008. The provisions of this Act apply only to the extent there is no collective bargaining agreement in effect dealing with the subject matter of this Act.

(Source: P.A. 95-635, eff. 1-1-08.)

(820 ILCS 265/99)

`` Sec. 99. Effective date. This Act takes effect January 1, 2008.
(Source: P.A. 95-635, eff. 1-1-08.)

MATTOON, ILLINOIS
RILEY CREEK CSO SATELLITE TREATMENT FACILITY – CONTRACT 1

CONTRACTING REQUIREMENTS

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TO: _____
(Apparent Low Bidder)

OWNER'S PROJECT NO. 12078-03-00

PROJECT RILEY CREEK CSO SATELLITE TREATMENT FACILITY – CONTRACT 1

You are hereby notified that your Bid dated _____, for the above Project has been considered by the Owner. You are the Apparent Low Bidder and it is the Owner's intent to award this contract to you within the bid opening period stated in the Contract Documents.

This Notice-of-Intent-to-Award is contingent on all of the following:

1) The owner's receipt of the IEPA Water Pollution Control Loan Program loan commitment.

The Contract Price of your contract is _____ Dollars and No Cents. ($ .00)

You must acknowledge and return two (2) original copies of this Notice-of-Intent-to-Award to the Owner within seven (7) calendar days of the date of this notice, that is by _____.

By order of the _____, Issued and dated the _____ day of _____.

OWNER: CITY OF MATTOON

By _____
(Signature of authorized person)

_____
(Name of authorized person)

_____
(Title of authorized person)

Receipt and acceptance of the above Notice-of-Intent-to-Award is hereby acknowledged this _____ day of _____, by:

APPARENT LOW BIDDER: _____

By _____
(Signature of authorized person)

_____
(Name of authorized person)

_____
(Title of authorized person)

END OF DOCUMENT

CONTRACTING REQUIREMENTS
Document 00510 - Notice of Award

Dated _____, 20__.

TO:_____
(Bidder)

OWNER'S PROJECT NO. _____12078-03-00_____

PROJECT ____Riley Creek CSO Satellite Treatment Facility – Contract 1_____

CONTRACT FOR _Site work, site utilities, bar screen structure and building, first flush storage tank, influent pumping station, primary treatment structure, disinfection tank, chemical feed building, foul sewer pumping station, electrical and blower equipment building, stand-by power, all associated equipment with each of these components, sediment & erosion control, and site restoration.____

You are notified that your Proposal dated _____, 20__, for the above Contract has been considered. You are the apparent successful bidder and have

been awarded a contract for _____

_____

_____

The Contract Price of your contract is _____

Dollars (_____).

Three copies of each of the proposed Contract Documents (except Drawings) accompany this Notice of Award. Three sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within fifteen days of the date

of this Notice of Award, that is by _____, 20__.

1. You must deliver to the OWNER three fully executed counterparts of the Agreement including all the Contract Documents.

2. You must deliver with the executed Agreement the Contract Security (Bonds) as specified in the Instructions to Bidders (Paragraph 1.18) and the General Conditions (paragraph 5.1).

Failure to comply with these conditions within the time specified will entitle OWNER to consider your bid abandoned, to annul this Notice of Award and to declare your Bid Security forfeited.

Within ten days after you comply with those conditions, OWNER will return to you one fully signed counterpart of the Agreement with the Contract Documents attached.

City of Mattoon
(Owner)

BY_____
(Authorized Signature)

_____
(Name)

_____
(Title)

ACCEPTANCE OF NOTICE
Receipt of the Notice of Award is hereby acknowledged,

By _____,

this the _____ day of _____, 20___.

By _____
(Signature)

_____
(Name)

_____
(Title)

END OF DOCUMENT

THIS AGREEMENT is dated as of the _____ day of _____ in the

Year 20_____ by and between City of Mattoon

_____ (hereinafter called the OWNER)

And _____

_____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK

Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The work includes, but is not limited to,

Site work, site utilities, bar screen structure and building, first flush storage tank, influent pumping station, primary treatment structure, disinfection tank, chemical feed building, foul sewer pumping station, electrical and blower equipment building, stand-by power, all associated equipment with each of these components, sediment & erosion control, and site restoration.

The Project for which the Work under the Contract Documents may be the whole or only a part shall generally be described as follows:

City of Mattoon
Riley Creek CSO Satellite Treatment Facility – Contract 1

Article 2. ENGINEER and AGENCY

The Project has been designed by Crawford, Murphy & Tilly, Inc., Consulting Engineers, 2750 West Washington St., Springfield, Illinois 62702, who is hereinafter called ENGINEER and who will assume all duties and responsibilities and will have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

The Project is expected to be funded in part by a load from the Illinois Environmental Protection Agency who is hereafter called Agency and who will assume all duties and responsibilities and will have the rights and authority assigned to Agency in the Contract Documents in connection with completion of the Work in accordance with the Contracts Documents. Neither the State of Illinois nor any of its Departments, Agencies, or Employees is or will be a party to this Agreement. This Agreement is subject to Regulations contained in the Procedures for Issuing Loans from the Water Pollution Control Program.

Article 3. CONTRACT TIME

3.1 The Work will be substantially completed by **December 1, 2016** and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions by **May 31, 2017**. **Substantial Completion is defined as having CSO treatment process (screening, first flush capture, pumping station, swirl concentration, disinfection, foul sewer pumping and all associated piping) complete and all facilities tested and functional such that treated water can be discharged to Riley Creek. Final completion is defined as having all site work completed.**

3.2 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not substantially completed as designated (beneficially, substantially or fully) within the respective timeframe specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER an amount as set forth in SUPPLEMENTARY CONDITIONS for each day that expires after the time specified in paragraph 3.1 for substantial completion until the Work is substantially complete.

Article 4. CONTRACT PRICE

4.1 OWNER shall pay CONTRACTOR for performance of the Work in accordance with the Contract Documents in current funds in the amounts as shown in the attached PROPOSAL.

Article 5. PAYMENT PROCEDURES

Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions and the Supplementary Special Conditions.

5.1 Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment, as recommended by ENGINEER, each month during construction as provided below. All progress payments will be on the basis of the progress of the Work measured by the schedule of values provided for in paragraph 14.01 of the General Conditions.

5.1.1 Progress payments will be subject to retainage as set forth in SUPPLEMENTARY CONDITIONS.

5.2 Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 14.07 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.07.

Article 6. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

6.1 CONTRACTOR has familiarized himself with the nature and extent of the Contract Documents, Work, locality, and with all local conditions and federal, state and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.

6.2 The OWNER requires all BIDDERS to make the following certification as a part of their bids:

> "In conjunction with this bid or any other bid for a public contract within the State of Illinois, the BIDDER warrants and certifies that the BIDDER has not violated the bid-rigging prohibition of P.A. 85-1295 (Ill. Rev. Stat. ch 38, par 33E-3), within the last five (5) years, and has not violated the bid rotation prohibition of P.A. 85-1295 (Ill. Rev. Stat. ch 38, par 33E-4), at any time."

6.3 CONTRACTOR has studied carefully all reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which were relied upon by ENGINEER in the preparation of the Drawings and Specifications and which have been identified in the Supplementary Conditions.

6.4 CONTRACTOR has made or caused to be made examinations, investigations and tests and studies of such reports and related data in addition to those referred to in Paragraph 6.3 as he deems necessary for the performance of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are or will be required by CONTRACTOR for such purposes.

6.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.

6.6 CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

Article 7. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work are made a part hereof and consist of the following:

7.1 This Agreement (Document 00520, pages 1 to 6, inclusive).
7.2 Performance, Payment, and other Bonds.
7.3 Notice of Award and Notice to Proceed.
7.4 General Conditions (Document 00700, pages 1 to 42, inclusive).
7.5 Supplementary Conditions (Document 00800, pages 1 to 10, inclusive).
7.6 Specifications (Divisions 1 to 16, inclusive, as listed in the Table of Contents thereof).
7.7 Definitions and Format Explanation (Document 00810, pages 1 to 5 inclusive).
7.8 Davis-Bacon Wages (Document 00825, 2 pages).
7.9 Tax Exemptions (Document 00830, 1 page).

7.10 Drawings, consisting of the sheets as listed in the List of Drawings, with each sheet bearing the following general title:

City of Mattoon

Riley Creek CSO Satellite Treatment Facility – Contract 1

7.11 Addenda numbers _____ to _____, inclusive.

7.12 Proposal (Bid Form, Bid Bond, and Supplements as listed in Bid Form).

7.13 Advertisement for Bids (Document 00120, pages 1 to 2 inclusive).

7.14 Instructions to Bidders (Document 00200, pages 1 to 8 inclusive).

7.15 Documentation submitted by CONTRACTOR prior to Notice of Award (pages ____ to ____, inclusive).

7.16 Any Change Orders, duly delivered after execution of Agreement.

7.17 Equal Opportunity Requirements (Document 00842, 2 pages with 7 pages of attachments).

7.18 Disadvantaged Business Enterprise (DBE) Participation (Document 00846, 4 pages with applicable attachments).

7.19 Bidder Certification Regarding the Use of American Iron and Steel Products (Document 00457A)

Only printed or hard copies of the items listed in this article are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by Owner to Contractor are not Contract Documents. There are no Contract Documents other than those listed above in this Article 7. The Contract Documents may only be altered, amended or repealed by a Change Order (as defined in Article 1 of the General Conditions).

Article 8. MISCELLANEOUS

8.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions shall have the meanings indicated in the General Conditions.

8.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

8.3 OWNER and CONTRACTOR each binds himself, his partners, successors, assigns and legal representatives to the other party hereto, his partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

Article 9. OTHER PROVISIONS

9.1 The CONTRACTOR shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR Part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the CONTRACTOR to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies.

9.2 The CONTRACTOR acknowledges to and for the benefit of the City of Mattoon and

the State of Illinois that it understands the goods and services under this Agreement are being funded with monies made available by the State Revolving Loan Fund that have statutory requirements commonly known as “American Iron and Steel;” that requires all of the iron and steel products used in the project to be produced in the United States (“American Iron and Steel Requirement”) including iron and steel products provided by the CONTRACTOR pursuant to this Agreement. The CONTRACTOR hereby represents and warrants to and for the benefit of the OWNER and the State that (a) the CONTRACTOR has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the CONTRACTOR will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the OWNER or the State. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the CONTRACTOR shall permit the OWNER or State to recover as damages against the CONTRACTOR any loss, expense, or cost (including without limitation attorney’s fees) incurred by the OWNER or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the OWNER). While the CONTRACTOR has no direct contractual privity with state, as a lender to the OWNER for the funding of its project, the OWNER and the CONTRACTOR agree that that State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR AND ENGINEER.

This Agreement will be effective on _____ , 20__.

OWNER City of Mattoon, Illinois

By_____
(Signature of authorized person)

_____
(Name of authorized person)

_____
(Title of authorized person)

(CORPORATE SEAL)

Attest _____

_____
(Name)

_____
(Title)

Address for giving notices

_____

_____

A CORPORATION:

CONTRACTOR_____

By_____
(Signature of authorized person)

_____
(Name of authorized person)

_____
(Title of authorized person)

(CORPORATE SEAL)

Attest _____

_____
(Name)

_____
(Title)

Address for giving notices

_____

_____

AN INDIVIDUAL:

By_____ (SEAL)
(Signature)

_____
(Name)

DBA_____

Business Address _____

_____

_____

Phone No._____

A PARTNERSHIP:

By_____(SEAL)
(Firm Name)

_____
(Signature of General Partner)

_____
(Name of General Partner)

Business Address_____

_____

Phone No._____

A JOINT VENTURE:

By_____
(Signature)

_____
(Name)

_____
(Address)

By_____
(Signature)

_____
(Name)

_____
(Address)

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the Joint Venture should be in the manner indicated above).

END OF DOCUMENT

CONTRACTING REQUIREMENTS
Document 00550 - Notice to Proceed

Dated _____, 20 ___

TO:_____

OWNER'S PROJECT NO.___12078-03-00_____

PROJECT:_Riley Creek CSO Satellite Treatment Facility – Contract 1_____

_____

CONTRACT FOR: Site work, site utilities, bar screen structure and building, first flush storage tank, influent pumping station, primary treatment structure, disinfection tank, chemical feed building, foul sewer pumping station, electrical and blower equipment building, stand-by power, all associated equipment with each of these components, sediment & erosion control, and site restoration.

You are notified that the Contract Time under the above contract will commence to run on _____

, 20_____. By that date, you are to start performing the Work and your other obligations under the Contract Documents. The dates of Substantial Completion and Final Completion are set forth in the Agreement; they

are _____, 20_____ and _____

_____, 20___, respectively.

Also before you may start any work at the site, you must

(add other requirements)

City of Mattoon
(Owner)

BY_____
(Authorized Signature)

_____
(Name)

_____
(Title)

ACCEPTANCE OF NOTICE
Receipt of the Notice of Award is hereby acknowledged,

by _____,

this the _____ day of _____, 20___.

By _____
(Signature)

_____
(Name)

_____
(Title)

END OF DOCUMENT

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of contractor)

_____
(Address of contractor)

a _____, hereinafter called Principal,
(Corporation, Partnership or Individual)

and _____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto _____

_____
(Name of Owner)

_____
(Address of Owner)

hereinafter called OWNER, in the penal sum of _____

Dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a

certain contract with the OWNER, dated the _____ day of _____ , 20__,
a copy of which is hereto attached and made a part hereof for the construction of:

_____

_____

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one-year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its

obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____ , 20__.

ATTEST:

_____
Principal

_____
(Principal) Secretary

By_____ /s/

(SEAL)

_____
(Witness as to Principal)

_____
(Address)

_____
(Address)

_____
Surety

ATTEST:

_____
(Surety) Secretary

By_____ /s/

(SEAL)

_____
Witness as to Surety

By_____
Attorney-in-fact

_____
(Address)

_____
(Address)

NOTE: Date of BOND must not be prior to date of Contract.
If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT -- Surety companies executing BONDS must be named in current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department, and be authorized to transact business in the State of Illinois.

END OF DOCUMENT

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of contractor)

_____
(Address of contractor)

a _____, hereinafter called Principal,
(Corporation, Partnership or Individual)

and _____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto _____

_____
(Name of Owner)

_____
(Address of Owner)

hereinafter called OWNER, in the penal sum of _____

Dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a

certain contract with the OWNER, dated the _____ day of _____, 20___,
a copy of which is hereto attached and made a part hereof for the construction of:

_____

_____

_____

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUBCONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20___.

ATTEST:

_____
Principal

_____
(Principal) Secretary

By_____ /s/

(SEAL)

_____
(Witness as to Principal)

_____
(Address)

_____
(Address)

_____
Surety

ATTEST:

_____
Witness as to Surety

By_____
Attorney-in-fact

_____
(Address)

_____
(Address)

NOTE: Date of BOND must not be prior to date of CONTRACT.
If CONTRACTOR is Partnership, all partners should execute BOND

IMPORTANT -- Surety companies executing BONDS must be named in current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department, and be authorized to transact business in the State of Illinois.

END OF DOCUMENT

CERTIFICATE of SUBSTANTIAL COMPLETION

PROJECT Riley Creek CSO Satellite Treatment Facility – Contract 1

DATE OF ISSUANCE _____

OWNER: City of Mattoon, Illinois OWNER's Contract No.: _____

CONTRACTOR: _____ CONTRACTOR's Job No.: _____

ENGINEER: Crawford, Murphy & Tilly, Inc. (CMT) ENGINEER's Project No.: 12078-03-00

This Certificate of Substantial Completion applies to all work under the Contract Documents except as listed below:

The Work to which this Certificate applies has been reviewed by authorized representatives of the Owner and the Contractor, and the Owner hereby agrees to declare the Work to be substantially complete in accordance with the Contract Documents as of _____, this date establishes the "*Date of Substantial Completion*".

The non-completed Work listed above and the Punch List items to be completed and/or corrected may not be all-inclusive and the failure to include Work or items in the Punch List does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents. The Work excluded from this Certificate and all Punch List items shall be completed and/or corrected by the Contractor, and accepted as complete by the Owner, within _____ days of the above Date of Substantial Completion, which is _____, the date of Final Completion.

Should the Contractor not complete the Work excluded from this Certificate and/or not complete all Punch List items to the satisfaction of the Owner in accordance with the Contract Documents, within the time period noted above, the Contractor agrees to the Owner's full implementation of Liquidated Damages as specified in Paragraph SC- ____ of Document 00800 – Supplementary Conditions in the Contract Documents, until the Work and/or Punch List is completed.

From the above Date of Substantial Completion the responsibilities between the Owner and the Contractor for security, operation, safety, maintenance, heat, utilities, insurance, warranties and guarantees shall be as follows:

The Owner:

The Contractor:

This Certificate does not constitute an acceptance by the Owner of Work not completed and/or not in accordance with the Contract Documents nor is it a release of the Contractor's obligation to complete the Work in accordance with the Contract Documents.

Executed by Owner:

By: _____
(Owner's Authorized Signature)

_____
(Name Typed or Printed)

Date: _____

Accepted by Contractor:

By: _____
(Contractor's Authorized Signature)

_____
(Name Typed or Printed)

Date: _____

SUBMITTAL TRANSMITTAL

CITY OF MATTOON
RILEY CREEK CSO SATELLITE TREATMENT FACILITY – CONTRACT 1

DATE:_____ SUBMITTAL NO.

FROM:

TO: OWNER
C/O Crawford, Murphy & Tilly, Inc.
2750 West Washington St.
Springfield, IL 62702

VENDOR:

_____
_____

This is: An original submittal: _____ A revised submittal ____
Previous Submittal No. _____ No. of submittal copies ___

SUBJECT OF SUBMITTAL:

SPECIFICATION AND/OR DRAWING NUMBER:

We have verified that this submittal contains all applicable material and information required for evaluation against the project specifications. Furthermore, we submit these items, which comply with the plans and specifications.

Check One: _____ with no exceptions, _____ except for the following deviations:

NO. DEVIATIONS

_____
_____
_____
_____

CONTRACTOR'S AUTHORIZING STAMP	ENGINEER'S REVIEW STAMP
(Contractor's Authorized Signature)	

ADDITIONAL COMMENTS FROM SIDE 1:

END OF DOCUMENT

STEP CERTIFICATION EXAMPLE
Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Step Certification for Sugar Creek WWTP

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron andSteel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxx
2. Xxxx
3. Xxxx

Such process took place in the following locations:

If any of the above compliance statements change while providing material to this project, we will immediately notify the general contractor and the engineer.

Signed by company representative

CERTIFICATION EXAMPLE
Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Certification for Sugar Creek WWTP

I, (company representative), certify that the following products and/or materials shipped/provided to the subject project are in full compliance with the American Iron and Steel requirements as mandated in EPA's State Revolving Fund programs.

Item, Products, and/or Materials:

1. Xxxx
2. Xxxx
3. Xxxx

Such process took place at the following location:

If any of the above compliance statements change while providing materials to this project, we will immediately notify the General Contractor and the Engineer.

Signed by company representative.

END OF DOCUMENT

APPLICATION FOR PAYMENT

Application No. Date: Period: To

Project Name: Riley Creek CSO Satellite Treatment Facility – Contract 1 Project No.: 12078-03-00
Owner: City of Mattoon

Contractor:
_____Application is made for Payment, as shown below, in connection with the above referenced Project. Attached sheets summarize Change Orders and itemize work according to the Bid Schedule.

Original Contract Sum ..... $_____

Net Change by Change Orders..... $_____
(See attached Summary Sheet)
Contract Sum to Date..... $_____

Total Completed & Stored to Date..... $_____
Retainage _____%..... $_____
Total Earned Less Retainage..... $_____
Less Previous Certificates for Payment..... $_____
CURRENT PAYMENT DUE..... $_____

The undersigned Contractor certifies that the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by him for Work for which previous Certificates For Payment we issued and payments received from the Owner, and that the current payment shown herein is now due.

CONTRACTOR:

By:_____ Date:_____

State of _____, County of _____:

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

Notary Public:_____ My Commission Expires:

In accordance with the Contract and this Application for Payment, the Contractor is entitled to payment in the amount shown above.

By:_____CRAWFORD, MURPHY & TILLY, INC.
(Signature) (Engineer)

_____ Date:_____
(Name Typed)

By: _____City of Mattoon
(Signature) (Owner)

_____ Date:_____
(Name Type)

This Certificate is not negotiable. It is payable only to the payee named herein and its issuance, payment and acceptance are without prejudice to any rights of the Owner or Contractor under their Contract.

PAY APPLICATION CONTINUATION SHEET

PROJECT: Riley Creek CSO Satellite Treatment Facility – Contract 1

APPLICATION NO.:
APPLICATION DATE:
PERIOD FROM: TO:
ENGINEERS PROJECT NO.:

TO OWNER: City of Mattoon
FROM CONTRACTOR:
CONTRACT FOR:
VIA ENGINEER: Crawford, Murphy & Tilly, Inc.

A	B	C	D		E	F	G	H
Names of the Contractor, Sub-contractor & Material Suppliers for the Work	Description of Work (Use same breakdown as Contractor's Schedule. of Values)	Total Contract to Date. Schedule of Values Plus Change Orders	Work Completed & Material Stored %	Dollar Valve	Total Retained Including this Application	Previous Payments	New Amount Requested. Col. D minus (Col. E & F)	Balance to Become Due. Col. C minus (Col. F & G)
TOTAL OR SUBTOTAL								

CHANGE ORDER

No.

PROJECT Riley Creek CSO Satellite Treatment Facility – Contract 1

DATE OF ISSUANCE _____ EFFECTIVE DATE

OWNER City of Mattoon, Illinois
OWNER'S Contract No.

CONTRACTOR _____ ENGINEER Crawford, Murphy & Tilly, Inc.

You are directed to make the following changes in the Contract Documents.

Description:

Reason for Change Order:

Attachments: (List documents supporting change)

CHANGE IN CONTRACT PRICE:	CHANGE IN CONTRACT TIMES:
Original Contract Price $_____	Original Contract Times Substantial Completion_____ Ready for final payment _____ days or dates
Net changes from previous Change Orders No. ___ to No. $_____	Net change from previous Change Orders No.___ to No.____ _____ days
Contract Price prior to this Change Order $_____	Contract Times prior to this Change Order Substantial Completion_____ Ready for final payment_____ days or dates
Net Increase (decrease) of this Change Order $_____	Net Increase (decrease) of this Change Order _____ days
Contract Price with all approved Change Orders $_____	Contract Times with all approved Change Orders Substantial Completion_____ Ready for final payment_____ days or dates

RECOMMENDED:	APPROVED:	ACCEPTED:
By:_____ Engineer (Authorized Signature)	By:_____ Owner (Authorized Signature)	By:_____ Contractor (Authorized Signature)
Date:_____	Date:_____	Date:_____

FEDERAL AGENCY APPROVAL (where applicable):

By:_____ Date:_____

CHANGE ORDER

INSTRUCTIONS

A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times, Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Contract Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating change order items to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order may be used.

B. COMPLETING THE CHANGE ORDER FORM

Engineer initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Contractor for approval. After approval by Contractor, all copies should be sent to Owner for approval. Engineer should make distribution of executed copies after approval by Owner.

If a change only applies to Contract Price or to Contract Times, cross out the part of the tabulation that does not apply.

ADDITIONAL COMMENTS FROM SIDE 1:

_____

_____

_____

_____

_____

_____

_____

_____

PIPELINE PRESSURE TESTING RECORD

RILEY CREEK CSO SATELLITE TREATMENT FACILITY

DATE:_____ RECORD NO._____

Plant Location:_____

Pipe Line Tested (Service):_____

Location & Description:_____

Pipe Size & Materials:_____

Length of Pipe Line Tested:_____

Operating Pressure:_____ PSIG

Specification Test Pressure:_____ PSIG

Actual Test Pressure:_____ PSIG

Testing Material (Water, Air, etc.):_____

Test Started:_____ Pressure:_____ PSIG

Test Completed:_____ Pressure:_____ PSIG

Duration: _____ Pressure: Rise/Drop_____ PSIG

Test: Pass/Fail_____

Witness By:_____ Date:_____
Owner (Authorized Signature)

Title:_____ For: City of Mattoon
(Owner)

Witness By:_____ Date:_____
Contractor (Authorized Signature)

Title:_____ For:_____
(Contractor's Name)

Description of Repairs Made: See Reverse Side

General Comments: See Reverse Side

Distribution: Owner, CMT, Contractor, Sub-Contractor, _____

Description of Repairs Made:

General Comments:

WORK DIRECTIVE CHANGE

No.

PROJECT Riley Creek CSO Satellite Treatment Facility – Contract 1

DATE OF ISSUANCE _____ EFFECTIVE DATE _____

OWNER City of Mattoon, Illinois

OWNER'S Contract No. 12078-03-00

CONTRACTOR _____ ENGINEER Crawford, Murphy & Tilly, Inc.

You are directed to proceed promptly with the following changes:
Description:

Purpose of Work Directive Change:

Attachments: (List documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Times any claim for a Change Order based thereon will involve one or more of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price:	Method of determining change in Contract Times:
☐ Unit Price	☐ Contractor's records
☐ Lump Sum	☐ Engineer ' s records
☐ Other	☐ Other
Estimated increase (decrease) in Contract Price: $_____ If the change involves an increase, the estimated amount is not to be exceeded without further authorization.	Estimated increase (decrease) in Contract Times: Substantial Completion: _____ days; Ready for final payment: _____ days. If the change involves an increase, the estimated times are not to be exceeded without further authorization.

RECOMMENDED:

By:_____
Engineer (Authorized Signature)

Date:_____

AUTHORIZED:

By_____
Owner (Authorized Signature)

Date:_____

WORK DIRECTIVE CHANGE

INSTRUCTIONS

A. GENERAL INFORMATION

This document was developed for use in situations involving changes in the Work which, if not processed expeditiously, might delay the Project. These changes are often initiated in the field and may affect the Contract Price or the Contract Times. This is not a Change Order, but only a directive to proceed with Work that may be included in a subsequent Change Order.

For supplemental instructions and minor changes not involving a possible change in the Contract Price or the Contract Times a Field Order may be used.

B. COMPLETING THE WORK DIRECTIVE CHANGE FORM

Engineer initiates the form, including a description of the items involved and attachments.

Based on conversations between Engineer and Contractor, Engineer completes the following:

> METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT PRICE: Mark the method to be used in determining the final cost of Work involved and the estimated net effect on the Contract Price. If the change involves an increase in the Contract Price and the estimated amount is approached before the additional or changed Work is completed, another Work Directive Change must be issued to change the estimated price or Contractor may stop the changed Work when the estimated price is reached. If the Work Directive Change is not likely to change the Contract Price, the space for estimated increase (decrease) should be marked “Not Applicable”.
>
> METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT TIMES: Mark the method to be used in determining the change in Contract Times and the estimated increase or decrease in Contract Times. If the change involves an increase in the Contract Times and the estimates times are approached before the additional or changed Work is completed, another Work Directive Change must be issued to change the times or Contractor may stop the changed Work when the estimated times are reached. If the Work Directive Change is not likely to change the Contract Times, the space for estimated increase (decrease) should be marked “Not Applicable”.

Once Engineer has completed and signed the form, all copies should be sent to Owner for authorization because Engineer alone does not have authority to authorize changes in Price or Times. Once authorized by Owner, a copy should be sent by Engineer to Contractor. Price and Times may only be changed by Change Order signed by Owner and Contractor with Engineer’s recommendation.

Once the Work covered by this directive is completed or final cost and times are determined, Contractor should submit documentation for inclusion in a Change Order.

THIS IS A DIRECTIVE TO PROCEED WITH A CHANGE THAT MAY AFFECT THE CONTRACT PRICE OR THE CONTRACT TIMES. A CHANGE ORDER, IF ANY, SHOULD BE CONSIDERED PROMPTLY.

REQUEST FOR INTERPRETATION

RFI No. _____

Project: Riley Creek CSO Satellite Treatment Facility – Contract 1 RE: _____

Project Number: 12078-03-00 Date: _____

To: City of Mattoon, Illinois, c/o Crawford, Murphy & Tilly, Inc.,
2750 West Washington Street, Springfield, Illinois 62702

From: _____

_____

Specification Section: _____ Paragraph: _____ Drawing Reference: _____ Detail: _____

Request:

By:_____ Date: _____
Contractor (Authorized Signature)

Response:

Response From: _____

Response To: _____

By:_____ Date: _____
Engineer (Authorized Signature)

FIELD ORDER

Field Order No. _____

Project: Mattoon, Illinois RE: _____
Riley Creek CSO Satellite Treatment Facility – Contract 1

Date of Issuance: _____ Effective Date: _____

To: _____

_____

From: Crawford, Murphy & Tilly, Inc. Project Number: 12078-03-00

You are hereby directed to execute promptly this Field Order which interprets the Contract Documents or orders minor changes in the Work without change in Contract Time or Contract Price.

If you consider that a change in Contract Time or Contract Price is required, submit a Change Order Request to the Engineer immediately and prior to proceeding with this portion of the Work.

Specification Section: _____ Paragraph: _____ Drawing Reference: _____ Detail: _____

Description of Interpretation or Change:

By: _____ Date: _____
Engineer (Authorized Signature)

Additional Description of Interpretation or Change from Side 1:

SUBSTITUTION REQUEST

(Attach to Substitution Proposal as required by Section 01630)

Project: Mattoon, Illinois
Riley Creek CSO Treatment Facility – Contract 1

Substitution Request Number: _____

RE: _____

To: Crawford, Murphy & Tilly, Inc.

Date: _____

From: _____

CMT Project Number: 12078-03-00

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No.: _____

Installer: _____ Address: _____ Phone: _____

History: ☐ New product ☐ 2-5 years old ☐ 5-10 yrs old ☐ More than 10 years old

Differences between proposed substitution and specified product: _____

G Itemized comparative data attached - REQUIRED BY ENGINEER

Reason for not providing specified item: _____

Similar Installation:

Project: _____ Engineer: _____

Address: _____ Owner: _____

Date Installed: _____

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain _____

Savings to Owner for accepting substitution: ____ ($ _____).

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] _____ days.

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests
☐ Reports ☐ ___

SUBSTITUTION REQUEST

(Continued)

The Undersigned certifies:

- ☐ Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- ☐ Same warranty will be furnished for proposed substitution as for specified product.
- ☐ Same maintenance service and source of replacement parts, as applicable, is available.
- ☐ Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- ☐ Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- ☐ Proposed substitution does not affect dimensions and functional clearances.
- ☐ Payment will be made for changes to the design, including Engineer's redesign, detailing, and construction costs caused by the substitution.
- ☐ Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

Telephone: _____

Attachments: _____

Engineer's REVIEW AND ACTION

☐ Substitution approved - Make submittals in accordance with Specification Section 01330.

☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01330.

☐ Substitution rejected - Use specified materials.

☐ Substitution Request received too late - Use specified materials.

Signed by: Date:

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ Engineer ☐ _____

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

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These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

SEE SC-2

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

20. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but

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which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *Schedule of Values*--A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain

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administrative requirements and procedural matters applicable thereto.

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

45. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

48. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *Work*--The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

B. *Intent of Certain Terms or Adjectives*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered", "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents, or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or

c. has been damaged prior to Engineer's - recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

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E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

~~B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.~~

SEE SC-3

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review**:**

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with

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Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

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a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

SEE SC-4

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party..

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

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C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

~~4.02 *Subsurface and Physical Conditions*~~

~~A. *Reports and Drawings:* The Supplementary Conditions identify:~~

~~1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and~~

~~2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.~~

~~B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:~~

~~1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or~~

~~2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or~~

~~3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.~~

SEE SC-5

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for

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Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

~~4.04 *Underground Facilities*~~

~~A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:~~

~~1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and~~

~~2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:~~

~~a. reviewing and checking all such information and data,~~

~~b. locating all Underground Facilities shown or indicated in the Contract Documents,~~

~~c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and~~

~~d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.~~

~~B. *Not Shown or Indicated*~~

~~1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.~~

~~2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.~~

SEE SC-6

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified

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in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefore as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefore as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

SEE SC-7

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ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

5.04 *Contractor's Liability Insurance*

SEE SC-8

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

SEE SC-9

B. The policies of insurance required by this Paragraph 5.04 shall:

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1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

SEE SC-10 (RESERVED)

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents~~.~~

~~5.06 *Property Insurance*~~ ***SEE SC-11***

~~A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:~~

~~1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;~~

~~2. be written on a Builder's Risk "all-risk" or open-peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;~~

~~3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);~~

~~4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;~~

~~5. allow for partial utilization of the Work by Owner;~~

~~6. include testing and startup; and~~

~~7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.~~

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SEE SC-12

~~B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.~~

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

~~5.07 *Waiver of Rights*~~ ***SEE SC-13***

~~A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.~~

SEE SC-12

~~B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:~~

~~1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and~~

~~2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.~~

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

SEE SC-12

~~5.08 *Receipt and Application of Insurance Proceeds*~~

~~A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the~~

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~~requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.~~

~~B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.~~

SEE SC-12

~~5.09 *Acceptance of Bonds and Insurance; Option to Replace*~~

~~A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.~~

SEE SC-12

~~5.10 *Partial Utilization, Acknowledgment of Property Insurer*~~

~~A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.~~

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone,

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water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

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1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified , and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall

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submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued . No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

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~~G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer,, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.~~

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

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6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precau-

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tions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:* Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

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B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

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2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations

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and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

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8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

~~8.06 *Insurance*~~ ***SEE SC-12***

A~~. Owner's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.~~

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another

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representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

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9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment , a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs

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incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A.Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall

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be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment,

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machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*

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1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation , overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

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ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

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a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times , or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

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C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, ~~abnormal weather conditions,~~ acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

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ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

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13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

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A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications .

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take posses-

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sion of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

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~~3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.~~

B. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

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3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

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2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

14.03 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

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14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of

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inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and , will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which

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Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

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15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and

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acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SC-1. Supplementary Conditions

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (2002 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect. The terms used in these Supplementary Conditions which are defined in the Standard General Conditions of the Construction Contract (2002 Edition) have the meanings assigned to them in the General Conditions.

SC-2. Contract Documents (Re: GC-1.01 A12)

Amend the definition of CONTRACT DOCUMENTS contained in Article 1 of the General Conditions to read as follows:

The terms "Bid" and "Proposal" as used herein are interchangeable.

SC-3. Certificates of Insurance (Re: GC-2.01.B.)

Delete paragraph 2.01 B. of the General Conditions in its entirety and insert the following in its place:

> 2.01 B Before any Work at the site is started, CONTRACTOR shall deliver to OWNER, with a copy to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with Article 5 of the General Conditions and in accordance with Supplementary Conditions 7, 8, 9, 10 and 11.

SC-4. Conflict of Documents (Re: GC-3.03 B)

Add a new paragraph 3.03 B 1 c. immediately following paragraph 3.03 B 1 b. of the General Conditions which is to read as follows:

> 3.03 B 1 c. In the event that any of the provisions contained in the General Conditions, Supplementary Conditions, General Specifications or Drawings conflict, it is understood and agreed by both parties hereto that instructions or information on the drawings shall prevail.

SC-5. Subsurface Conditions (Re: GC-4.02)

Delete paragraphs 4.02 and 4.04 of the General Conditions in their entirety and insert the following in their place:

4.02 SUBSURFACE CONDITIONS - When the Drawings, other Contract Documents, or other information made available to the contractor and bidders, include information pertaining to sub-surface exploration, borings, test pits, and other preliminary investigations, such information is included only for the convenience of the Bidder. The OWNER or ENGINEER assumes no responsibility whatever in respect to the sufficiency of the information, and there is no guaranty, either expressed or implied, that the conditions indicated are representative of those existing throughout the WORK, or that unanticipated developments may not occur. The nature and character of soils actually encountered and ground water elevations actually encountered in performing the work shall not be a basis for any claim or additional payment to the Contractor except as may otherwise be provided for as rock excavation.

SC-6. Physical Conditions (Re: GC-4.04)

4.04 PHYSICAL CONDITION - UNDERGROUND FACILITIES - When the drawings or other Contract Documents include information pertaining to the location, size, material, description or type of underground utility facilities, such information is only included for the convenience of the Bidder. The OWNER or ENGINEER assumes no responsibility whatever in respect to the sufficiency or accuracy of the information, or lack of information shown on the plans relative to the location, size, material, description or type of underground utility facilities.

Where underground main distribution conduits such as water, gas, sewer, electric power, telephone or cable television are shown on the plans, the Contractor, for the purpose of preparing a bid, shall assume that every property parcel will be served by a service connection for each type of utility.

It shall be the Contractor's responsibility to determine the actual location of all existing underground facilities, including service connections to underground utilities. Prior to construction, the Contractor shall notify the utility company of his operational plans and shall obtain from the respective utility companies detailed information and assistance relative to the location of their facilities and the working schedule of the utility companies for removal or adjustment where removal or adjustment is required. In the event an unexpected utility interference is encountered during construction, the Contractor shall immediately notify the utility company of jurisdiction. The Engineer shall also be immediately notified. Any such mains and services disturbed by the Contractor's operations shall be restored to service at once. Whenever possible, residents shall be notified in advance if their service is to be disconnected and no house shall be left without service overnight. The Contractor shall not interrupt the service function or disturb the supporting base of any utility without authority from the owner of the utility. Where protection is required to insure support of utilities, the Contractor shall, unless otherwise provided, furnish and place the necessary protection at its expense.

SC-7. Difficulties Encountered (Re: GC-4.07)

Add a new paragraph 4.07 immediately following paragraph 4.06 I. of the General Conditions which is to read as follows:

4.07 All bidders for the work under this Contract are required before submitting all proposals, to examine the site of the work and adjacent premises, and the various means of approach to the site, and to make all necessary investigations in order to inform themselves thoroughly as to the character and magnitude of all work involved in the complete execution of this contract, and as to the facilities for delivering, handling and installing the construction equipment and the conditions and difficulties that will be encountered in the performance of the work specified herein. No pleas of ignorance of conditions that exist or that may hereafter exist, or of difficulties that will be encountered in the execution of the work hereunder as a result of failure to make necessary examinations and investigations, will be accepted as a sufficient excuse for any failure or omission on the part of the Contractor to fulfill, in every detail, all of the requirements of this contract, or will be accepted as a basis for any claim whatsoever for extra compensation.

SC-8. Certificate of Insurance (Re: GC-5.03 A)

Add a new sentence at the end of paragraph 5.03 A of the General Conditions which is to read as follows:

5.03 A Certificates of Insurance to be delivered to the Owner shall be in the form as provided in the following example: Contractor's Liability – CERTIFICATE OF INSURANCE EXAMPLE #1 and Owner's & Contractor's Protective Liability – CERTIFICATE OF INSURANCE EXAMPLE #2. Both certificates shall be provided.

CERTIFICATE OF INSURANCE EXAMPLE #1

ISSUE DATE (MM/DD/YY)

Producer (insurance company)

ABC Insurance Group
Street Address
City, State & Zip Code

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED (contractor's name)

ABC Construction
Street Address
City, State & Zip Code

COMPANIES AFFORDING COVERAGE

COMPANY LETTER	A	*ABC Insurance*
COMPANY LETTER	B	
COMPANY LETTER	C	
COMPANY LETTER	D	
COMPANY LETTER	E	

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSION AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
	GENERAL LIABILITY				**GENERAL AGGREGATE**	*$2,000,000*
	X COMMERCIAL GENERAL LIABILITY				EACH OCCURRENCE	*$1,000,000*
	CLAIMS MADE X OCCUR				PRODUCTS-COMP/OP AGG.	*$1,000,000*
	X CONTRACTUAL LIABILITY				PERSONAL & ADV. INJURY	*$1,000,000*
	X PROPERTY				FIRE DAMAGE (Any one fire)	
	X XCU				MED. EXPENSE (Any one person)	
	GEN'L AGGREGATE LIMIT APPLIES PER:				BODILY INJURY- GEN'L AGG	*$2,000,000*
	POLICY X PRO-JECT LOC.				BODILY INJURY & PROPERTY DAMAGE – EA OCCUR	*$1,000,000*
	AUTOMOBILE LIABILITY				EA ACCIDENT	*$1,000,000*
	X ANY AUTO					
	ALL OWNED AUTOS				PER PERSON	*$1,000,000*
	SCHEDULED AUTOS					
	HIRED AUTOS				BODILY INJURY (Per person)	
	NON-OWNED AUTOS				BODILY INJURY (Per accident)	
	GARAGE LIABILITY				PROPERTY DAMAGE	*$1,000,000*
	EXCESS LIABILITY				EACH OCCURRENCE	
	UMBRELLA FORM				AGGREGATE	
	OTHER THAN UMBRELLA FORM					
	WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY	In accordance with the provisions of the laws of the State of Illinois – See General Terms & Conditions. Also supply a copy of certificate of worker's compensation insurance.			X STATUTORY LIMITS	
					EACH ACCIDENT	
					DISEASE-POLICY LIMIT	
					DISEASE-EACH EMPLOYEE	
	OTHER **ALL RISK**					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

Project Name and Contract Number (one certificate per project)

The City of Mattoon and Crawford, Murphy & Tilly, Inc. shall be named as Additional Insured (primary and non-contributory) for General, Auto & Excess Liabilities. Please include phone and fax numbers.

CERTIFICATE HOLDER

City of Mattoon
208 North 19th Street
Mattoon, Illinois 61938

CANCELLATION

COVERAGE PROVIDED BY THE ISSUING COMPANY WILL NOT BE CANCELLED OR MATERIALLY CHANGED UNTIL AT LEAST 30 DAYS PRIOR WRITTEN NOTICE HAS BEEN GIVEN.

AUTHORIZED REPRESENTATIVE

(SIGNATURE)

CERTIFICATE OF INSURANCE - EXAMPLE #2

ISSUE DATE (MM/DD/YY)

Producer (insurance company)

ABC Insurance Group
Street Address
City, State & Zip Code

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

COMPANIES AFFORDING COVERAGE

INSURED

City of Mattoon
208 North 19th Street
Mattoon, Illinois 61938

COMPANY LETTER	A	*ABC Insurance*
COMPANY LETTER	B	
COMPANY LETTER	C	
COMPANY LETTER	D	
COMPANY LETTER	E	

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSION AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
	GENERAL LIABILITY				**GENERAL AGGREGATE**	*$2,000,000*
	X COMMERCIAL GENERAL LIABILITY				EACH OCCURRENCE	*$1,000,000*
	CLAIMS MADE X OCCUR				PRODUCTS-COMP/OP AGG.	*$1,000,000*
	X OWNER'S & CONTRACTOR'S PROTECTIVE				PERSONAL & ADV. INJURY	*$1,000,000*
					FIRE DAMAGE (Any one fire)	
	X XCU				MED. EXPENSE (Any one person)	
	GEN'L AGGREGATE LIMIT APPLIES PER:				BODILY INJURY- GEN'L AGG	*$2,000,000*
	POLICY X PRO-JECT LOC.				BODILY INJURY & PROPERTY DAMAGE – EA OCCUR	*$1,000,000*
	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT	
	ALL OWNED AUTOS				BODILY INJURY (Per person)	
	SCHEDULED AUTOS					
	HIRED AUTOS				BODILY INJURY (Per accident)	
	NON-OWNED AUTOS					
	GARAGE LIABILITY				PROPERTY DAMAGE	
	EXCESS LIABILITY				EACH OCCURRENCE	$
	UMBRELLA FORM				AGGREGATE	
	OTHER THAN UMBRELLA FORM					
	WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY	In accordance with the provisions of the laws of the State of Illinois – See General Terms & Conditions. Also supply a copy of certificate of worker's compensation insurance.			X STATUTORY LIMITS	
					EACH ACCIDENT	
					DISEASE-POLICY LIMIT	
					DISEASE-EACH EMPLOYEE	
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

Project Name and Contract Number (one certificate per project). Additional insured: Crawford, Murphy & Tilly, Inc. Please include phone and fax numbers.

CERTIFICATE HOLDER

City of Mattoon
208 North 19th Street
Mattoon, Illinois 61938

CANCELLATION

COVERAGE PROVIDED BY THE ISSUING COMPANY WILL NOT BE CANCELLED OR MATERIALLY CHANGED UNTIL AT LEAST 30 DAYS PRIOR WRITTEN NOTICE HAS BEEN GIVEN.

AUTHORIZED REPRESENTATIVE

SC-9. Contractor's Liability Insurance (Re: GC-5.04 A)

The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by law:

5.04 A 1 and 5.04 A 2 Workers' Compensation, etc. under paragraphs 5.04 A 1 and 5.04 A 2 of the General Conditions:

(1) State: Statutory

(2) Applicable Federal (e.g. Longshoreman's): Statutory

(3) Employer's Liability: $500,000

5.04 A 3, 5.04 A 4 and 5.04 A 5 Comprehensive General Liability (under paragraphs 5.04 A 2 through 5.04 A 5 of the General Conditions):

(1) Bodily Injury:

$2,000,000 General Aggregate, (Except Products & Completed Operations)

(2) $1,000,000 Products - Completed Operations Aggregate

(3) $1,000,000 Personal & Advertising Injury (Per Person/Organization)

(4) $1,000,000 Each Occurrence (Bodily Injury & Property Damage)

(5) Property Damage Liability Insurance will provide Explosion, Collapse and Underground Coverages Where Applicable

(6) $2,000,000 General Aggregate
$1,000,000 Each Occurrence

5.04 A 6 Automobile Liability:

(1) $1,000,000 Each Person

(2) $1,000,000 Each Accident

Property Damage:

$1,000,000 Each Accident

SC-10. Contractual Liability Insurance (Re: GC-5.04 B 4)

The Contractual Liability required by paragraph 5.04 B 4 of the General Conditions shall provide coverage for not less than the following amounts:

(1) $2,000,000 General Aggregate

(2) $1,000,000 Each Occurrence (Bodily Injury & Property Damage)

SC-11. Owner's Liability Insurance (Re: GC-5.05)

Delete paragraph 5.05 of the General Conditions in its entirety and insert the following in its place:

5.05 The CONTRACTOR shall purchase and maintain, at his expense, a separate Owners' Protective Liability Policy naming both the OWNER and the ENGINEER as the insured. Said insurance shall afford the OWNER and the ENGINEER the same protection and in the same amounts as required for the Contractor's Comprehensive General Liability policy and shall protect the OWNER and the ENGINEER from all claims for bodily injury and property damage arising from work performed by the Contractor including employees of the Contractor and Subcontractor.

SC-12. Property Insurance (Re: GC-5.06 A)

Delete paragraph 5.06 A of the General Conditions in its entirety and insert the following in its place:

5.06 A Unless otherwise provided in these Supplementary Conditions, CONTRACTOR shall purchase and maintain property insurance upon the work at the site to the full insurable value thereof (subject to such deductible amounts as may be provided in these Supplementary Conditions or required by law). This insurance shall include the interest of OWNER, CONTRACTOR and Subcontractors in the work, shall insure against the perils of fire and extended coverage, shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and such other perils as may be provided in these Supplementary Conditions, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including fees and charges of engineers, architects, attorneys and other professionals). If not covered under the "all risk" insurance or otherwise provided, CONTRACTOR shall purchase and maintain similar property insurance on portions of the work stored on and off the site or in transit when such portions of the work are to be included in an Application for Payment. The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with this paragraph shall contain a provision that the coverage afforded will not be cancelled or materially changed until at least thirty (30) days prior written notice has been given to OWNER.

SC-13. Insurance - General (Re: GC-5)

Delete paragraphs 5.06 B, 5.07 B, 5.08, 5.09, 5.10 and 8.06 of the General Conditions in their entirety.

SC-14. Waiver of Rights and Subrogation (Re: GC-5.07 A)

Paragraph 5.07 A of the General Conditions shall be deleted in its entirety and replaced with the following:

5.07 A Owner and Contractor hereby waive all rights of action and subrogation against each other and against Contractor's subcontractors and the officers, agents and employees of any of them to the extent of any insurance recoveries that may be obtained by the waiving party for damages caused by fire or other "All Risk" perils covered by insurance, except such

rights as such party may have to the proceeds of insurance held by any other person as trustee or otherwise in behalf of such party."

SC-15. Subcontracts (Re: GC-6.06 G)

Delete paragraph 6.06 G of the General Conditions in its entirety and insert the following in its place:

6.06 G All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER and contains waiver provisions as required by paragraph 5.07 A (as amended by these Supplementary Conditions). CONTRACTOR shall pay each Subcontractor a just share of any insurance moneys received by CONTRACTOR on account of losses under policies issued pursuant to paragraph 5.06.

SC-16. Resident Project Representative (Re: GC-9.03)

Add a new paragraph 9.03 B to read as follows:

A Resident Project Representative (RPR) shall be furnished by the OWNER to assist in observing the performance of the work as provided in Paragraph 9.03, the duties, responsibilities and authority of any such RPR and his assistants shall be as set forth in Document 00808 "*Duties, Responsibilities and Limitation of Authority of Owner's Employee as Resident Project Representative".*

SC-17. Adjustment of Unit Prices (Re: GC-11.03 E)

Add paragraph 11.03 E after 11.03 D of the General Conditions:

11.03 E No adjustment in contract unit prices will be allowed unless there is a net increase or net decrease in the amount of the Contract of more than 25 percent of the Contract award amount. In the event that unit prices are subject to adjustment pursuant to the above criteria, then any adjustments in unit prices shall be limited to those specific unit price items for which there is net increase or net decrease of more than 25 percent of the estimated quantity of such item indicated in the Agreement. Claims for adjustment of unit prices pursuant to this provision may be made by either the Contractor or the Owner. If an adjusted unit price or prices for such work cannot be agreed upon then payment for such work shall be as provided in paragraph 12.01 B 3.

SC-18. Change of Contract Time (Re: GC-12.03.C)

Delete the words "abnormal weather conditions" from paragraph 12.03.C of the General Conditions.

SC-19. Liquidated Damages (Re: GC-12.03.F)

Add a new paragraph immediately following paragraph 12.03.E of the General Conditions which is to read as follows:

12.03. F. It is understood and agreed that TIME is of the essence on this Contract, and that a failure on the part of the Contractor to complete the work under this Contract within the time specified will result in loss and damage to the Owner; and that on account of the peculiar nature of such loss or damage, it is difficult, if not impossible, to accurately ascertain and definitely determine the amount thereof. It is, therefore, covenanted and agreed that in case the Contractor shall fail or neglect to complete the work herein specified on or before the date herein fixed for completion, together with any extensions of time which may be granted under paragraph 12.02 of the General Conditions, the said Contractor shall and will pay to the Owner for each and every calendar day the Contractor shall be in default in the time of completion of this contract the sum set below:

Schedule of Deductions for Each Day of Overrun in Contract Time		
Original Contract Amount		
From More Than	To and Including	Calendar Day
$ 0	$ 100,00	$ 475
100,000	500,000	750
500,000	1,000,000	1,025
1,000,000	3,000,000	1,275
3,000,000	6,000,000	1,425
6,000,000	12,000,000	2,300
12,000,000	And over	6,775

In fixing the damages as set forth herein, the desire is to establish a certain mode of calculation for the work since the Owner's actual loss, in the event of delay, cannot be predetermined, it would be difficult to ascertain, and a matter of argument and unprofitable litigation. This said mode is an equitable rule for measurement of the Owner's actual loss and fairly takes into account the loss of use of the facilities if the project is delayed in completion.

The sum specified in the General Requirements of the Specifications is hereby agreed upon, fixed and determined by the parties hereto as the liquidated damages which the Owner will suffer by reason of such defaults, and not by way of a penalty.

In case the Contractor does not complete the work covered by this Agreement on or before the time specified herein for the completion of the said work, together with any extensions of time which may be granted under paragraph 12.03 of the General Conditions, the Engineer shall determine the number of days the Contractor is in default, and the decision of the Engineer shall be final and binding upon both parties hereto. It is further agreed that if the Owner shall accept any work or make any payments under this Contract after any such default, such acceptance, payment or payments shall not in any respect constitute a waiver or modification of any of the provisions hereof, and particularly the provisions in regard to LIQUIDATED DAMAGES for delays.

SC-20. Application for Payments (Re: GC-14.02 A 3)

Delete paragraph 14.02 A 3 in its entirety and insert the following in its place:

From the amounts determined to have been earned by the CONTRACTOR, there shall be deducted ten percent (10%) to be retained until after completion of 50% of the WORK. After 75% or more of the WORK has been completed, there shall be no further retainage provided that satisfactory progress is being made, and provided that the amount retained is not less than 5 percent (5%) of the total adjusted contract price.

SC-21. Reduction in Payment (Re: GC-14.02 D 1 e)

Add a new paragraph immediately after paragraph 14.02 D 1 d of the General Conditions which is to read as follows:

14.02 D 1 e Liability for liquidated damages has been incurred by Contractor.

PART 1 STATE REVOLVING FUND LOAN REQUIREMENTS

1.01 Definitions

A. Agency--The federal or state agency named as such in the Agreement.

1.02 Negotiations of Contract Amendments (Change Orders)

A. Changes in contract price or time. The contract price or time may be changed only by a change order. When negotiations are required, they shall be conducted in accordance with Subsection c of Section 365.620 of Procedures for Issuing Loans from the Water Pollution Control Loan Program.

B. For each change order the contractor shall submit to the loan recipient for review sufficient cost and pricing data to enable the loan recipient to ascertain the necessity and reasonableness of costs and amounts proposed, and the allowability and eligibility of costs proposed.

1.03 Audit; Access to Records

A. The contractor shall maintain books, records, documents and other evidence directly pertinent to performance on loan work consistent with generally accepted accounting standards in accordance with the American Institute of Certified Public Accountants Professional Standards. The Contractor shall also maintain the financial information and data used by the Contractor in the preparation or support of any cost submissions required under Subsection c of Section 365.620 of Procedures for Issuing Loans from the Water Pollution Control Loan Program and a copy of the cost summary submitted to the Owner. The Illinois Auditor General, the Owner, The Agency or any of their authorized representatives shall have access to the books, records, documents, and other evidence for the purpose of inspection, audit, and copying. The Contractor shall provide facilities for access and inspection.

B. For a formally advertised, competitively awarded, fixed price contract, the contractor shall include access to records as specified in Paragraph 1.03.A above for all negotiated change orders and contract amendments in excess of $25,000 that affect the contract price. In the case of all other all other prime contracts, the Contractor shall agree to include access to records as specified above in all his contracts and all tier subcontracts or change orders in excess of $25,000 that are directly related to project performance.

C. Audits shall be consistent with generally accepted auditing standards in accordance with the American Institute of Certified Public Accountants Professional Standards.

D. The Contractor shall agree to the disclosure of all information and reports resulting from access to records pursuant to Paragraph 1.03.A above. Where the audit concerns the Contractor, the auditing agency will afford the Contractor an opportunity for an audit exit conference and an opportunity to comment on the pertinent portions of the draft audit report. The final audit report shall include the written comments, if any, of the audited parties.

E. Records under Paragraph 1.03.A above shall be maintained and made available during performance of the work under this loan agreement and for three years after the date of final loan audit. In addition, records that relate to any dispute or litigation or the settlement of claims arising out of any performance, costs or items to which an audit exception has been taken, shall be maintained and made available for three years after resolution of such dispute, appeal, litigation, claim, or exception.

F. The right of access will generally be exercised with respect to financial records under:

1. Negotiated prime contracts;
2. Negotiated change orders or contract amendments in excess of $25,000 affecting the price of any formally advertised, competitively awarded, fixed price contract; and
3. Subcontracts or purchase orders under any contract at other than a formally advertised, competitively awarded, fixed price contract.

G. The right of access will generally not be exercised with respect to a prime contract, subcontract, or purchase order awarded after effective price competition. In any event, the right of access shall be exercised under any type of contract or subcontract:

1. With respect to records pertaining directly to contract performance, excluding any financial records of the contractor; and
2. If there is any indication that fraud, gross abuse, or corrupt practices may be involved in the award or performance of the contract or subcontract.

1.04 Covenant Against Contingent Fees

A. The Contractor shall warrant that no person or selling agency has been employed or retained to solicit or secure the contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee. For breach or violation of this warranty, the Owner shall have the right to annul the contract without liability or in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

1.05 Wage Provisions

A. The Contractor shall pay prevailing wages in accordance with the Illinois Prevailing Wage Act (820 ILCS 130/39S 1-12).

1.06 Debarred or Suspended Provisions

A. Bidder(s) shall submit a certification of compliance with federal Executive Order 12549 regarding debarment, suspension and other responsibility matters.

B. A copy of EPA Form 5700-49 that is to be used for the above certification is included with the Proposal forms provided to prospective Bidders in the Bidding Documents.

1.07 Subcontracts Under Construction Contracts

A. The award or execution of all subcontracts by the Contractor and the procurement and negotiation procedures used by the Contractor shall comply with the following:

1. All applicable provisions of federal, state and local law;
2. All provisions of these specifications regarding fraud and other unlawful or corrupt practices;
3. All provisions of these specifications with respect to access to facilities and records and audit of records.
4. Article 1.06 above requiring a certification of compliance with federal Executive Order 12549 regarding debarment, suspension, and other responsibility matters.

1.08 Contractor Bankruptcy

A. In the event of a contractor bankruptcy, the Owner shall notify the Agency and shall keep the Agency advised of any negotiations with the bonding company including any proposed settlement. The Agency may participate in those negotiations and will advise the Owner of the impact of any proposed settlement to the loan agreement. The Owner shall be responsible for assuring that every appropriate procedure and incidental legal requirement is observed in advertising for bids and re-awarding a construction contract.

1.09 Remedies

A. All claims, counter-claims, disputes and other matters in question between the Owner and the Contractor arising out of, or relating to a subagreement or its breach shall be decided by arbitration if the parties agree, or in a court of competent jurisdiction within the State.

1.10 Access

A. Agency and its representatives shall have access, during normal business hours or at any time work is being performed, to the premises where any portion of the Work is being performed.

B. Each contract entered into by the Owner for construction work, and every subagreement, shall provide Agency representatives with access to the work. The Contractor or subcontractor shall provide facilities for access and inspection. The contract or subagreement shall also provide that the Agency or any authorized representatives shall have access to any books, documents, papers and records that are pertinent to the project for the purpose of making audit, examination, excerpts and transcriptions.

(Remainder of this page left blank intentionally.)

1.01 GENERAL.

A. The Resident Project Representative (RPR) shall be an employee of the OWNER. The RPR shall not be the ENGINEER, or a consultant, employee or agent of the ENGINEER. The RPR shall act as directed by and under the supervision of the OWNER and will confer with OWNER regarding his actions. The RPR's dealings in matters pertaining to the on-site Work shall in general be only with OWNER and CONTRACTOR, and dealings with subcontractors shall only be through or with the full knowledge of CONTRACTOR. Written and verbal communication with the ENGINEER shall be only through or as directed by OWNER.

1.02 DUTIES AND RESPONSIBILITIES.

A. Resident Project Representative (RPR) will:

1. Schedules: Review the progress schedule, schedule of Shop Drawing submissions and schedule of values prepared by CONTRACTOR and consult with OWNER concerning their acceptability.
2. Conferences: Attend preconstruction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with OWNER and notify those expected to attend in advance. Attend meetings, and maintain and circulate copies of minutes thereof.
3. Liaison:

   a. Serve as OWNER's liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent and assist him in understanding the intent of the Contract Documents and when CONTRACTOR's operations affect OWNER's on-site operations.
   b. As requested by CONTRACTOR and/or ENGINEER, assist in obtaining from OWNER additional details or information, when required at the job site for proper execution of the Work.

4. Shop Drawings and Samples:

   a. Receive and record date of receipt of Shop Drawings and samples, receive samples which are furnished at the site by CONTRACTOR, and notify OWNER and ENGINEER of their availability for examination.
   b. Advise OWNER and CONTRACTOR or its superintendent immediately of the commencement of any Work requiring a Shop Drawing or sample submission if the submission has not been approved by ENGINEER.

5. Review of Work, Rejection of Defective Work, Inspections and Tests:

   a. Conduct on-site observations of the Work in progress to assist OWNER and ENGINEER in determining if the Work is proceeding in accordance with the Contract Documents and that completed Work will conform to the Contract Documents.

b. Report to OWNER and ENGINEER whenever he believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or does not meet the requirements of any inspections, tests or approval required to be made or has been damaged prior to final payment; and advise OWNER and ENGINEER when he believes Work should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

c. Verify that tests, equipment and systems startups and operating and maintenance instructions are conducted as required by the Contract Documents and in presence of the required personnel, and that CONTRACTOR maintains adequate records thereof; observe, record and report to OWNER and ENGINEER appropriate details relative to the test procedures and startups.

d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project; record the outcome of these inspections and report to OWNER and ENGINEER.

6. Interpretation of Contract Documents: Transmit to CONTRACTOR ENGINEER's clarifications and interpretations of the Contract Documents.

7. Modifications: Consider and evaluate CONTRACTOR's suggestions for modifications in Drawings or Specifications and report them with recommendations to OWNER and ENGINEER.

8. Records:

a. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples submissions, reproductions of original Contract Documents including all addenda, change orders, field orders, additional Drawings issued subsequent to the execution of the Contract, ENGINEER's clarifications and interpretations of the Contract Documents, progress report, and other Project related documents.

b. Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions, list of visiting officials and representatives of manufacturers, fabricators, suppliers and distributors, daily activities, decisions, observations in general and specific observations in more detail as in the case of observing test procedures. Send copies to OWNER and ENGINEER.

c. Record names, addresses and telephone numbers of all CONTRACTORS, subcontractors and major suppliers of materials and equipment.

9. Reports:

a. Furnish OWNER and ENGINEER periodic reports as required of progress of the Work and CONTRACTOR's compliance with the approved progress schedule and schedule of Shop Drawing submissions.

b. Consult with OWNER and ENGINEER in advance of scheduled major tests, inspections or start of important phases of the work.

c. Report immediately to OWNER upon the occurrence of any accident.

10. Payment Requisitions: Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and forward them with recommendations to OWNER and

ENGINEER, noting particularly their relation to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

11. Certificates, Maintenance and Operation Manuals: During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed; and deliver this material to OWNER and ENGINEER for his review and forwarding to OWNER prior to final acceptance of the Work.
12. Completion:

    a. Before OWNER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring completion or correction.
    b. Conduct final inspection in the company of ENGINEER, OWNER and CONTRACTOR and prepare a final list of items to be completed or corrected.
    c. Verify that all items on final list have been completed or corrected and make recommendations to OWNER concerning acceptance.

1.03 LIMITATIONS OF AUTHORITY

A. Except upon written instructions of OWNER, Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or approve any substitute materials or equipment.
2. Shall not exceed limitations on RPR's authority as set forth in the Contract Documents.
3. Shall not undertake any of the responsibilities of CONTRACTOR, subcontractors or CONTRACTOR's superintendent, or expedite the Work.
4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract Documents.
5. Shall not advise on or issue directions as to safety precautions and programs in connection with the Work.
6. Shall not authorize OWNER to occupy the Project in whole or in part.
7. Shall not participate in specialized field or laboratory tests.

END OF DOCUMENT 00808

PART 1 GENERAL

1.01 DEFINED TERMS

A. Terms which are defined in the Standard General Conditions of the Construction Contract, Engineers Joint Contract Documents Committee No. 1910-8, and (1996 Edition) have the meanings assigned to them in the General Conditions.

B. Terms which are defined in Document 00200 - Instructions to Bidders have the meanings assigned to them in that Document included in this Contract Document by this reference.

C. Certain additional terms used in Contract Documents are defined generally in this Document.

D. A substantial amount of specification language constitutes definitions for terms found in other Contract Documents, including Drawings which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon. Definitions and explanations of this Section are not necessarily either complete or exclusive, but are general for work to the extent not stated more explicitly in another provision of contract documents.

1.02 DEFINITIONS

A. A/E and Architect/Engineer: ENGINEER as defined in Agreement.

B. Approve: Where used in conjunction with Engineer's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of term "approved" will be held to limitations of Engineer's responsibilities and duties as specified in General and Supplementary Conditions. In no case will "approval" by Engineer be interpreted as a release of Contractor from responsibilities to fulfill requirements of Contract Documents.

C. Bidding Requirements: The portion of the Bidding Documents consisting of Documents numbered between 00010 and 00499 as listed in the Table of Contents of the Contract Documents.

D. Contracting Requirements: The portion of the Contract Documents consisting of Documents numbered between 00500 and 01000 as listed in the Table of Contents of the Contract Documents.

E. Directed, Requested, Etc.: Where not otherwise explained, terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted", and "permitted", mean "directed by Engineer", "requested by Engineer", etc. However, no such implied meaning will be interpreted to extend Engineer's responsibility into Contractor's area of construction supervision.

F. Furnish: Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc. as applicable in each instance.

G. General Requirements: Provisions or requirements of Division 1 Sections, General Requirements, apply to entire work of Contract and, where so indicated, to other elements which are included in project.

H. Indicated: A cross-reference to details, notes or schedules on drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in the contract documents. Where terms such as "shown", "noted", "scheduled", and "specified", are used in lieu of "indicated", it is for purpose of helping reader locate cross-reference, and no limitation is intended except as specifically noted.

I. Install: Except as otherwise defined in greater detail, term "install" is used to describe operations at project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance.

J. Installer: Entity (person or firm) engaged by Contractor or its subcontractor or sub-subcontractor for performance of a particular unit of work at project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (installers) be expert in operations they are engaged to perform.

K. Project Site: Space available to Contractor for performance of work, either exclusively or in conjunction with others performing other work as part of project. Extent of project site is shown on drawings.

L. Provide: Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.

M. Testing Laboratory: An independent entity engaged to perform specific inspections or tests of the work, either at project site or elsewhere; and to report and (if required) interpret results of those inspections or tests.

1.03 FORMAT AND SPECIFICATION EXPLANATIONS

A. Specification Production: None of these explanations will be interpreted to modify substance of requirements. Portions of these specifications have been produced by Engineer's standard methods of editing master specifications, and may contain minor deviations from traditional writing formats. Such deviations are a normal result of this production technique and no other meaning will be implied or permitted.

B. Format Explanation: Format of principal portions of these specifications can be described as follows; although other portions may not fully comply and no particular significance will be attached to such compliance or non-compliance.

1. Sections and Divisions: For convenience, basic unit of specification text is a "section", each unit of which is named and numbered. These are organized "divisions", which are recognized as the present industry-consensus on uniform organization and sequencing of specifications. The section title is not intended to limit meaning or content of section, nor to be fully descriptive of requirements specified therein, nor to be an integral part of text.

2. Section Parts: Each section of specifications has been subdivided into 3 (or less) "parts" for uniformity and convenience (Part 1 - General; Part 2 - Products; and Part 3 - Execution). These do not limit the meaning of and are not an integral part of text which specifies requirements.

C. Underscoring: Used strictly to assist reader of specification text in scanning test for key words in content (for quick recall). No emphasis on or relative importance of text is intended where underscoring is used.

D. Imperative Language: Used generally in specifications. Except as otherwise indicated, requirements expressed imperatively are to be performed by Contractor. For clarity of reading at certain locations, contrasting subjective language is used to describe responsibilities which must be fulfilled indirectly by Contractor, or when so noted, by others.

E. Section Numbering: Used to facilitate cross-references in contract documents. Sections are placed in Project Manual in numeric sequence; however, numbering sequence is not complete, and listing of sections at beginning of Project Manual must be consulted to determine numbers and names of specification sections in contract documents.

F. Page Numbering: Numbered independently for each section; recorded in listing of sections (Index or Table of Contents) in Project Manual. Section number is shown with page number at bottom of each page, to facilitate location of text in Project Manual.

G. Project Identification: Project number of contract documents is recorded at bottom of each page of the specifications to minimize possible misuse of specifications, or confusion with other project specifications.

H. Specification Content: Because of methods by which this project specification has been produced, certain general characteristics of content, and conventions in use of language are explained as follows:

1. Specifying Methods: Techniques or methods of specifying to record requirements varies throughout text, and may include "prescriptive", "open generic-descriptive", or "compliance with standards", "performance", "proprietary", or a combination of these. Method used for specifying one unit of work has no bearing on requirements for another unit of work.

2. Overlapping and Conflicting Requirements: Where compliance with 2 or more industry standards or sets of requirements is specified, and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, most stringent requirement is intended and will be enforced, unless specifically detailed language written into Contract Documents (not by way of reference to an industry standard) clearly indicates that a less stringent requirement is to be fulfilled. Refer apparently equal but different requirements, and uncertainties as to which level of quality is more stringent, to Engineer for a decision before proceeding.

a. Contractor's Option: Except for overlapping or conflicting requirements, where more than one set of requirements are specified for a particular unit of work, option is intended to be Contractor's regardless of whether specifically indicated as such.

I. Minimum Quality/Quantity: In every instance, quality level or quantity shown or specified is intended as minimum for the work to be performed or provided. Except as otherwise specifically indicated, actual work may either comply exactly with that minimum (within specified tolerances), or may exceed that minimum (within specified tolerances), or may exceed that minimum within reasonable limits. In complying with requirements, indicated numeric values are either minimums or maximums as noted or as appropriate for context of requirements. Refer instances of uncertainty to Engineer for decision before proceeding.

J. Specialists; Assignments: In certain instances, specification text requires (or at least implies) that specific work be assigned to specialists or expert entities, who must be engaged for performance of those units of work. These must be recognized as special requirements over which Contractor has no choice or option. These assignments must not be confused with (and are not intended to interfere with) normal application of regulations, union jurisdictions and similar conventions. One purpose of such assignments is to establish which party or entity involved in a specific unit of work is recognized as "expert" for indicated construction processes or operations. Nevertheless, final responsibility for fulfillment of entire set of requirements remains with Contractor.

K. Trades: Except as otherwise indicated, the use of titles such as "carpentry" in specification text, implies neither that the work must be performed by an accredited or unionized tradesperson of corresponding generic name (such as "carpenter"), nor that specified requirements apply exclusively to work by tradespersons of that corresponding generic name.

L. Abbreviations: Language of specifications and other contract documents is of the abbreviated type in certain instances, and implies words and meanings which will be appropriately interpreted. Actual word abbreviations of self-explanatory nature have been included in texts. Specific abbreviations have been established, principally for lengthy technical terminology and primarily in conjunction with coordination of specification requirements with notations on drawings and in schedules. These are defined in Section 01092 - Abbreviations or are frequently defined in section at first instance of use. Trade association names and titles of general standards are frequently abbreviated.

1. Singular words will be interpreted as plural and plural words will be interpreted as singular where applicable and where full context of contract documents so indicates.

END OF DOCUMENT 00810

PART 1 GENERAL

1.01 FEDERAL DAVIS-BACON WAGE ACT

A. The Davis-Bacon Wage Act stipulates that Contractors and Contractor's subcontractors for this Public Building or Works Contracts shall pay to all laborers, workmen, and mechanics performing work under this Contract not less than the current local prevailing rate of wages as determined by the U.S. Secretary of Labor for the county where the work is performed.

B. Contractor shall prominently post the current General Decision of Davis-Bacon Wages at the project site.

C. The Contractor and each subcontractor shall submit monthly, in person, by mail, or electronically a certified payroll to the Owner. The certified payroll shall consist of records of all laborers, mechanics, and other workers employed by them on the project; the records shall include each worker's name, address, telephone number when available, social security number, classification or classifications, the hourly wages paid in each period, the number of hours worked each day, and the starting and ending times of work each day. The certified payroll shall be accompanied by a statement signed by the Contractor or subcontractor which states that:

1. Such records are true and accurate;
2. The hourly rate paid to each worker is not less than the Davis-Bacon rate of hourly wages required; and
3. The Contractor or subcontractor is aware that filing a certified payroll that he or she knows to be false is a Class B misdemeanor.

The Owner is required to keep the certification records submitted for a period of not less than three years. Furthermore, these records, except an employee's address, telephone number, and social security number, shall be made available in accordance with the Freedom of Information Act.

1.02 SCHEDULE OF PREVAILING WAGES

A. Copies of the current General Decision of Davis-Bacon Wages for the county where the work is performed are available from:

1. http://www.gpo.gov/davisbacon/il.html

2. U.S. Department of Labor
   (866) 4-USA-DOL (866-487-2365)

3. U.S. Department of Labor
   Employment Standards Administration
   Wage and Hour Division
   Washington, D.C. 20210

1.03 CHANGES IN DAVIS-BACON WAGES

A. Contractor shall notify immediately in writing all subcontractors, etc. of all changes in the general decision of Davis-Bacon Wages.

B. Contractor shall bear all increases in cost due to changes in the general decision of Davis-Bacon Wages or labor law during the bidding period and the term of the Contract without any change in the Contract Price.

C. Change Orders shall be based on the general decision of Davis-Bacon Wages that is applicable at the time that the Change Order work is scheduled to be performed.

END OF DOCUMENT 00825

PART 1 GENERAL

1.01 Summary

A. This document amends the provisions in Paragraph 6.10 (Taxes) of Document 00700 - General Conditions.

1.02 ILLINOIS SALES TAX EXEMPTION

A. All materials incorporated in the Work under this Contract exempt from the State of Illinois Sales Tax.

B. OWNER will provide evidence of tax exempt status to Contractor after award of Contract.

C. Contractor shall be responsible for providing evidence of tax exempt status to subcontractors performing portions of the Work and suppliers of materials incorporated in the Work.

END OF DOCUMENT 00830

PART 1 GENERAL

1.01 Summary

A. This document supplements the provisions of Laws and Regulations of Document 00700 – General Conditions.

1.02 Bidder and Contractor shall comply with federal Executive Order 11246, as amended (refer to the NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY that follows in Part 2 of this Document 00842).

1.03 The requirements for Bidder and Contractor under this order are explained in 41 CFR 60-4.

1.04 A copy of 41 CFR 60-4 is appended to this Document 00842.

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PART 2

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE
EQUAL EMPOYMENT OPPORTUNITY
(EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the Standard Federal Equal Employment Opportunity Construction Contract Specifications set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables	Goals for minority participation for each trade	Goals for female participation in each trade
	3.3%	**6.9%**

These goals are applicable to all the Contractor's construction work (whether or not it is federal or federally assisted) performed in the covered area.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 80-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the covered area is Sangamon County, Illinois.

END OF DOCUMENT 00842

60–4.4 Affirmative action requirements.
60–4.5 Hometown plans.
60–4.6 Goals and timetables.
60–4.7 Effect on other regulations.
60–4.8 Show cause notice.
60–4.9 Incorporation by operation of the Order.

AUTHORITY: Secs. 201, 202, 205, 211, 301, 302, and 303 of E.O. 11246, as amended, 30 FR 12319; 32 FR 14303, as amended by E.O. 12086.

SOURCE: 43 FR 49254, Oct. 20, 1978, unless otherwise noted.

§ 60–4.1 Scope and application.

This part applies to all contractors and subcontractors which hold any Federal or federally assisted construction contract in excess of $10,000. The regulations in this part are applicable to all of a construction contractor's or subcontractor's construction employees who are engaged in on site contruction including those construction employees who work on a non-Federal or nonfederally assisted construction site. This part also establishes procedures which all Federal contracting officers and all applicants, as applicable, shall follow in soliciting for and awarding Federal or federally assisted construction contracts. Procedures also are established which administering agencies shall follow in making any grant, contract, loan, insurance, or guarantee involving federally assisted construction which is not exempt from the requirements of Executive Order 11246, as amended.

In addition, this part applies to construction work performed by construction contractors and subcontractors for Federal nonconstruction contractors and subcontractors if the construction work is necessary in whole or in part to the performance of a nonconstruction contract or subcontract.

[43 FR 49254, Oct. 20, 1978; 43 FR 51401, Nov. 3, 1978]

§ 60–4.2 Solicitations.

(a) All Federal contracting officers and all applicants shall include the notice set forth in paragraph (d) of this section and the Standard Federal Equal Employment Opportunity Construction Contract Specifications set forth in § 60–4.3 of this part in all solicitations for offers and bids on all Federal and federally assisted construction contracts or subcontracts to be performed in geographical areas designated by the Director pursuant to § 60–4.6 of the part. Administering agencies shall require the inclusion of the notice set forth in paragraph (d) of this section and the specifications set forth in § 60–4.3 of this part as a condition of any grant, contract, subcontract, loan, insurance or guarantee involving federally assisted construction covered by this Part 60–4.

(b) All nonconstruction contractors covered by Executive Order 11246 and the implementing regulations shall include the notice in paragraph (d) of this section in all construction agreements which are necessary in whole or in part to the performance of the covered nonconstruction contract.

(c) Contracting officers, applicants and nonconstruction contractors shall given written notice to the Director within 10 working days of award of a contract subject to these provisions. The notification shall include the name, address and telephone number of the contractor; employer identification number; dollar amount of the contract, estimated starting and completion dates of the contract; the contract number; and geographical area in which the contract is to be performed.

(d) The following notice shall be included in, and shall be a part of, all solicitations for offers and bids on all Federal and federally assisted construction contracts or subcontracts in excess of $10,000 to be performed in geographical areas designated by the Director pursuant to § 60–4.6 of this part (see 41 CFR 60–4.2(a)):

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables	Goals for minority participation for each trade	Goals for female participation in each trade
	Insert goals for each year.	Insert goals for each year.

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60–4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60–4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60–4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

[43 FR 49254, Oct. 20, 1978; 43 FR 51401, Nov. 3, 1978, as amended at 45 FR 65977, Oct. 3, 1980]

§ 60–4.3 Equal opportunity clauses.

(a) The equal opportunity clause published at 41 CFR 60–1.4(a) of this chapter is required to be included in, and is part of, all nonexempt Federal contracts and subcontracts, including construction contracts and subcontracts. The equal opportunity clause published at 41 CFR 60–1.4(b) is required to be included in, and is a part of, all nonexempt federally assisted construction contracts and subcontracts. In addition to the clauses described above, all Federal contracting officers, all applicants and all nonconstruction contractors, as applicable, shall include the specifications set forth in this section in all Federal and federally assisted construction contracts in excess of $10,000 to be performed in geographical areas designated by the Director pursuant to § 60–4.6 of this part and in construction subcontracts in excess of $10,000 necessary in whole or in part to the performance of nonconstruction Federal contracts and subcontracts covered under the Executive order.

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

1. As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set

forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60–4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted constuction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the FEDERAL REGISTER in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor.

The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newpaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60–3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women

generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60–4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

(b) The notice set forth in 41 CFR 60–4.2 and the specifications set forth in 41 CFR 60–4.3 replace the New Form for Federal Equal Employment Opportunity Bid Conditions for Federal and Federally Assisted Construction published at 41 FR 32482 and commonly known as the Model Federal EEO Bid Conditions, and the New Form shall not be used after the regulations in 41 CFR Part 60–4 become effective.

[43 FR 49254, Oct. 20, 1978; 43 FR 51401, Nov. 3, 1978, as amended at 45 FR 65978, Oct. 3, 1980]

§ 60–4.4 Affirmative action requirements.

(a) To implement the affirmative action requirements of Executive Order 11246 in the construction industry, the Office of Federal Contract Compliance Programs previously has approved affirmative action programs commonly referred to as "Hometown Plans," has promulgated affirmative action plans referred to as "Imposed Plans" and has approved "Special Bid Conditions" for high impact projects constructed in areas not covered by a Hometown or an Imposed Plan. All solicitations for construction contracts made after the effective date of the regulations in this part shall include the notice specified in § 60–4.2 of this part and the specifications in § 60–4.3 of this part in lieu of the Hometown and Imposed Plans including the Philadelphia Plan and Special Bid Conditions. Until the Director has issued an order pursuant to § 60–4.6 of this part establishing goals and timetables for minorities in the appropriate geographical areas or for a project covered by Special Bid Conditions, the goals and timetables for minorities to be inserted in the Notice required by 41 CFR 60–4.2 shall be the goals and timetables contained in the Hometown Plan, Imposed Plan or Special Bid Conditions presently covering the respective geographical area or project involved.

(b) Signatories to a Hometown Plan (including heavy highway affirmative action plans) shall have 45 days from the effective date of the regulations in this part to submit under such a Plan (for the director's approval) goals and timetables for women and to include female representation on the Hometown Plan Administrative Committee.

Such goals for female representation shall be at least as high as the goals established for female representation in the notice issued pursuant to 41 CFR 60–4.6. Failure of the signatories, within the 45-day period, to include female representation and to submit goals for women or a new plan, as appropriate, shall result in an automatic termination of the Office of Federal Contract Compliance Program's approval of the Hometown Plan. At any time the Office of Federal Contract Compliance Programs terminates or withdraws its approval of a Hometown Plan, or when the plan expires and another plan is not approved, the contractors signatory to the plan shall be covered automatically by the specifications set forth in § 60–4.3 of this part and by the goals and timetables established for that geographical area pursuant to § 60–4.6 of this part.

§ 60–4.5 Hometown plans.

(a) A contractor participating, either individually or through an association, in an approved Hometown Plan (including heavy highway affirmative action plans) shall comply with its affirmative action obligations under Executive Order 11246 by complying with its obligations under the plan: *Provided*, That each contractor or subcontractor participating in an approved plan is individually required to comply with the equal opportunity clause set forth in 41 CFR 60–1.4; to make a good faith effort to achieve the goals for each trade participating in the plan in which it has employees; and that the overall good performance by other contractors or subcontractors toward a goal in an approved plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the plan's goals and timetables. If a contractor is not participating in an approved Hometown Plan it shall comply with the specifications set forth in § 60–4.3 of this part and with the goals and timetables for the appropriate area as listed in the notice required by 41 CFR 60–4.2 with regard to that trade. For the purposes of this part 60–4, a contractor is not participating in a Hometown Plan for a particular trade if it:

(1) Ceases to be signatory to a Hometown Plan covering that trade;

(2) Is signatory to a Hometown Plan for that trade but is not party to a collective bargaining agreement for that trade;

(3) Is signatory to a Hometown Plan for that trade but is party to a collective bargaining agreement with labor organizations which are not or cease to be signatories to the same Hometown Plan for that trade;

(4) Is signatory to a Hometown Plan for that trade but is party to a collective bargaining agreement with a labor organization for that trade but the two have not jointly executed a specific commitment to minority and female goals and timetables and incorporated the commitment in the Hometown Plan for that trade;

(5) Is participating in a Hometown Plan for that trade which is no longer acceptable to the Office of Federal Contract Compliance Programs;

(6) Is signatory to a Hometown Plan for that trade but is party to a collective bargaining agreement with a labor organization for that trade and the labor organization and the contractor have failed to make a good faith effort to comply with their obligations under the Hometown Plan for that trade.

(b) Contractors participating in Hometown Plans must be able to demonstrate their participation and document their compliance with the provision of the Hometown Plan.

[43 FR 49254, Oct. 20, 1978; 43 FR 51401, Nov. 3, 1978]

§ 60–4.6 Goals and timetables.

The Director, from time to time, shall issue goals and timetables for minority and female utilization which shall be based on appropriate workforce, demographic or other relevant data and which shall cover construction projects or construction contracts performed in specific geographical areas. The goals, which shall be applicable to each construction trade in a covered contractor's or subcontractor's entire workforce which is working in the area covered by the goals and timetables, shall be published as notices in the FEDERAL REGISTER, and shall be inserted by the contracting officers and applicants, as applicable, in

the Notice required by 41 CFR 60–4.2. Covered construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed.

[45 FR 65978, Oct. 3, 1980]

§ 60–4.7 Effect on other regulations.

The regulations in this part are in addition to the regulations contained in this chapter which apply to construction contractors and subcontractors generally. See particularly, 41 CFR 60–1.4 (a), (b), (c), (d), and (e); 60–1.5; 60–1.7; 60–1.8; 60–1.26; 60–1.29; 60–1.30; 60–1.32; 60–1.41; 60–1.42; 60–1.43; and 41 CFR Part 60–3; Part 60–20; Part 60–30; Part 60–40; and Part 60–50.

§ 60–4.8 Show cause notice.

If an investigation or compliance review reveals that a construction contractor or subcontractor has violated the Executive order, any contract clause, specifications or the regulations in this chapter and if administrative enforcement is contemplated, the Director shall issue to the contractor or subcontractor a notice to show cause which shall contain the items specified in paragraphs (i) through (iv) of 41 CFR 60–2.2(c)(1). If the contractor does not show good cause within 30 days, or in the alternative, fails to enter an acceptable conciliation agreement which includes where appropriate, make up goals and timetables, back pay, and seniority relief for affected class members, the OFCCP shall follow the procedure in 41 CFR 60–1.26(b): *Provided*, That where a conciliation agreement has been violated, no show cause notice is required prior to the initiation of enforcement proceedings.

[43 FR 49254, Oct. 20, 1978; 43 FR 51401, Nov. 3, 1978]

§ 60–4.9 Incorporation by operation of the order.

By operation of the order, the equal opportunity clause contained in § 60–1.4, the Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246) contained in § 60–4.2, and the Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246) contained in § 60–4.3 shall be deemed to be a part of every solicitation or of every contract and subcontract, as appropriate, required by the order and the regulations in this chapter to include such clauses whether or not they are physically incorporated in such solicitation or contract and whether or not the contract is written.

PART 60–20—SEX DISCRIMINATION GUIDELINES

Sec.
60–20.1 Title and purpose.
60–20.2 Recruitment and advertisement.
60–20.3 Job policies and practices.
60–20.4 Seniority system.
60–20.5 Discriminatory wages.
60–20.6 Affirmative actions.

AUTHORITY. Sec. 201, E.O. 11246, 30 FR 12319, and E.O. 11375, 32 FR 14303, as amended by E.O. 12086.

SOURCE: 43 FR 49258, Oct. 20, 1978, unless otherwise noted.

§ 60–20.1 Title and purpose.

The purpose of the provisions in this part is to set forth the interpretations and guidelines of the Office of Federal Contract Compliance Programs regarding the implementation of Executive Order 11246, as amended for the promotion and insuring of equal opportunities for all persons employed or seeking employment with Government contractors and subcontractors or with contractors and subcontractors performing under federally assisted construction contracts, without regard to sex. Experience has indicated that special problems related to the implementation of the Executive order require a definitive treatment beyond the terms of the order itself. These interpretations are to be read in connection with existing regulations, set forth in Part 60–1 of this chapter.

§ 60–20.2 Recruitment and advertisement.

(a) Employers engaged in recruiting activity must recruit employees of

PART 1 GENERAL

1.01 SUMMARY

A. This document is appended to Document 00800 - Supplementary Conditions and supplements the provisions of Laws and Regulations of Document 00700 - General Conditions.

1.02 DISADVANTAGED BUSINESS ENTERPRISE (DBE) POLICY

A. It is the policy of the State of Illinois to award a fair share of sub-agreements to disadvantaged businesses. In complying with this requirement, contractors are required to take affirmative steps to assure that disadvantaged businesses are used when possible as sources of supplies, equipment, construction, and services as explained herein.

B. These specifications define the terms, conditions, and requirements of the State Revolving Fund Loan Program, and the Owner's policy and procedures for complying with these requirements.

C. As required by the award conditions of USEPA's Assistance Agreement with IEPA, the fair share percentages are 4.5% for MBE's and 6.9% for WBE's.

1.03 PRE-CONTRACT AWARD OBLIGATIONS

A. Bidders are required to advertise subcontracting opportunities and to negotiate with disadvantaged businesses prior to bid opening. Failure to document such affirmative efforts shall be deemed, relative to disadvantaged business compliance non-responsive.

B. To establish a bid as responsible, the bidder will be required to document the proposed utilization of disadvantaged businesses with letters of intent signed by the bidder and by the disadvantaged business listed in the bid. The documentation requirements are outlined in Article 1.03 below.

C. The Owner's disadvantaged business policy clearly intends for bidders to contact and encourage the participation of disadvantaged businesses prior to bid opening. Affirmative efforts (the written record of conscientious and honest communications between the bidder and disadvantaged business) must be initiated and completed by the bidder prior to bid opening. All bidders must document compliance with the requirements of the disadvantaged business policy.

1.04 EVALUATION OF DISADVANTAGED BUSINESS UTILIZATION AND AFFIRMATIVE EFFORTS

A. As a prerequisite to demonstrate compliance with the Owner's disadvantaged business policy, ALL bidders shall provide the following with its bid:

1. Completed and signed certification from the bidder(s), attesting that the bidder will award no sub-agreements, including the procurement of equipment, materials, supplies and services, in the performance of this contract.

OR

2. "Certification of publication," or adequate evidence of proof of publication, including an actual copy of the newspaper advertisement from the "key" newspaper utilized by each bidder based upon the projects locality (reference attached map of Illinois identifying the "key" newspaper to be utilized by each region). The advertisement (reference attached "suggested" advertisement) must run one day at least **16 days prior** to bid opening.

3. List of all disadvantaged business enterprise (DBE) and non-DBE's that submitted proposals to the bidder along with the date of the proposal.

4. List of disadvantaged businesses not being utilized and justification for non-utilization.

5. Certification from the Bidder that the attached USEPA Form 6100-2 (DBE Subcontractor Participation Form) has been provided to all DBE subcontractors being utilized.

6. Completed and signed copies of the attached USEPA Form 6100-3 (DBE Subcontractor Performance Form) and USEPA Form 6100-4 (DBE Subcontractor Utilization Form) for each DBE utilized.

7. Completed and signed certification from the bidder(s) utilizing disadvantaged businesses, attesting that the bidder has no controlling or dominating interest or conflict of interest with the disadvantaged business that is proposed to be utilized (reference attached certification for the information necessary).

8. In instances where the bidder(s) does not receive any proposals from disadvantaged businesses prior to bid opening, the bidder(s) must provide a written certification attesting that no responses or proposals were received (reference attached certification for information necessary).

NOTE: Data Sheet #1 may be used for this purpose.

Failure to submit the documentation pursuant to the requirements of A (1-8) above may cause rejection of the bid as non-responsive.

B. The low, responsive bidder will be deemed responsible with respect to the disadvantaged business requirements if:

1. The low, responsive bidder submits USEPA Form 6100-3 (DBE Subcontractor Performance Form) and USEPA Form 6100-4 (DBE Subcontractor Utilization Form), reference attached forms.

2. Failure to submit the documentation pursuant to the requirements of B (1) above may cause rejection of the bid as non-responsible.

3. When the bidder is considered non-responsible under this subsection, the Owner will promptly advise the bidder, in writing, of the basis for the non-responsibility determination.

1.05 SANCTIONS

A. The Owner may reject one or all bids where the information submitted by the bidder(s) fails to objectively demonstrate compliance with the disadvantaged business requirements (i.e., failure to place the pre-bid advertisement by the bidder(s) at least **16 days** prior to bid opening shall not be considered as objectively demonstrating compliance with the disadvantaged business requirements).

B. Upon finding that any Party has not complied with the requirements of these specifications, including misrepresenting a firm as a disadvantaged business, any one or a combination of the following actions may be taken.

1. Declare the bidder, and/or subcontractor non-responsible and therefore ineligible for contract award.
2. Disallow all contract costs associated with non-compliance.
3. Refer any matter, which may be fraudulent to the IL Attorney General.
4. Refer any matter, which may lead to criminal prosecution of a claim for funds to the Illinois Attorney General.

1.06 POST-CONTRACT AWARD COMPLIANCE

A. As required by the award conditions of USEPA's Assistance Agreement with IEPA, all sub-agreements of the prime contractor must identify that the fair share percentages are 5% for MBEs and 12% for WBEs.

B. After award of the prime contract copies of all disadvantaged business related sub-agreements between the prime contractor and subcontractors shall be submitted to the owner.

C. Subsequent to Bid Submission, any changes in previously reported disadvantaged businesses utilization shall be handled in accordance with Part 33.302(b-h). If the contractor fails to initiate such actions, the Owner may withhold payments and/or institute other appropriate sanctions.

END OF SECTION 00846

U.S. ENVIRONMENTAL PROTECTION AGENCY

CERTIFICATION OF NONSEGREGATED FACILITIES

(Applicable to federally assisted construction contracts and related subcontracts exceeding $10,000 that are not exempt from the Equal Opportunity clause.)

The federally assisted construction contractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom or otherwise. The federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certification in his files.

_____

Signature Date

_____

Name and Title of Signer (Please type)

_____

Firm Name

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

NOTICE TO LABOR UNIONS OR OTHER ORGANIZATIONS OF WORKERS

NONDISCRIMINATION IN EMPLOYMENT

To: _____
(Name of union or organization of workers)

The undersigned currently holds contract(s) with _____
(name of applicant)
involving funds or credit of the U.S. Government or (a) subcontract(s) with a prime contractor holding such contract(s).

You are advised that under the provisions of the above contracts(s) or subcontract(s) and in accordance with Executive Order 11246, as amended, dated September 24, 1965, as amended, the undersigned is obliged not to discriminate against any employee or applicant for employment because of race, color, creed or national origin. This obligation not to discriminate in employment includes, but is not limited to, the following:

HIRING, PLACEMENT, UPGRADING, TRANSFER OR DEMOTION, RECRUITMENT, ADVERTISING, OR SOLICITATION FOR EMPLOYMENT, TRAINING DURING EMPLOYMENT, RATES OF PAY OR OTHER FORMS OF COMPENSATION, SELECTION FOR TRAINING INCLUDING APPRENTICESHIP, LAYOFF OR TERMINATION.

This notice is furnished you pursuant to the provisions of the above contract(s) or subcontracts(s) and Executive Order 11246, as amended.

Copies of this notice will be posted by the undersigned in conspicuous places available to employees or applicants for employment.

_____

_____

_____

_____
(Contractor or Subcontractor)

_____
(Date)

EPA Project Control #: _____

_____

United States Environmental Protection Agency
Washington, DC 20460

Certification Regarding Debarment, Suspension and Other Responsibility Matters

The prospective participant to the best of its knowledge and belief that it and its principles:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in fine of up to $10,000 or imprisonment for up to 5 years, or both.

_____
(Typed Name & Title of Authorized Representative)

_____
(Signature of Authorized Representative) (Date)

_____

☐ I am unable to certify the above statements. My explanation is attached.

EPA FORM 5700-49 (11-88)

Bidder Certification
In Compliance with Article 33E to the
"Criminal Code of 1961"

I _____, do hereby certify that:
Name

1. I am _____ of the _____
Position Firm
and have authority to execute this certification on behalf of the firm

2. This firm is not barred from bidding on this contract as a result of a violation of either Section 33E-3, Bid-rigging, or Section 33E-4, Bid Rotating, as set forth in Article 33E to the "Criminal Code of 1961."

Name of Firm _____

Signature _____

Title _____

Date _____
Corporate Seal (where appropriate)

On this _____day of _____20_____, before me appeared (Name)

_____ to me personally known, who, being duly sworn, did execute the foregoing affidavit, and did state that he or she was properly authorized by (Name of Firm) _____ to execute the affidavit and did so as his or her free act and deed.

Notary Public _____Commission Expires _____

Notary Seal

Specification for Disadvantaged Business Enterprise Participation
(Name of Loan Recipient) _____

I. Disadvantaged Business Enterprise Policy

A. It is the policy of the State of Illinois to award a fair share of sub-agreements to disadvantaged businesses. In complying with this requirement, contractors are required to take affirmative steps to assure that disadvantaged businesses are used when possible as sources of supplies, equipment, construction, and services as explained herein.

B. These specifications define the terms, conditions, and requirements of the State Revolving Fund Loan Program, and the (Name of Loan Recipient) _____policy and procedures for complying with these requirements.

C. As required by the award conditions of USEPA's Assistance Agreement with IEPA, the fair share percentages are 5% for MBEs and 12% for WBEs.

II. Pre-Contract Award Obligations

A. Bidders are required to advertise subcontracting opportunities and to negotiate with disadvantaged businesses prior to bid opening. Failure to document such affirmative efforts shall be deemed, relative to disadvantaged business compliance non-responsive.

B. To establish a bid as responsible, the bidder will be required to document the proposed utilization of disadvantaged businesses with letters of intent signed by the bidder and by the disadvantaged business listed in the bid. The documentation requirements are outlined in Section III.

C. (Name of Loan Recipient) _____ disadvantaged business policy clearly intends for bidders to contact and encourage the participation of disadvantaged businesses prior to bid opening. Affirmative efforts (the written record of conscientious and honest communications between the bidder and disadvantaged business) must be initiated and completed by the bidder prior to bid opening. All bidders must document compliance with the requirements of the disadvantaged business policy.

III. Evaluation of Disadvantaged Business Utilization and Affirmative Efforts

A. As a prerequisite to demonstrate compliance with the (Name of Loan Recipient) _____ disadvantaged business policy, ALL bidders shall provide the following with its bid:

1. Completed and signed certification from the bidder(s), attesting that the bidder will award no sub-agreements, including the procurement of equipment, materials, supplies and services, in the performance of this contract.

   OR

2. "Certification of publication," or adequate evidence of proof of publication, including an actual copy of the newspaper advertisement from the "key" newspaper utilized by each bidder based upon the projects locality (reference attached map of Illinois identifying the "key" newspaper to be utilized by each region). The advertisement (reference attached "suggested" advertisement) must run one day at least **(16) days prior** to bid opening.

3. List of all disadvantaged business enterprise (DBE) and non-DBE's that submitted proposals to the bidder along with the date of the proposal.

4. List of disadvantaged businesses not being utilized and justification for non-utilization.

5. Certification from the Bidder that Form 6100-2 (DBE Subcontractor Participation Form) has been provided to DBE subcontractors being utilized.

6. Completed and signed copies of Forms 6100-3 (DBE Subcontractor Performance Form) and Form 6100-4 (DBE Subcontractor Utilization Form).

7. Completed and signed certification from the bidder(s) utilizing disadvantaged businesses, attesting that the bidder has no controlling or dominating interest or conflict of interest with the disadvantaged business that is proposed to be utilized (reference attached certification for the information necessary).

8. In instances where the bidder(s) does not receive any proposals from disadvantaged businesses prior to bid opening, the bidder(s) must provide a written certification attesting that no proposals were received (reference attached certification for information necessary).

NOTE: Data Sheet #1 may be used for this purpose.

Failure to submit the documentation pursuant to the requirements of A (1-8) above may cause rejection of the bid as non-responsive.

B. The low, responsive bidder will be deemed responsible with respect to the disadvantaged business requirements if:

   1. The low, responsive bidder submits Form 6100-3 (DBE Subcontractor Performance Form) and Form 6100-4 (DBE Subcontractor Utilization Form.

Failure to submit the documentation pursuant to the requirements of B(1) above may cause rejection of the bid as non-responsible.

Where the bidder is considered non-responsible under this subsection, the owner will promptly advise the bidder, in writing, of the basis for the non-responsibility determination.

IV. Sanctions

A. The (Name of Loan Recipient) _____ may reject one or all bids where the information submitted by the bidder(s) fails to objectively demonstrate compliance with the disadvantaged business requirements (i.e., failure to place the pre-bid advertisement by the bidder(s) at least (16) days prior to bid opening shall not be considered as objectively demonstrating compliance with the disadvantaged business requirements).

B. Upon finding that any Party has not complied with the requirements of these specifications, including misrepresenting a firm as a disadvantaged business, any one or a combination of the following actions may be taken.

1. Declare the bidder and/or subcontractor non-responsible and therefore ineligible for contract award.

2. Disallow all contract costs associated with non-compliance.

3. Refer any matter, which may be fraudulent to the Illinois Attorney General.

4. Refer any matter, which may lead to criminal prosecution of a claim for funds to the Illinois Attorney General.

V. Post-Contract Award Compliance

A. As required by the award conditions of USEPA's Assistance Agreement with IEPA, all sub-agreements of the prime contractor must identify that the fair share percentages are 5% for MBEs and 12 % for WBEs.

B. After award of the prime contract copies of all disadvantaged business related sub-agreements between the prime contractor and subcontractors shall be submitted to the owner.

C. Subsequent to Bid Submission, any changes in previously reported disadvantaged businesses utilization shall be handled in accordance with Part 33.302(b-h). If the contractor fails to initiate such actions, the owner may withhold payments and/or institute other appropriate sanctions.

Bidder Certification

I_____, do hereby certify that:
(Name)

1. I am _____ of the_____
(Position) (Firm)

and have authority to execute this certification on behalf of the firm;

2. This firm will award no sub-agreements, including the procurement of equipment, materials, supplies, and services, in the performance of this contract.

Name of Firm _____

Signature _____

Title _____

Date_____

Corporate Seal (where appropriate)

Suggested Disadvantaged Business
Advertisement for Construction Contractors

Notice to Disadvantaged Businesses

_____, _____, _____, is
(Name of Company) (Address of Company) (Telephone)

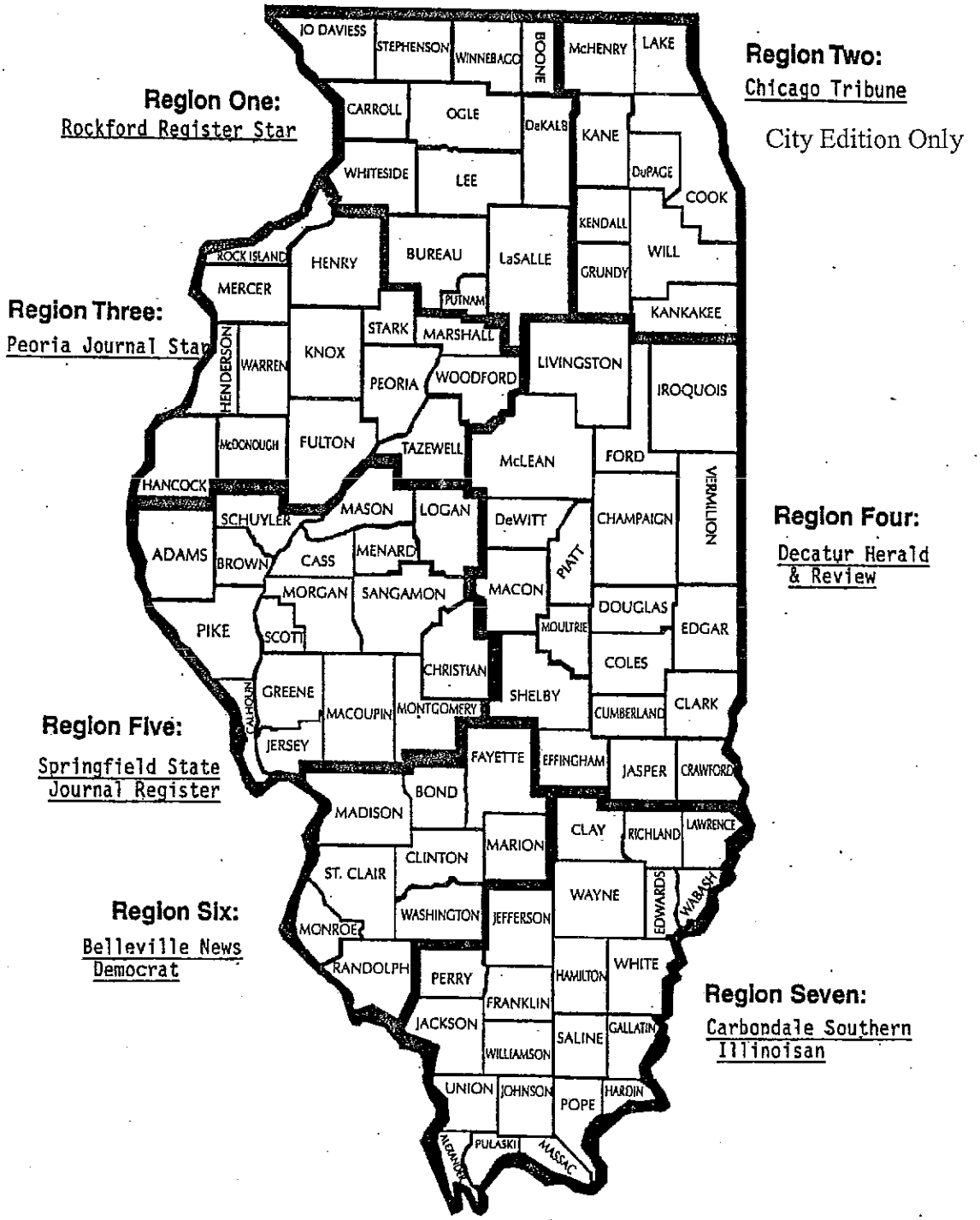
seeking disadvantaged businesses for the_____
(Name of Loan Recipient)

Project for subcontracting opportunities in the following areas: _____, _____,
_____, _____

All disadvantaged businesses should contact, IN WRITING, (certified letter, return receipt requested),
_____ to discuss the subcontracting opportunities. All negotiations must
(Company Contact Person)

be completed prior to bid opening _____.
(Date of Bid Opening)

*The advertisement must clearly state the method of evaluating the proposals or quotations, and the relative importance attached to each criterion. Bidders must uniformly and objectively evaluate the proposals submitted by disadvantaged business in response to the advertisement based upon the evaluation criteria stated in the advertisement. The evaluation criteria must not be restrictive or exclusionary.


Region One:
Rockford Register Star
Region Two:
Chicago Tribune
City Edition Only
Region Three:
Peoria Journal Star
Region Four:
Decatur Herald & Review
Region Five:
Springfield State Journal Register
Region Six:
Belleville News Democrat
Region Seven:
Carbondale Southern Illinoisan
JO DAVIESS
STEPHENSON
WINNEBAGO
BOONE
McHENRY
LAKE
CARROLL
OGLE
DeKALB
KANE
DuPAGE
COOK
WHITESIDE
LEE
KENDALL
WILL
ROCK ISLAND
HENRY
BUREAU
LaSALLE
GRUNDY
MERCER
PUTNAM
KANKAKEE
STARK
MARSHALL
HENDERSON
WARREN
KNOX
PEORIA
WOODFORD
LIVINGSTON
IROQUOIS
McDONOUGH
FULTON
TAZEWELL
McLEAN
FORD
HANCOCK
MASON
LOGAN
DeWITT
CHAMPAIGN
VERMILION
SCHUYLER
ADAMS
BROWN
CASS
MENARD
PIATT
MORGAN
SANGAMON
MACON
DOUGLAS
PIKE
SCOTT
MOULTRIE
EDGAR
CHRISTIAN
COLES
CALHOUN
GREENE
MACOUPIN
MONTGOMERY
SHELBY
CUMBERLAND
CLARK
JERSEY
FAYETTE
EFFINGHAM
JASPER
CRAWFORD
BOND
MADISON
CLAY
RICHLAND
LAWRENCE
MARION
CLINTON
ST. CLAIR
WAYNE
EDWARDS
WABASH
WASHINGTON
JEFFERSON
MONROE
RANDOLPH
PERRY
HAMILTON
WHITE
FRANKLIN
JACKSON
SALINE
GALLATIN
WILLIAMSON
UNION
JOHNSON
POPE
HARDIN
ALEXANDER
PULASKI
MASSAC

Data Sheet #1 Disadvantaged Business Participation Documentation

1) Completed and signed certification from bidder(s), attesting that the bidder will award no sub-agreements, including the procurement of equipment, materials, supplies and services in the performance of this contract.

OR

2) "Certificate of publication, or adequate evidence of proof of publication, including an actual copy of the newspaper advertisement from the "key" newspaper utilized by each bidder based upon the projects locality.

Dates of bidder advertisement:_____

Date of bid opening:_____

3) List of all disadvantaged business enterprises (DBE) and non-DBE's that submitted proposals to the bidder. Specify as DBE*, along with the type of DBE, or non-DBE* with the following information:

Name of Company:
Name of Owners:
Address of Company:
E-mail Address of Company:
Telephone Number:
Date of Proposal:
*_____Business_____Type of DBE:
Description of work to be performed

(Furnish data for additional subcontractors on plain bond paper).

4) List of disadvantaged businesses that submitted proposals to the bidder but will not be utilized. Justification for non-utilization must be provided.

(If necessary, furnish data on plain bond paper.)

5) Certification from the Bidder that Form 6100-2 (DBE Subcontractor participation Form) has been provided to DBE subcontractors being utilized.

6) Completed and signed copies of Forms 6100-3 (DBE Subcontractor Performance Form) and Form 6100-4 (DBE Subcontractor Utilization Form).

7) Completed and signed certification from bidder(s) attesting that the bidder has no dominating or conflict of interest with the disadvantaged business to be utilized.

8) In instances where the bidder(s) does not receive any proposals from disadvantaged businesses prior to bid opening, the bidder(s) must provide a written certification attesting that no proposals were received.

Bidder Certification Regarding the Use of Disadvantaged Businesses

I, _____, do hereby certify that:
Name

1. I am_____ of the _____ and have authority to execute this certification on behalf of the firm;

2. This firm, its partners or directors and officers does not possess a controlling interest in ownership or conflict of interest or any other authority to control the disadvantaged business to be used during the performance of the contracts.

3. Form 6100-2 (DBE Subcontractor Participation Form) has been provided to all disadvantaged subcontractors being utilized.

Name of Firm_____

Signature_____

Title _____

Date _____

Corporate Seal (where appropriate)

OMB Control No: _____
Approved: _____
Approval Expires: _____

Environmental Protection Agency

Disadvantaged Business Enterprise Program
DBE Subcontractor Participation Form

NAME OF SUBCONTRACTOR[1]	PROJECT NAME
ADDRESS	CONTRACT NO.
TELEPHONE NO.	E-MAIL ADDRESS
PRIME CONTRACTOR NAME	

Please use the space below to report any concerns regarding the above EPA-funded project (e.g., reason for termination by prime contractor, late payment, etc.).

CONTRACT ITEM NO.	ITEM OF WORK OR DESCRIPTION OF SERVICES RECEIVED FROM THE PRIME CONTRACTOR	AMOUNT SUBCONTRACTOR WAS PAID BY PRIME CONTRACTOR

Subcontractor Signature _____ Title/Date _____

[1]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-2 (DBE Subcontractor Participation Form)

Bidder Certification for Advertisement Regarding Subcontracting Opportunities for Disadvantaged Businesses

I, _____, do hereby certify that:
(Name)

1. I am _____ of the _____ and have authority to
Name Firm
execute this certification on behalf of the firm;

2. This firm did not receive any proposals from disadvantaged businesses, prior to bid opening
_____.
Date of Bid Opening

Name of Firm _____

Signature _____

Title _____

Date _____

Corporate Seal (where appropriate)

MATTOON, ILLINOIS
RILEY CREEK CSO SATELLITE TREATMENT FACILITY – CONTRACT 1

DIVISION 1 – GENERAL REQUIREMENTS

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PART 1 GENERAL

1.01 SECTION INCLUDES

A. The Contractor acknowledges that he has satisfied himself as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof under this Contract.

B. The Contractor acknowledges that the Riley Creek pump station is critical to maintaining a functional sewage collection system that protects the health, safety and welfare of the Owner's residents. Functionality of the pump station shall be maintained at all times such that any and all sewage received at the pump station is pumped to the Mattoon wastewater treatment plant.

1.02 INFORMATION ON SITE CONDITIONS

A. All information obtained by the Owner regarding site conditions, topography, subsurface information, groundwater elevations, existing construction of site facilities as applicable, and similar data will be available for inspection at the office of the Owner upon request. Such information is offered as supplementary information only. Neither the Engineer nor the Owner assumes any responsibility for the completeness or for the Contractor's interpretation of such supplementary information.

1.03 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

A. Before excavating, the Contractor shall contact the Joint Utility Locating Information For Excavators (J.U.L.I.E.) at 811.

B. Where the Contractor's operations could cause damage or inconvenience to telephone, television, power, oil, gas, water, sewer, the Contractor shall make all arrangements necessary for the protection of these utilities and services.

C. The Contractor shall be solely and directly responsible to the Owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.

D. Neither the Owner nor its officers or agents shall be responsible to the Contractor for damages as a result of the Contractor's failure to protect utilities encountered in the work.

E. The Contractor shall replace, at his own expense, any and all other existing utilities to existing structures removed or damaged during construction, unless otherwise provided for in these Contract Documents.

1.04 INTERFERING STRUCTURES

A. Take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION 01011

PART 1 GENERAL

1.01 CONTRACTOR'S RESPONSIBILITY FOR SAFETY

A. The Contractor shall do whatever work is necessary for safety and be solely and completely responsible for conditions of the jobsite, including safety of all persons (including employees) and property during the Contract period. This requirement shall apply continuously and not be limited to normal working hours.

1.02 FEDERAL, STATE, AND LOCAL SAFETY REQUIREMENTS

A. Safety provisions shall conform to the Federal and State Departments of Labor Occupational Safety and Health Act (OSHA), and all other applicable federal, state, county, and local laws, ordinances, codes, the requirements set forth herein, and any regulations that may be specified in other parts of these Contract Documents. Where any of these are in conflict, the more stringent requirement shall be followed. The Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth therein.

1.03 SAFE ACCESS BY FEDERAL, STATE, AND LOCAL GOVERNMENT OFFICIALS

A. The Contractor shall at all times provide proper facilities for safe access to the work by authorized government officials.

1.04 CONSTRUCTION SAFETY PROGRAM

A. The Contractor shall develop and maintain for the duration of this Contract, a safety program that will effectively incorporate and implement all required safety provisions. The Contractor shall appoint an employee who is qualified and authorized to supervise and enforce compliance with the safety program.

B. The duty of the Engineer to conduct construction review of the Contractor's performance is not intended to include a review or approval of the adequacy of the Contractor's safety supervisor, the safety program, or any safety measures taken in, on, or near the construction site.

1.05 SAFETY EQUIPMENT

A. The Contractor, as part of his safety program, shall maintain at his office or other well-known place at the jobsite, safety equipment applicable to the work as prescribed by the governing safety authorities, all articles necessary for giving first-aid to the injured, and shall establish the procedure for the immediate removal to a hospital or a doctor's care of any person who may be injured on the jobsite.

B. The performance of all work and all completed construction, particularly with respect to ladders, platforms, structure openings, scaffolding, shoring, lagging, machinery guards and the like, shall be in accordance with the applicable governing safety authorities.

1.06 ACCIDENT REPORTS

A. If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the Engineer. In addition, the Contractor must promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.

B. If a claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.

1.07 TRAFFIC SAFETY AND ACCESS TO PROPERTY

A. Comply with all rules and regulations of the city, state, and county authorities regarding closing or restricting the use of public streets or highways. No public or private road shall be closed, except by express permission of the Owner. Conduct the work so as to assure the least possible obstruction to traffic and normal commercial pursuits. Protect all obstructions within traveled roadways by installing approved signs, barricades, and lights where necessary for the safety of the public. The convenience of the general public and residents adjacent to the project, and the protection of persons and property are of prime importance and shall be provided for in an adequate and satisfactory manner. The Contractor shall clean public roads in the project vicinity as required by the city, state and county authorities, and Owner.

1.08 FIRE PREVENTION AND PROTECTION

A. The Contractor shall perform all work in a fire-safe manner. He shall supply and maintain on the site adequate fire-fighting equipment capable of extinguishing incipient fires. The Contractor shall comply with applicable federal, local, and state fire-prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standard for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.

1.09 USE OF EXPLOSIVES

A. Explosives shall not be used on this project.

1.10 CONTRACTOR TO SAFEGUARD EXISTING UTILITIES

A. The Contractor shall perform all work, in such a manner as to avoid damage to existing fire hydrants, power poles, lighting standards, and all other existing utilities, public or private. See Section 01011 - SITE CONDITIONS, Division 1.

1.11 PROTECTION OF TREES

A. Protect from damage all trees outside the limits of the work and trees within the limits of the work which are designated on the Drawings to remain undisturbed.

1.12 TREE REMOVAL

A. No trees shall be removed without the express approval of the Engineer. Removed trees shall be disposed of in a legal manner off the worksite by the Contractor.

1.13 SURVEY TO ESTABLISH AUTHENTICITY OF POSSIBLE DAMAGE CLAIMS

A. After the Contract is awarded and before the commencement of work, the Contractor shall make a thorough examination of all existing buildings, structures, and other improvements in the vicinity of the work, as applicable, which might be damaged by his operations.

B. Records in triplicate of all observations shall be prepared by the Contractor and every copy of every document shall be signed by the authorized representative of the Contractor. Photographs shall be made by the Contractor and signed in the manner specified above. One signed copy of every document and photograph will be kept on file in the office of the Engineer.

C. The above records and photographs are intended for use as indisputable evidence in ascertaining the extent of any damage which may occur as a result of the Contractor's operations and are for the protection of the adjacent property owners, the Contractor, and the Owner, and will be a means of determining whether and to what extent damage, resulting from the Contractor's operations, occurred during the Contract work.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION 01016

PART 1 GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. General:

1. The project name is Riley Creek CSO Satellite Treatment Facility – Contract 1 as shown on the Contract Documents prepared by Crawford, Murphy & Tilly, Inc., Springfield, Illinois. Owner is the City of Mattoon, Illinois.
2. Owner and Contractor each binds himself, his partners, successors, assigns and legal representatives to the other party hereto, his partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.
3. Crawford, Murphy & Tilly, Inc., Consulting Engineers, 2750 W. Washington Street, Springfield, Illinois 62702-3465, is hereinafter called Engineer and will have the right and authority assigned to Engineer in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

B. General Description of the Work:

1. The work includes, but is not limited to the following:

   a. Screen structure
   b. First Flush tank
   c. Influent Pumping Station
   d. Swirl concentrator treatment structure
   e. Disinfection tank
   f. Foul sewer pumping station
   g. Screen building
   h. Chemical feed building
   i. Electrical/Blower/Booster pump building
   j. Site piping
   k. Erosion and sediment control
   l. Electrical and controls
   m. Grading and drainage
   n. Roadways
   o. Fencing

C. Summary by Reference:

1. The COMPLETE WORK can be summarized by reference to requirements of various contract documents, which in turn make reference to requirements of other applicable provisions which control or influence work; and these references can be summarized but are not necessarily limited to following:

a. Executed Owner-Contractor Agreement.
b. General and Supplementary Conditions, which are bound herewith.
c. Drawings, which are listed in an "Index to Sheets" as of the date of these contract documents, and bound herewith as indicated on the cover sheet of the drawings.
d. Specifications Sections, which are bound herewith and are listed in "Table of Contents" bound herewith.
e. Addenda and Change Orders, which will be distributed by transmittal subsequent to binding hereof.
f. Governing regulations, which have a bearing on performance of work; copies can be obtained from or reviewed at local, State or Federal Agency responsible for regulation in each case.
g. Submittals of every kind, copies of which shall be retained by the Contractor on site.

1.02 EXTENT OF CONTRACT

A. Extent of contract shall be defined as shown on drawings and specified herein.

1.03 ASSIGNMENT OF CONTRACT

A. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

1.04 SPECIFICATION AND DRAWING SECTIONS

A. Specifications and Drawings are separated into discipline sections for convenience or reference only. Each Contractor shall be responsible for Complete Work, implemented by his own forces and his various subcontractors. Each Contractor is responsible for coordination between subcontractors.

B. Further, it is not the intent that any work called out in a titled section be allocated to any specific trade. Allocation of this work to trades is considered a function of each Contractor.

C. Contractor shall also be responsible for work as specifically cross-referenced in other Sections of Specifications though not specifically mentioned herein and for all information shown on drawings as applicable to their portions of work.

1.05 CONTRACTOR RESPONSIBILITIES

A. The Contractor shall be fully responsible for Complete Work of all Contract Documents including, but not limited to, providing of labor, materials and

equipment necessary to furnish and install complete work as described by Specifications, Divisions 1 thru 16, and as shown on Drawings.

B. The Contractor may fulfill certain parts of above obligation through several prime Subcontractors and other subcontractors. The Contractor shall be responsible for letting of subcontracts in such a manner as to produce Complete Work required by Contract Documents.

C. The Contractor shall employ, establish and identify all required administrative, supervisory and operational personnel; including personnel responsible for coordination of mechanical and electrical work, necessary for adequate performance of work. Do not change or replace established key personnel, during conduct of work. Furnish to Owner's representative, in writing, the names, addresses and telephone numbers of responsible persons employed by contractors who are to be contacted in event of an out-of-hours emergency at construction site. The Contractor shall provide a coordinator, in his employ, who shall coordinate all subcontracted work.

D. Contractor shall make the following representations as part of the contract Agreement:

1. Contractor has familiarized himself with the nature and extent of the Contract Documents, Work, locality, and with all local conditions and federal, state and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.
2. Contractor has studied carefully all reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which were relied upon by Engineer in the preparation of the Drawings and Specifications and which have been identified in the Supplementary General Conditions.
3. Contractor has made or caused to be made examinations, investigations and tests and studies of such reports and related data in addition to those referred to in paragraph 2 as he deems necessary for the performance of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are or will be required by Contractor for such purposes.
4. Contractor has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.
5. Contractor has given Engineer written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Contractor.

1.06 SCHEDULE

A. Contractor shall commence work within 10 calendar days after date of official "Notice to Proceed" issued by Owner and in accordance with the schedule set forth in these Contract Documents. The Contractor shall achieve Substantial Completion of work within time indicated in the Agreement.

B. Contractor shall submit, within five (5) calendar days of Notice to Proceed, a proposed schedule, sequence and description of methods of construction he proposes for work. This review shall in no way limit Contractor's means or methods of construction, nor shall it serve as an approval of Contractor's means or methods of construction. Contractor shall at all times be responsible for means and methods of construction and all consequences resulting from those operations as required by Contract Documents. The proposed schedule and sequence shall allow for coordination among the sub-contractors.

1.07 CONTRACT TIME

A. The Contractor shall complete all work in accordance with the contract within 540 consecutive calendar days from the date of the Notice to Proceed.

1.08 SPECIAL SEQUENCES

A. Before work under this Contract is begun, Contractor shall confer with Engineer and Owner and agree on a sequence of procedure, means of access to premises; space for temporary storage of materials and equipment; cooperation with all trades and other work outside of this contract; and use of approaches.

B. Unless otherwise approved by the Engineer and Owner, the work shall progress according to the following general sequence of construction in 1.10.

1.09 USE OF SITE AND WORK RESTRICTIONS

A. CONTRACTOR shall have full use of project site for construction operations during the Contract Time. Limits of project site are as indicated on the Drawings.

B. Do not disturb areas beyond the limits of the project site.

C. Coordinate with OWNER and ENGINEER to allow access to and occupancy of the project for process start-up operations after Substantial Completion.

1.10 GENERAL SEQUENCE OF CONSTRUCTION

A. Topsoil stripping and erosion control
B. Structure excavation
C. Structure formwork and rebar tie
D. Concrete pours
E. Underground piping excavation, laying and backfill
F. Form stripping
G. Backfill and compacting around structures
H. Equipment installation
I. Building foundations and walls
J. HVAC and plumbing
K. Electrical
L. Rough grading
M. Paving
N. Equipment testing
O. Process testing

P. Cleaning
Q. Finish grading
R. Fertilizing and seeding
S. Fencing

1.11 PERMITS

A. General - Contractor shall coordinate with the general sequences described herein in performing the work and establishing a schedule.

1. Owner has obtained permits to construct the described facilities from Illinois Environmental Protection Agency (IEPA) and the US Army Corps of Engineers as shown at the end of this part.

2. It shall be the Contractor's responsibility to conduct his operations in such a manner so as to comply with all provisions and conditions of the permits.

B. The Owner shall have the following responsibilities prior to or during this contract:

1. The Owner will, prior to the start of construction, obtain necessary IEPA, Notice-of-Intent (NOI) General Permit to Discharge Storm Water Construction Site Activities as required to perform the work proposed under this contract.

-ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

RECEIVED
JAN 02 2015
CMT, INC.

LOG NUMBERS: 2014-59316 **PERMIT NO.:** 2014-AB-59316

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS **DATE ISSUED:** December 31, 2014
PREPARED BY: Crawford, Murphy and Tilley, Inc.

SUBJECT: MATTOON- Riley Creek Combined Sewer Overflow Satellite Treatment Facility L174844

PERMITTEE TO CONSTRUCT AND OWN

City of Mattoon
Mattoon City Hall
208 N. 19th Street
Mattoon, IL 61938

Permit is hereby granted to the above designated permittee(s) to construct and/or operate water pollution control facilities described as follows:

100 feet of 66 inch combined sewer and 2 manholes discharging to the Riley Creek CSO Satellite Treatment Facility consisting of two mechanical screens, a 1.5 million gallon first flush tank, a 21 foot diameter swirl concentrator, an 156,250 gallon chlorine contact tank with gaseous chlorine addition, a 5,210 gallon de-chlorination tank, and a 15 MGD pump station having 4 pumps with each pump rates at 3615 gpm at 22.4 feet of TDH, 24 feet of 16 inch force main with discharge to a 36 inch diameter combined sewer discharging to the swirl concentrator, miscellaneous conveyance piping and overflow structure modifications to convey the CSO flow to Riley Creek or to the above indicated sewage treatment plant via an existing lift station with 24 inch force main.

The rated capacities of the above referenced treatment plant will not change as a result of these improvements.

This Permit is issued subject to the following Special Condition(s). If such Special Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplemental Permit.

SPECIAL CONDITION 1: The operational portion of this permit for discharge to Riley creek shall be governed by NPDES Permit No. IL0029831.

SPECIAL CONDITION 2: This permit also covers all necessary appurtenances not specifically mentioned herein but detailed in the specifications and/or the design drawings.

SPECIAL CONDITION 3: If this project is located within a wetlands, the U.S. Army Corps of Engineers may require a permit for construction pursuant to Section 404 of the Clean Water Act.

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

SAK:KAR:\\illinois.gov\epa\spiusers1\keith.runge\2014-59316.docx

DIVISION OF WATER POLLUTION CONTROL

Alan Keller

Alan Keller, P.E.
Manager, Permit Section

cc: EPA-Champaign FOS
Records - Municipa
Crawford, Murphy and Tilley, Inc.
Chad Rice

-ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 2014-59316 **PERMIT NO.:** 2014-AB-59316

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS **DATE ISSUED:** December 31, 2014
PREPARED BY: Crawford, Murphy and Tilley, Inc.

SUBJECT: MATTOON- Riley Creek Combined Sewer Overflow- Satellite Treatment Facility L174844

SPECIAL CONDITION 4: The Permittee to Construct shall be responsible for obtaining an NPDES Storm Water Permit prior to initiating construction if the construction activities associated with this project will result in the disturbance of one (1) or more acres total land area.

An NPDES Storm Water Permit may be obtained by submitting a properly completed Notice of Intent (NOI) form by certified mail to the Agency's Division of Water Pollution Control - Permit Section.

READ ALL CONDITIONS CAREFULLY:
STANDARD CONDITIONS

The Illinois Environmental Protection Act (Illinois Revised Statutes Chapter 111-12. Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

1. Unless the construction for which this permit is issued has been completed, this permit will expire (1) two years after the date of issuance for permits to construct sewers or wastewater sources or (2) three years after the date of issuance for permits to construct treatment works or pretreatment works.

2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The permittee shall allow any agent duly authorized by the Agency upon the presentations of credentials:

   a. to enter at reasonable times, the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;

   b. to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;

   c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit;

   d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants;

   e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. does not take into consideration or attest to the structural stability of any units or parts of the project;

   e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the agency before the facility or equipment covered by this permit is placed into operation.

7. These standard conditions shall prevail unless modified by special conditions.

8. The Agency may file a complaint with the Board for suspension or revocation of a permit:

   a. upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed; or

   b. upon finding that any standard or special conditions have been violated; or

   c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P.O. BOX 59
LOUISVILLE KY 40201-0059
FAX: (502) 315-6677
http://www.lrl.usace.army.mil/

September 17, 2014

Operations Division
Regulatory Branch (North)
ID No. LRL-2014-253-jlt

Mr. Dean Barber
City of Mattoon Illinois
209 North 19th Street
Mattoon, Illinois 61938

Dear Mr. Barber:

This is in response to your application received September 15, 2014, for authorization to increase the capacity of a sewer treatment facility by the construction of a new satellite treatment facility constructed near the existing pump station. There will be three new outfall concrete pipes that discharge into Riley Creek. Those new discharge pipes include one 18-inch storm sewer, one 36-inch discharge for the release of treated effluent, and one 60-inch pipe for the screened effluent during periods of maximum flow. The total impacts to Riley Creek would be 45 linear feet with a discharge of 146 cubic yards of riprap. The project is identified as the City of Mattoon Riley Creek Satellite Treatment Facility Contract No. 1. The project is bordered by Highway 45 on the west, Co Road 620 E to the east, Riley Creek to the north and extends south about 300 feet, near the City of Mattoon, in Coles County, Illinois (Latitude: 39.50928°; Longitude:-88.35985°). The information supplied by you was reviewed to determine whether a Department of the Army (DA) permit will be required under the provisions of Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act.

Your project is considered a discharge of dredged and/or fill material associated with the construction of outfall structures. The project is authorized under the provisions of 33 CFR 330 Nationwide Permit (NWP) No. 7, Outfall Structures and Associated Intake Structures, as published in the Federal Register February 21, 2012. Under the provisions of this authorization, you must comply with the enclosed Terms and General Conditions for Nationwide Permit No. 7 and the following Special Condition.

Special Condition:

The permittee shall not cut or remove trees living or dead from April 1 through September 30.

You must also obtain an individual State 401 Water Quality Certification (WQC) or waiver from the Illinois Environmental Protection Agency (ILEPA). You may contact ILEPA directly at the following address.

Illinois Environmental Protection Agency
Permits Section
1020 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9676

Once you have obtained your certification or a waiver, you may proceed without further contact or verification from us.

This decision is valid until March 18, 2017. The enclosed Compliance Certification should be signed and returned when the project is completed. If your project is not completed by this date or if your project is modified, you must contact us for another permit determination in accordance with the rules and regulations in effect at that time. Please note that we also perform periodic inspections to ensure compliance with our permit conditions and applicable Federal laws. A copy of this letter is being sent to the ILEPA and to your agent (see enclosure for addresses).

If you have any questions, please contact this office by writing to the above address, ATTN: CELRL-OP-FN, or by calling me at (502) 315-6710. All correspondence pertaining to this matter should refer to our ID No. LRL-2014-253-jlt.

Sincerely,

Jim Thomas

Jim Thomas
Project Manager, North
Regulatory Branch

Enclosures

2

Terms for Nationwide Permit No. 7
Outfall Structures and Associated Intake Structures

Activities related to the construction or modification of outfall structures and associated intake structures, where the effluent from the outfall is authorized, conditionally authorized, or specifically exempted by, or otherwise in compliance with regulations issued under the National Pollutant Discharge Elimination System Program (Section 402 of the Clean Water Act). The construction of intake structures is not authorized by this NWP, unless they are directly associated with an authorized outfall structure.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) (Sections 10 and 404)

US Army Corps of Engineers®
Louisville District

Nationwide Permit Conditions

The following General Conditions must be followed in order for any authorization by NWP to be valid:

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the US Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the US.

(c) The permittee understands and agrees that, if future operations by the US require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the US. No claim shall be made against the US on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the US that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the US during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, US Forest Service, US Fish and Wildlife Service).

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification (PCN) to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the PCN must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete PCN. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from Corps.

(d) As a result of formal or informal consultation with the USFWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the USFWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the US to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the USFWS and NMFS at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.noaa.gov/fisheries.html respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for obtaining any "take" permits required under the USFWS's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the USFWS to determine if such "take" permits are required for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA is complete.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the US are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the US to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the US, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the US, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the US are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or USEPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the US authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the US for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature: "When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____
(Transferee)

_____
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

31. Pre-Construction Notification (PCN). (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a PCN as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the US expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(4) The PCN must include a delineation of wetlands, other special aquatic sites, and waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the US. The 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of PCN Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP activities that require PCN notification and result in the loss of greater than 1/2-acre of waters of the US, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require PCN notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require PCN notification, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (USFWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the PCN notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each PCN notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of PCN notifications to expedite agency coordination.

Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
PAT QUINN, GOVERNOR JOHN J. KIM, INTERIM DIRECTOR

217/782-3362

APR - 2 2012

U.S. Army Corps of Engineers, Rock Island
ATTN: Regulatory Branch
Clock Tower Building
Post Office Box 2004
Rock Island, IL 61204-2004

Re: Final Notice of Issuance of Nationwide Permits, February 21, 2012
Section 401 Certifications, Denials, General and Regional Conditions

Gentlemen:

On February 21, 2012 the Corps of Engineers issued the final notice concerning the disposition of the expiring Nationwide Permits (NWPs) under Section 10 of the 1899 Rivers and Harbors Act and Section 404 of the Clean Water Act.

Based on our review of the final rules, Section 401 certifications are hereby issued for the following NWPs subject to the General Conditions 1, 2 and 3 below:

NWP 4 – Fish and Wildlife Harvesting, Enhancement, and Attraction Device and Activities
NWP 5 – Scientific Measurement Devices
NWP 7 – Outfall Structures and Associated Intake Structures
NWP 20 – Response Operations for Oil and Hazardous Substances
NWP 22 – Removal of Vessels
NWP 36 – Boat Ramps
NWP 45 – Repair of Uplands Damaged by Discrete Events

In addition, the following NWPs are hereby issued Section 401 certifications subject to General Conditions 1, 2 and 3 and Regional Conditions as indicated below:

NWP 3 – Maintenance. Refer to Regional Conditions contained in Attachment 1

NWP 6 – Survey Activities. Refer to Regional Conditions contained in Attachment 2

NWP 12 – Utility Line Activities. Refer to Regional Conditions contained in Attachment 3

NWP 13 – Bank Stabilization. Refer to Regional Conditions contained in Attachment 4

NWP 14 – Linear Transportation Projects. Refer to Regional Conditions contained in Attachment 5

NWP 15 – U.S. Coast Guard Approved Bridges. Refer to Regional Conditions contained in Attachment 6

NWP 16 – Return Water from Upland Contained Disposal Areas. Refer to Regional Conditions in Attachment 7

NWP 17 – Hydropower Projects. Refer to Regional Conditions in Attachment 8

4302 N. Main St., Rockford, IL 61103 (815)987-7760
595 S. State, Elgin, IL 60123 (847)608-3131
2125 S. First St., Champaign, IL 61820 (217)278-5800
2009 Mall St., Collinsville, IL 62234 (618)346-5120
9511 Harrison St., Des Plaines, IL 60016 (847)294-4000
5407 N. University St., Arbor 113, Peoria, IL 61614 (309)693-5462
2309 W. Main St., Suite 116, Marion, IL 62959 (618)993-7200
100 W. Randolph, Suite 11-300, Chicago, IL 60601 (312)814-6026

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NWP 18 – Minor Discharges. Refer to Regional Conditions in Attachment 9

NWP 19 – Minor Dredging. Refer to Regional Conditions in Attachment 10

NWP 25 – Structural Discharges. Refer to Regional Conditions in Attachment 11

NWP 27 – Aquatic Habitat Restoration, Establishment, and Enhancement Activities. All activities conducted under NWP 27 shall be in accordance with the provisions of 35 Il. Adm. Code 405.108. Work in reclaimed surface coal mine areas are required to obtain prior authorization from the Illinois EPA for any activities that result in the use of acid-producing mine refuse.

NWP 29 – Residential Developments. Refer to Regional Conditions in Attachment 12

NWP 32 - Completed Enforcement Actions. Refer to Regional Conditions contained in Attachment 13

NWP 33 -Temporary Construction, Access and Dewatering. Refer to Regional Conditions contained in Attachment 14

NWP 38 – Cleanup of Hazardous and Toxic Waste. Refer to Regional Conditions contained in Attachment 15

NWP 39 – Commercial and Institutional Developments. Refer to Regional Conditions contained in Attachment 16

NWP 40 – Agricultural Activities. Refer to Regional Conditions contained in Attachment 17

NWP 41 – Reshaping Existing Drainage Ditches. Refer to Regional Conditions contained in Attachment 18

NWP 42 – Recreational Facilities. Refer to Regional Conditions contained in Attachment 19

NWP 44 – Mining Activities. Refer to Regional Conditions contained in Attachment 20

NWP 46 – Discharges into Ditches. Refer to Regional Conditions contained in Attachment 21

NWP 51 – Land-Based Renewable Energy Generation Facilities. Refer to Regional Conditions contained in Attachment 22

NWP 52 – Water-Based Renewable Energy Generation Pilot Projects. Refer to Regional Conditions contained in Attachment 23

Section 401 Certification is denied for the following NWPs:
NWP 21 – Surface Coal Mining Activities
NWP 23 – Approved Categorical Exclusions
NWP 30 – Moist Soil Management for Wildlife
NWP 31 – Maintenance of Existing Flood Control Facilities
NWP 34 – Cranberry Production Activities
NWP 37 – Emergency Watershed Protection and Rehabilitation
NWP 43 – Stormwater Management Facilities
NWP 48 – Commercial Shellfish Aquaculture Activities
NWP 49 – Coal Remining Activities
NWP 50 – Underground Coal Mining Activities

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION 01110

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Procedures for preparation and submittal of schedule of values and applications for payment.

A. Related Requirements

1. Document 00682 – Application for Payment.
2. Section 01250 – Contract Modification Procedures: Procedures for changes to the Work.
3. Section 01325 – Construction Schedules.
4. Section 01330 – Submittal Procedures: Procedural requirements for submittals.
5. Section 01770 – Closeout Procedures: Final payment.

1.02 SCHEDULE OF VALUES

A. Contractor shall submit Schedule of Values:

1. Submit to Engineer, Schedule of Values at least 14 days prior to submitting first Application for Payment.
2. Upon request by Engineer, support values given with data that will substantiate their correctness.
3. List separate values of designated materials and labor to install item.
4. List values of each item of work by subcontractors and suppliers.
5. Use Schedule of Values only as basis for Contractor's Application for Payment.

B. Form of Submittal:

1. Submit typewritten Schedule of Values on page 2 of Document 00682 – Application for Payment "Pay Application Continuation Sheet".
2. Use Bid Booklet Table of Contents as basis of format for listing costs of work for Sections under Division 2-16. Include labor separate from material cost.
3. Identify each line item with and title as listed in Bid Booklet Table of Contents and with name of subcontractor or supplier.

C. Update:

1. Update Schedule of Values when:

a. Directed by Engineer.

b. Change of subcontractor or supplier occurs.
c. Change or product or equipment occurs.

2. Send separate letter of notification to Engineer explaining reason for change to schedule.

1.03 PAYMENT APPLICATIONS

A. Present required information in legible form on Document 00682 – Application for Payment.

B. Execute certification by signature of authorized officer.

C. Use itemized breakdown data from approved Contractor's Schedule of Values. Provide dollar value in each column for each line item for portion of Work Completed and for Material Stored.

D. List each authorized Change Order as an extension Pay Application Continuation Sheet, listing Change Order number and dollar amount as for an original item of Work.

E. Prepare Application for Final Payment as specified in Section 01770 – Closeout Procedures.

1.04 SUBMITTAL PROCEDURES

A. Submit four (4) copies of each Application for Payment.

B. Submit an updated construction schedule with each Application for Payment.

1.05 SUBSTANTIATING DATA

A. When Engineer requires substantiating information, submit data justifying dollar amounts in question.

B. Provide one (1) copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

C. Include the following with the application:

1. Partial release of liens from major subcontractors and vendors related to work covered by previous payment and from contractor for current payment.
2. Construction progress schedules, revised and current as specified in Section 01325 – Construction Schedules.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION 01200

PART 1 GENERAL

1.01 SUMMARY

A. This section specifies administrative and procedural requirements for handling and processing contract modifications and includes:

1. Procedural Requirements for:

a. Request for Interpretation.
b. Field Order.
c. Work Directive Change.
d. Change Order.

1.02 RELATED SECTION

A. Document 00686 – Work Directive Change.
B. Document 00687 – Request for Interpretation.
C. Document 00688 – Field Order.
D. Document 00700 – General Conditions.
E. Document 00800 – Supplementary Conditions.
F. Section 01200 – Payment Procedures.
G. Section 01325 – Construction Schedules.
H. Section 01781 – Project Record Documents.

1.03 DEFINITIONS

A. Request for Interpretation: A formal, written request from Contractor for clarification by Engineer about an item of work insufficiently described or detailed in the Contract Documents.

1.04 SUBMITTALS

A. Submit name of the individual authorized to receive change documents.

B. Be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.

C. Use the appropriate submittal forms:

1. Work Directive Change: Document 00686 – Work Directive Change.
2. Request for Interpretation Document 00687 – Request for Interpretation.
3. Field Order: Document 00688 – Field Order.

1.05 REQUEST FOR INTERPRETATION (RFI)

A. Address all RFI correspondence to:

City of Mattoon
c/o Crawford, Murphy & Tilly, Inc.
2750 W. Washington St.
Springfield, IL 62702-3465

B. Submit completed form that includes sufficiently detailed descriptive information and signature of Contractor's authorized representative.

C. Number each RFI in consecutive sequence starting with number 1.

D. Engineer will respond to RFI with one or more of the following:

1. Response written on RFI form.
2. Field Order.
3. Proposal Request.

1.06 DOCUMENTATION OF CHANGE IN CONTRACT PRICE AND CONTRACT TIME

A. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.

B. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.

C. Provide additional data to support computations:

1. Quantities of products, labor, and equipment.
2. Taxes, insurance, and bonds.
3. Overhead and profit.
4. Justification for any change in Contract Time.
5. Credit for deletions from Contract, similarly documented.

D. Support each claim for additional costs, and for work done, with additional information:

1. Origin and date of claim.
2. Dates and times work was performed, and by whom.
3. Time records and wage rates paid.
4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

1.07 CHANGE PROCEDURES

A. The Engineer will advise of minor changes in the Work not involving an adjustment to Contract Price or Contract Time as authorized by Paragraph 9.05 of the General Conditions by issuing supplemental instructions on Document 00688 – Field Order.

B. The Engineer may issue a Proposal Request which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within 14 days.

1.08 WORK DIRECTIVE CHANGE

A. Engineer may issue a document, signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. The document will describe changes in the Work, and will designate method of determining any change in Contract Price or Contract Time.
2. Promptly execute the change in Work.

1.09 STIPULATED PRICE CHANGE ORDER

A. Based on Proposal Request and Contractor's fixed price quotation.

1.10 UNIT PRICE CHANGE ORDER

A. For pre-determined unit prices and quantities, the Change Order will be executed on a fixed unit price basis.

B. For unit costs or quantities of units of work, which are not pre-determined, execute Work under a Work Directive Change.

C. Changes in Contract Price or Contract Time will be computed as specified in General Conditions.

1.11 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within thirty (30) days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than thirty (30) days after such authorization.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.12 TIME AND MATERIAL CHANGE ORDER

A. Submit itemized account and supporting data after completion of change, within time limits included in the General Conditions.

B. Engineer will determine the change allowable in Contract Price and Contract Time as provided in the Contract Documents.

C. Maintain detailed records of work performed.

D. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

1.13 EXECUTION OF CHANGE ORDERS

A. Engineer will issue Change Orders for signatures of parties as provided in the General Conditions.

B. No work will be paid for if done prior to receiving a properly executed Change Orders.

1.14 CORRELATION OF CONTRACTOR SUBMITTALS

A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price.

B. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

C. Promptly enter changes in Project Record Documents.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION 01250

PART 1 GENERAL

1.01 SUMMARY

A. Construction schedule requirements and procedures.

1.02 RELATED SECTIONS

A. Section 01330 – Submittal Procedures.

1.03 FORM OF SCHEDULES

A. Prepare a standard horizontal bar chart.

1. Provide separate horizontal bar column for each class of work, activity or long-lead equipment item.
2. Columns should follow table of contents of the specifications.
3. Critical path work items shall be highlighted in some manner.

1.04 CONTENT OF SCHEDULES

A. Indicate complete sequence of construction by activity.

1. Submittals: In accordance with Section 01330 - Submittal Procedures.

   a. Submittal dates.
   b. Dates when reviewed copies will be required.

2. Product procurement date, fabrication time and delivery dates.
3. Dates for beginning, and completion of, each element of construction.

B. Indicate cumulative percentage of work completed as of first day of each month.

C. Furnish separate schedule, showing submittals, review item, procurement schedules and delivery dates as required.

D. Define critical portions of entire schedule.

1.05 UPDATING

A. Update monthly. Indicate:

1. Progress of each activity since previous submission.
2. Projected completion dates for all activities.
3. Activities modified since previous submission.

1.06 SUBMITTALS

A. Submit initial schedule at the preconstruction meeting.

1. The Engineer and Owner shall review schedules and return reviewed copy within ten business days after receipt.
2. When directed, resubmit within five business days after return of reviewed copy.

B. Submit monthly updated schedules accurately depicting progress to first day of each month.

1.07 DISTRIBUTION

A. Distribute copies of approved schedules to Owner and Engineer and distribute to Subcontractors and suppliers on as-needed basis.

B. Instruct recipients to report any inability to comply with projected completion dates, and to furnish a detailed explanation together with suggested remedies.

1.08 ACCELERATION

A. If at any time during the project Contractor fails to complete an activity by its latest scheduled completion date, which late completion will impact the end date of the work past the Contract completion date, submit within five (5) calendar days plans to reorganize the work force to return to the current schedule.

B. The Owner may require Contractor to add to equipment, or construction forces, as well as increase working hours, if operations fall behind schedule at any time.

C. Addition of equipment or construction forces, increasing working hours, or other method, manner, or procedure to return to the contractually required completion date will not be justification for Contract modification.

D. Contractor shall plan, schedule, and coordinate construction operations and activities in a manner that will facilitate simultaneous progress of work.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION 01325

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Submittal procedures and general requirements for submittals during the progress of the work.

1. Administrative Submittals
2. Shop Drawings
3. Product Data
4. Material certifications
5. Samples
6. Test Specimens
7. Certificates of Compliance
8. O & M Manuals
9. Record Documents
10. Contractor's Construction Schedule
11. Subcontract List
12. Applications for Payment
13. Schedule of Values
14. List of items to be completed or corrected (punch list)

B. The Owner and Engineer each reserve the right to direct and modify the procedures and requirements for submittals as necessary to accomplish the specific purpose of each submittal.

C. Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Engineer for Contractor's use in preparing submittals.

1.02 RELATED SECTIONS

A. Section 00700 – General Conditions.
B. Section 00800 – Supplementary Conditions.
C. Section 01200 – Payment Procedures.
D. Section 01400 – Quality Requirements.
E. Section 01770 – Closeout Procedures.
F. Section 01781 – Project Record Documents.
G. Section 01782 – Operation and Maintenance Data.
H. Section 01820 – Demonstration and Training.
I. Divisions 2 through 16 Sections for specific requirements for submittals in those Sections.

1.03 DEFINITIONS

A. Action or Technical Submittals: Written and graphic information that requires Engineer's responsive action.

B. Administrative Submittals: Written information that does not require Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.04 ADMINISTRATIVE SUBMITTALS

A. Administrative Submittals include the following items:

1. Preconstruction submittals.
2. Schedules.
3. Certificates and Certifications.
4. Test and inspection reports.
5. Construction photographs.
6. Meeting minutes.
7. Material Safety Data Sheets (MSDSs).
8. Closeout submittals.

B. Provide all of the submittals as listed above and any others specifically required in other parts of the Contract Documents.

C. Failure to comply promptly with requirements for submittals, as required by law, to applicable federal, state, or local agencies may result in the withholding of progress payments and make the Contractor liable for other prescribed action and sanctions.

D. Submit to the Owner and Engineer a copy of all letters relative to the Contract, transmitting notifications, reports, certifications, payrolls, and the like, that are submitted directly to a federal, state, or other governing agency.

E. On a daily basis during the progress of the Work, maintain, and submit to the Owner, full and correct information as to:

1. The number of persons employed in connection with each subdivision of the Work.
2. The classification, rate of pay, citizenship status, and address of each of these persons.
3. The cost, source, and amount of each class of materials delivered, equipment received, and major construction equipment used in each subdivision of the Work.

F. When requested by the Engineer, submit to the Engineer two copies of each purchase order for all materials and equipment furnished under this Contract for incorporation in the Work. Each purchase order shall show:

1. Supplier's name.
2. Manufacturer's name.
3. Materials, type, model number, size, quantity, accessory list of the material and equipment ordered.
4. Requested delivery date of the material and equipment ordered.

1.05 TECHNICAL SUBMITTALS

A. General:

1. Requirements in this section are in addition to any specific requirements for submittals specified in other Divisions and Sections of the Specifications. The Contractor shall be responsible for the accuracy and completeness of all information contained in each submittal.

   a. Address all hard copies of submittals and correspondence to:

      City of Mattoon, Illinois
      C/O Crawford, Murphy & Tilly, Inc.
      2750 West Washington Street
      Springfield, IL 62702

   b. Submit all technical submittals in Construction/Project Management software.

2. Submit descriptive information, which will enable the Engineer to advise the Owner whether the Contractor's proposed materials, equipment, or methods of work are in general conformance to the design concept and in compliance with the Drawings and Specifications.
3. Submit Shop Drawings and Product Data for <u>all</u> material and equipment to be incorporated into the Work, whether or not specifically called for elsewhere in these Contract Documents. The information to be submitted shall consist of drawings, specifications, descriptive data, certificates, samples, test results, design calculations, fabrication and installation drawings, and such other information, all as required by the Engineer to evaluate the material and equipment for compliance with the requirements of these Contract Documents.
4. Submit Material Certifications for all materials to be incorporated into the Work, where required in these Contract Documents. The information to be submitted shall consist of the origin, source, classification or gradation, standards by which the classification or gradation was derived, the approving agency and contact information, the date of the most recent approval, as well as all other information required by the Engineer to evaluate the material for compliance with the requirements of these Contract Documents.
5. Equipment and materials delivered without meeting the above requirements **<u>will not</u>** be considered for pay requests involving the installation of said equipment and materials until the above information is received, reviewed and approved by the Engineer.
6. The Contractor shall be responsible for the accuracy and completeness of the information contained in each and every submittal and shall assure that the material, equipment or method of work shall be as described in the submittal. The Contractor shall indicate by a signed stamp on each submittal that:

   a. Contractor has checked and approved the submittal.
   b. Material and equipment described in the submittal conforms to the requirements of the Specifications and Drawings.

c. Material and equipment described in the submittal have been checked for dimensions and coordination with other work.

7. If the information contained in a submittal shows deviations from the Specifications or Drawings, include in the submittal verification that there is no conflict with portions of the Work covered by other submittals and notify the Engineer in each and every case where the submittal may affect the work of another Contractor or the Owner.
8. Ensure coordination of submittals among the related crafts and subcontractors.
9. Should the Contractor fail to submit acceptable shop drawings on the second submittal, the cost of the Engineer's time to review subsequent submittals on the unacceptable item will be deducted from the Contract amount.
10. Review, acceptance, or approval of schedules, shop drawings, lists of materials, and procedures submitted or requested by the Contractor shall not add to the Contract amount, and all additional costs which may result therefrom shall be solely the obligation of the Contractor.
11. Shop Drawing submittals processed by the Engineer do not become Contract Documents and are not Change Orders. The purpose of the Shop Drawing review is to establish a reporting procedure and is intended for the Contractor's convenience in organizing his work and to permit the Engineer to monitor the Contractor's progress and understanding of the design.
12. It shall not be the responsibility of the Owner to provide engineering or other services to protect the Contractor from additional costs accrued from such approvals.
13. No equipment or material for which listings, drawings, certifications or descriptive material is required shall be fabricated, purchased, placed or installed until the Engineer has on hand copies of such approved lists and the appropriately stamped final Shop Drawings.
14. Submittals will be acted upon by the Engineer as promptly as possible, and returned to the Contract not later than the time allowed for review in Shop Drawing Submittal Procedure. Delays caused by the need for resubmittals shall not constitute reason for an extension of Contract time.
15. The Contractor's authorization stamp shall appear on each copy of each submittal and likewise the Engineer's review stamp shall appear on each copy of each submittal.

B. Transmittal Procedure:

1. General - Submit electronically utilizing Construction/Project Management software.
2. Submittal Numbering System - The submittal numbering system shall be coordinated with the Engineer's document control system. Each submittal shall be numbered in consecutive sequence starting with number 1, then number 2, etc. Resubmittals are to be numbered with the original submittal number and the appropriate alphabetic letter. Example: If submittal number 12 is to be resubmitted, the resubmittal will be number 12A (Consecutive Alphabetical Designation) until the submittal is "NO EXCEPTIONS TAKEN" or "EXCEPTIONS TAKEN AS NOTED".
3. Deviation From the Contract – There shall be no deviations from the Contract.

4. Submittal Completeness – Submittals which do not have all the information required to be submitted, including deviations, are not acceptable and will be returned without review. The practice of submitting incomplete or unchecked shop drawings for the Engineer to correct or finish will not be acceptable, and shop drawings which, in the sole opinion of the Engineer, clearly indicate that they have not been checked by the Contractor will be considered as not complying with the intent of the Contract Documents and will be returned to the Contractor without review for resubmission in the proper form. Should the Contractor submit incomplete or unchecked shop drawings on the second submittal they will be returned to the Contractor without review for resubmission in the proper form. The cost of the Engineer's time to review subsequent resubmittals will be deducted from the Contract amount.

5. Review Procedure - When the Contract Documents require a submittal, the Contractor shall submit sufficient copies such that the Engineer will retain five (5) copies of all submittal information following Shop Drawing approval. Unless otherwise specified, within thirty (30) calendar days after receipt of the submittal, the Engineer shall review the submittal. The returned submittal shall indicate one of the following actions:

   a. NO EXCEPTIONS TAKEN: If the review indicated that the material, equipment, or work method is in general conformance with the design concept and complies with the drawings and specifications, submittal copies will be marked "NO EXCEPTIONS TAKEN". In this event the Contractor may begin to implement the work method or incorporate the material or equipment covered by the submittal.

   b. EXCEPTIONS TAKEN AS NOTED: If the review indicates limited corrections are required, copies will be marked "EXCEPTIONS TAKEN AS NOTED". The Contractor may begin implementing the work method or incorporating the material and equipment covered by the submittal in accordance with the noted corrections. Where submittal information will be incorporated in O&M data, a corrected copy shall be provided.

   c. RESUBMIT WITH CORRECTIONS: If the review reveals that the submittal is insufficient or contains incorrect data, or indicates that the material, equipment or work method is not in general conformance with the design concept or in compliance with the Drawings and Specifications, copies of the submittal will be marked "RESUBMIT WITH CORRECTIONS". Submittals with deviations which have not been identified clearly may be rejected. The Contractor shall not undertake work covered by such submittals until a new submittal is submitted and returned marked either "NO EXCEPTIONS TAKEN" or "EXCEPTIONS TAKEN AS NOTED".

   d. The Engineer will not recommend payment for any work done without a submittal marked either "NO EXCEPTIONS TAKEN" or "EXCEPTIONS TAKEN AS NOTED".

6. Effect of Review of Contractor's Submittals: The review of Shop Drawings, methods of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of his responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Engineer or the Owner, or by any officer or employee thereof, and the Contractor shall have no claim under the contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed.

   a. A mark of "NO EXCEPTIONS TAKEN" or "EXCEPTIONS TAKEN AS NOTED" shall mean that the Owner has no objection to the Contractor, upon his own responsibility, using the plan or method of work proposed, or providing the materials or equipment proposed.
   b. Submittals with deviations from the contract requirements which have not been clearly identified by the Contractor at the time the submittal is transmitted to the Engineer for review may be rejected by the Owner and/or Engineer at a later date, even though the submittal may have been marked "NO EXCEPTIONS TAKEN" or "EXCEPTIONS TAKEN AS NOTED".

C. Record Documents

1. Record documents shall be prepared and maintained in accordance with Section 01781 - Project Record Documents.
2. Upon satisfactory completion of the Contract, submit record documents to the Engineer. Accompany submittal with transmittal containing submittal date, Contract title and number, the Contractor's name and address, title and number of each record document, certification that each document as submitted is complete and accurate, and the Contractor's signature.
3. The contract closeout and final payment under this contract **will not** be finalized and approved until a complete and accurate set of record documents, as described in Section 01781 - Project Record Documents, have been submitted to the Engineer, reviewed for accuracy and accepted.

D. Operation and Maintenance Manual (O&M)

1. O & M Manuals shall be prepared and submitted to the Engineer in accordance with Section 01785 – Operation and Maintenance Manuals.
2. The contract closeout and final payment under this contract **will not** be finalized and approved until O & M Manuals have been submitted to the Engineer, reviewed for accuracy and accepted.

E. Shop Drawings

1. The Shop Drawing submittal shall be made after the award of contract and before fabrication.
2. Shop Drawings may be detailed on 8-1/2 by 11-inch and/or 11 by 17-inch sheets.

F. Professional Seals

1. Provide seal on drawings of structural components and assemblies that are submitted for review and where required by the Specifications.
2. Each copy of a submittal requiring a Professional Seal shall bear an original seal. Reproductions of Professional Seals will not be accepted.

G. Samples and Test Specimens

1. Where required in the Specifications, and as determined necessary by the Engineer, test specimens or samples of materials, appliances, and fittings to be used or offered for use in connection with the Work shall be submitted to the Engineer at the Contractor's expense, with information as to their sources, with all cartage charges prepaid, and in such quantities and sizes as may be required for proper examination and tests to establish the quality or equality thereof, as applicable.
2. All samples and test specimens shall be submitted in ample time to enable the Engineer to make any tests or examinations necessary, without delay to the Work. The Contractor will be held responsible for any loss of time due to his neglect or failure to deliver the required samples to the Engineer, as specified.
3. The Contractor shall submit additional samples as required by the Engineer to ensure equality with the original approved sample and/or for determination of Specification compliance.
4. Laboratory tests and examinations that are not required by the Specifications and that the Owner elects to make will be made at no cost to the Contractor, except that, if a sample of any material or equipment proposed for use by the Contractor fails to meet the Specifications, the cost of testing subsequent samples shall be borne by the Contractor.
5. Submit, in duplicate, to the Engineer test results that are certified by laboratory as specified in Section 01400 - Quality Requirements. The samples furnished and the cost for the laboratory services shall be at the expense of the Contractor and included in the prices bid for the associated work.

H. Certificates of Compliance:

1. Furnish a Certificate of Compliance for materials specified to a recognized standard or code prior to the use of any such materials in the work. The Engineer may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance. The certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the Specifications. A Certificate of Compliance shall be furnished with each lot of material delivered to the work and the lot so certified shall be clearly identified in the certificate.

2. All materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis of a Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating material in the Work which conforms to the requirements of the Contract Documents and any such material not conforming to such requirements will be subject to rejection whether in place or not.
3. The Engineer reserves the right to refuse permission for use of material on the basis of a Certificate of Compliance.
4. The form of the Certificate of Compliance and its disposition shall be as directed by the Engineer.

PART 2 PRODUCTS – Not Used.

PART 3 EXECUTION – Not Used.

END OF SECTION 01330

PART 1 GENERAL

1.01 SUMMARY

A. Contractor shall employ and pay for an independent testing firm to perform specified quality assurance/quality control tests and services.

B. This Section includes administrative and procedural requirements for quality assurance and quality control.

C. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and quality–control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality–control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and quality–control services required by Engineer or Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.02 RELATED SECTIONS

A. Requirements for Contractor to employ and pay for an independent testing firm are required as follows:

1. Division 2 – Sitework.

   a. Backfilling and Compacting.

      i. Standard Proctor Density tests.
      ii. On-site compaction testing.

2. Division 3 – Concrete.

   a. Cast-in-Place Concrete.

      i. Cylindrical compression tests.
      ii. Slump tests.
      iii. Air entrainment tests.

1.03 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Engineer.

C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples.

D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

F. Product Testing: Tests and inspections that are performed by an NRTL, and NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory or testing firm shall mean the same as testing agency.

J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as “carpentry” does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as “carpenter.” It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

K. Experienced: When used with an entity, “experienced” means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.04 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Engineer for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Engineer for a decision before proceeding.

1.05 QUALIFICATIONS OF TESTING FIRM EMPLOYED BY CONTRACTOR

A. Meet “Recommended Requirements for Independent Laboratory Qualification”, published by American Council of Independent Laboratories, latest edition.

B. Meet the basic requirements of E329-90 “Standard Practice for Use in the Evaluation of Testing and Inspection Agencies as Used in Construction.”

C. Meet all other standards as required and recognized by the industry.

1.06 SUBMITTALS

A. Qualification Data: For testing agencies specified in “Quality Assurance” Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Description of test and inspection.
3. Identification of applicable standards.
4. Identification of test and inspection methods.
5. Number of tests and inspections required.
6. Time schedule or time span for tests and inspections.
7. Entity responsible for performing tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

C. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notice, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.07 LIMITS OF AUTHORITY OF TESTING SERVICE

A. Laboratory is not authorized to:

1. Release, revoke, alter or enlarge on, Contract requirements.
2. Approve or accept any portion of work.
3. Perform any duties of the Contractor.

1.08 CONTRACTOR'S RESPONSIBILITIES

A. Provide the services of an independent Testing Service that meets the requirements specified above, to perform the tests and inspections specified in the Contract Documents.

B. Employment of Testing Laboratory shall in no way relieve Contractor of his obligation to perform work in accordance with Contract.

C. Cooperate with Laboratory personnel, provide access to work, to manufacturer's operations.

D. Provide to Laboratory, preliminary representatives samples of materials to be tested, if required quantities.

E. Furnish copies of mill test reports.

F. Furnish verification of compliance with Contract requirements for all materials and equipment.

G. Furnish casual labor and facilities:

1. To provide access to work to be tested.
2. To obtain and handle samples at site.
3. To facilitate inspections and tests.
4. For laboratory's exclusive use for storage and curing of test samples.

H. Notify laboratory sufficiently in advance of operations to allow for its assignment of personnel and scheduling of tests.

I. Correct work which is defective or which fails to conform to Contract Documents in accordance with General Conditions. Corrective work shall not delay project schedule or work of other contractors.

J. When test results indicate non-conformance with Contract requirements, pay all costs for additional inspections, sampling and testing required, including, but not limited to, additional services of Engineer, and/or Testing Laboratory.

K. Patch all surfaces and areas disturbed by testing operations.

1.09 ADDITIONAL TESTING BY OWNER

A. Owner may also at his option, obtain additional inspections and tests in accordance with General Conditions.

1.10 REINSPECTION

A. In the event that accuracy or adequacy of any inspection or test is challenged by any parties, and reinspection, or retesting is required, all costs for reinspection or retesting shall be paid by party challenging the original report unless the reinspection or retesting results in taking actions differing from that based on the original report which in that case, the party paying for the original tests shall pay for the additional inspection and tests.

B. Such inspections or tests will be considered only when performed by a Testing Laboratory or Consultant approved by Owner in writing.

1.11 SCHEDULE OF TESTS

A. Tests and inspections are listed in the specification section for the products or work requiring the test or inspection.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 TEST AND INSPECTION LOG

A. Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Engineer.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Engineer's reference during normal working hours.

3.02 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01400

PART 1 GENERAL

1.01 SUMMARY

A. This section lists many of the construction industry organizations, professional and technical associations, societies and institutes, and government agencies issuing, promoting, or enforcing standards to which references may be made in the Procurement Document, along with the abbreviations commonly used for those references. Also included are certain general requirements for the use of industry standards specified, and for application of the standards in quality control.

B. This section lists many of the construction industry technical abbreviations to which may be made in the Procurement Documents.

1.02 USE OF REFERENCE STANDARDS

A. Goods and Special Services specified by reference to the published standard or specification of a government agency, technical association, trade association, professional society or institute, testing agency, or other organization shall conform to or surpass the minimum standards of quality for materials and workmanship established by the designated standard or specification.

B. Where so specified, products or workmanship shall also conform to the additional prescriptive or performance requirements included within the Procurement Document to establish a higher or more stringent standard of quality than that required by the referenced standard.

C. Where the specific date or issue of the standard is not included with the reference to the standard, the edition, including all amendments published and available on the first published date of the Invitation to Bid shall apply.

D. Where two or more standards are specified to establish quality, the product and workmanship shall conform to or surpass the requirements of both.

E. In case of conflict between referenced standards, the more stringent shall apply.

F. Where both a standard and a brand name are specified for a product in the Procurement Document, the proprietary product named shall conform to or surpass the requirements of the specified reference standard. The listing of a trade name in a Procurement Document shall not be construed as warranting that such product conforms to the respective reference standard.

G. Copies of standards:

1. Copies of applicable referenced standards have not been bound in this Procurement Document.

2. Where copies of standards are needed by the Contractor for superintendence and quality control of the work, obtain a copy or copies directly from the publication source.
3. Submittals: Submit for review the requests to use products conforming to printed standards or publications with a different publication date from that effective under the Procurement Agreement. Clearly indicate the changes in product or workmanship quality involved in the proposed change, if any, and reasons for the request.

1.03 ABBREVIATIONS

A. Abbreviations for Trade Organizations and Government Agencies: The following is a list of construction industry organizations and government agencies to which references may be made in the Procurement Document, with abbreviations used.

AA	Aluminum Association
AAMA	American Architectural Manufacturers Association
AAMA	Architectural Aluminum Manufacturers' Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturers' Association
AGA	American Gas Association
AGMA	American Gear Manufacturers' Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALS	American Lumber Standards
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
AREA	American Railway Engineering Association
ARI	Air Conditioning and Refrigeration Institute
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers' Association
AWPB	American Wood Preservers' Bureau
AWPI	American Wood Preservers' Institute
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers' Association

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LIST OF 1.03A ABBREVIATIONS CONT'D.

CBMA	Certified Ballast Manufacturers' Association
CDA	Copper Development Association
CGA	Compressed Gas Association
CISPI	Cast Iron Soil Pipe Institute
CMAA	Crane Manufacturers' Association of America
CRSI	Concrete Reinforcing Steel Institute
FGMA	Flat Glass Marketing Association
FM	Factory Mutual
Fed. Spec.	Federal Specifications
FS	Federal Specification
GA	Gypsum Association
HI	Hydraulic Institute
HMI	Hoist Manufacturers' Institute
ICBO	International Conference of Building Officials
ICEA	Insulated Cable Engineers' Association
IDNR	Iowa Department of Natural Resources
IEEE	Institute of Electrical and Electronics Engineers, Inc.
IES	Illuminating Engineering Society
ISA	Instrument Society of America
JIC	Joint Industry Conferences of Hydraulic Manufacturers
MIA	Marble Institute of America
Mil. Sp.	Military Specification
MS	Military Specifications
MMA	Monorail Manufacturers' Association
NAAMM	National Association of Architectural Metal Manufacturers
NACE	National Association of Corrosion Engineers
NBHA	National Builders' Hardware Association
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
NESC	National Electric Safety Code
NFPA	National Fire Protection Association
NHLA	National Hardwood Lumber Association
NLMA	National Lumber Manufacturers' Association
NTMA	National Terrazzo and Mosaic Association
NWMA	National Woodwork Manufacturers' Association
OECI	Overhead Electrical Crane Institute
OSHA	Occupational Safety and Health Act (both Federal and State)
PEI	Porcelain Enamel Institute
PS	Product Standards Section - U.S. Department of Commerce
RLM	RLM Standards Institute, Inc.

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LIST OF 1.03A ABBREVIATIONS CONT'D.

RMA	Rubber Manufacturers' Association
SAE	Society of Automotive Engineers
SDI	Steel Deck Institute
SIGMA	Sealed Insulating Glass Manufacturing Association
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SSPC	Steel Structures Painting Council
SWI	Steel Window Institute
TEMA	Tubular Exchanger Manufacturers' Association
TCA	Tile Council of America
UBC	Uniform Building Code
UL	Underwriters' Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WWPA	Western Wood Products Association

B. Construction Industry Technical Abbreviations: The following is a list of construction industry technical abbreviations to which may be made in the Procurement Documents.

Aband.	Abandon	Dia.	Diameter
Add'l.	Additional	D.I.P.	Ductile Iron Pipe
Alum	Aluminum	Div.	Diversion
Anc.	Anchor	Dr.	Doors
AWG	American Wire Gauge	Dwg's.	Drawings
Approx.	Approximate	Dwls.	Dowels
Avg.	Average	Ea.	Each
Bott.	Bottom	E	East
B.F.	Both Faces	E.F.	Each Face
B.L.	Baseline	El.	Elevation
BFV	Butterfly Valve	Elev.	Elevation
Bldg.	Building	Elec.	Electric
Bit.	Bituminous Concrete	Ellip.	Elliptical
Blk.	Block	Engr.	Engineer
B.M.	Benchmark	E.W.	Each Way
B.O.V.	Bottom of Vessel	Exist.	Existing
cfs	Cubic Feet Per Second	Exp.	Expansion
Cl.	Class	F.F.	First Flush
C.I.	Cast Iron	F.H.	Fire Hydrant
C	Centerline	F.D.	Floor Drain
Cl	Clearance	Fin.	Finished
CL2	Chlorine	Flg.	Flange
CMP	Corrugated Metal Pipe	Fl.	Flange
Cly	Cylinder	F.M.	Force Main
Conc.	Concrete	FRP	Fiberglass Reinforced Plastic
Const. Jts.	Construction Joints	Ft.	Feet

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LIST OF 1.03B ABBREVIATIONS CONTD.

Ctr.	Center
C.W.	City Water
CPVC	Chlorinated Polyvinyl Chloride
Cont.	Continuous
Contr.	Contractor
C.O.	Clean Out
Cor.	Corner
Cse.	Course
Cts.	Centers
C.V.	Check Valve
C.Y.	Cubic Yard
Defl.	Deflection
Det'ls.	Details
H.H.	Handhole
H.P.	Horse Power
H.C.L.	Hydrogen Chloride
H.W.L.	High Water Level
HVAC	Heating Ventilating & Air Conditioning
HW	Hot Water
I.D.	Inside Diameter
In.	Inch
Inv.	Invert Elevation
I.E.	Invert Elevation
Jct.	Junction
Jt.	Joint
Loc.	Location
Lt.	Left
L.W.L.	Low Water Level
Lin. Ft.	Lineal Feet
LF	Lok-Fast
LFPE	Lok-Fast Plain End
LRB	Lok-Ring Bell
LRPE	Lok-Ring Plain
M	Motor
Mat'l.	Material
Max.	Maximum
MCM	Thousand Circular Mils
Meas.	Measurement
Mfg's	Manufacturer's
MGD	Million Gallons Per Day
M.H.	Manhole
Min.	Minimum
M.J.	Mechanical Joint
M.O.	Masonry Opening
Ftg.	Footing
Ga.	Gauge
Gr.	Grade
Galv.	Galvanized
GPM	Gallons Per Minute
GRS	Galvanized Rigid Steel (Conduit)
G.V.	Gate Valve
HB	Hose Bibb
HDPE	High Density Polyethylene
Hks.	Hooks
Horiz.	Horizontal
Ht.	Height
P.S.	Pumping Station
psi	Pounds Per Square Inch
PVC	Polyvinyl Chloride
Qty.	Quantity
R. or Rad.	Radius
R.R.	Railroad
R.C.P.	Reinforced Concrete Pipe
Req'd	Required
R.O.W.	Right-of-Way
Rt.	Right
S.	South
San.	Sanitary
Sch.	Schedule
Sht.	Sheet
Specs.	Specifications
Sq.	Square
S.S.	Stainless Steel
Std.	Standard
Sta.	Station
Stl.	Steel
Str.	Structure
Surf.	Surface
S.W.D.	Sidewater Depth
T	Top
T & B	Top and Bottom
T. or Tel.	Telephone
Thd.	Thread
Thrshld.	Threshold
T.P.	Telephone Pole
T.G.S	Top of Grate
T.O.C.	Top of Concrete
Ty.	Type

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LIST OF 1.03B ABBREVIATIONS CONTD.

N/A	Not Applicable	Typ.	Typical
N.	North	Vert.	Vertical
No.	Number	W.	West
Nom.	Nominal	w/	With
N.T.S.	Not To Scale	W.I.	Wrought Iron
Opng.	Opening	W.H.	Water Heater
O.D.	Outside Diameter	Wt.	Weight
P.E.	Plain End	WF	Wide Flange
Perf.	Perforated	W.L.	Water Level
Pl.	Plate	W.M.	Water Main
P.L.	Property Line	WOG	Water, Oil or Gas
P.P.	Power Pole	W/S or W.S.	Water Stop
Prop.	Proposed	W.W.F.	Woven Wire Fabric

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

(NOT USED)

END OF SECTION 01422

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Requirements for Manufacturer's Services during construction and start-up.

B. Related Sections:

1. Section 01820 – Demonstration and Training.

1.02 SUBMITTALS

A. Submit written authorization from each manufacturer for each manufacturer's authorized representative to include:

1. Name of manufacturer represented.
2. Name of authorized representative.
3. Name of equipment or system for service.
4. Specification section name and number of equipment or system for service.
5. Authorization of named representative by manufacturer.

B. Submit a written report prepared by the manufacturer's authorized representative each manufacturer for each trip to the site that includes:

1. Detailed description of Representative's findings.
2. Installation certification.
3. Detailed record of all inspections.
4. Outline in detail of any and all deficiencies noted.

1.03 MANUFACTURER'S AUTHORIZED REPRESENTATIVE

A. Provide competent and experienced technical, process and construction representatives to represent the manufacturers of the equipment and systems with manufacturer's written authorization as manufacturer's authorized representative.

1.04 SERVICES DURING CONSTRUCTION

A. Manufacturer's authorized representative shall be present on site for as many days as may be necessary to resolve assembly, installation and start-up problems at the worksite which are attributable to, or associated with, the equipment furnished, whether or not specifically set forth in the Technical Specifications.

1.05 STARTUP SERVICES

A. Where plant Startup services are called for in the Technical Specifications, or when technical assistance is necessary due to any malfunction of the equipment or system furnished, the manufacturer's authorized representative shall provide such services. He shall also conduct and/or assist with final performance and demonstration testing, as required Section 01820 – Demonstration and Training, and elsewhere in the Specifications. These services shall continue until such times as the applicable equipment or system has been successfully tested for performance and has been accepted by the Owner for full-time operation.

1.06 MANUFACTURER'S SERVICE FOR EQUIPMENT

A. Provide all manufacturer's service recommended by each manufacturer for all equipment furnished under this contract, whether or not specifically set forth in the technical specifications.

B. Submit, to the Engineer, a written report covering the technician's findings and installation certification by each manufacturer for each trip covering all inspections and outlining in details any deficiencies noted. The Engineer will forward a copy of each report to the Contractor indicating which items are to be acted upon by the Contractor.

C. Provide goods and equipment checkout, calibration, field testing assistance and installation certification for, but not to be limited to, the following portions on the Work:

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION 01435

PART 1 GENERAL

1.01 SUMMARY

A. The Contractor shall provide controls over environmental conditions at the construction site and related areas under the Contractor's control.

B. The Contractor shall remove physical evidence of temporary controls at completion of work or as directed.

C. Requirements for provision and maintenance of temporary utilities during construction period to include:

1. Portable toilets.
2. Payment of all utility, field office telephone, and fuel bills, service charges, and installation charges.
3. Drinking water for Contractor's forces.
4. Non-potable water required for Contractor's work.
5. Work area lighting as required.
6. Safety lighting for barriers and other safety obstacles for work activities under the responsibility or control of Contractor.
7. Electrical costs for all construction tools and equipment.

1.02 RELATED SECTIONS/REQUIREMENTS

A. Division 2 – Sitework.

B. Illinois Urban Manual, A Technical Manual Designed for Urban Ecosystem Protection and Enhancement by the Natural Resources Conservation Service and Illinois Environmental Protection Agency, January 2012 or latest edition.

1.03 TEMPORARY ENVIRONMENTAL CONTROLS

A. Noise Control.

1. All engines and engine driven equipment used for hauling or construction shall be equipped with an adequate muffler in constant operation and properly maintained to prevent excessive or unusual noise.

B. Dust Control.

1. Provide dust control materials to minimize dust from construction operations. Prevent air-borne dust from dispersing into the atmosphere.

C. Water Control.

1. Provide methods to control surface water to prevent damage to the project, the site or adjoining properties.
2. Provide, operate and maintain hydraulic equipment of adequate capacity to control surface water.
3. Dispose of drainage water in a manner to prevent flooding, erosion, silting or runoff of silt or sediment or other damage to all portions of the site or to adjoining areas.
4. Provide methods to control surface and rain water so that water is not allowed into open excavations.

D. Debris Control.

1. Maintain all areas under Contractor's control free of extraneous debris.
2. Initiate and maintain a specific program to prevent accumulation of debris at construction site, storage and parking areas or along access roads and haul routes.

    a. Provide containers for deposit of debris as specified in 01700 - Cleaning.
    b. Prohibit overloading of trucks to prevent spillages on access and haul routes and provide daily inspection of traffic areas to enforce requirements.

3. Schedule collection and disposal of debris as specified in 01700 - Cleaning.

    a. Provide additional collections and disposals of debris whenever regular schedule is inadequate to prevent accumulation.

E. Pollution Control.

1. Provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.
2. Provide equipment and personnel, perform emergency measures required to contain all spillages, and to remove contaminated soils or liquids.
3. Take special measures to prevent harmful substances from entering public waters.

    a. Prevent disposal of wastes, effluents, chemicals or other such substances adjacent to streams, drainage ditches, or in sanitary or storm sewers.

4. Provide systems for control of atmospheric pollutants.

    a. Prevent toxic concentrations of chemicals.
    b. Prevent harmful dispersal of pollutants into the atmosphere.

F. Erosion Control.

1. Obtain and pay for stormwater permits as required by the Illinois Environmental Protection Agency.
2. Plan and execute construction and earthwork in a manner to control surface drainage from cuts and fills, and from soil staging areas, to prevent erosion and sedimentation.
3. The design and implementation of erosion control measures and construction activities in accordance with "ILLINOIS URBAN MANUAL, A Technical Manual Designed for Urban Ecosystem Protection and Enhancement by the Natural Resources Conservation Service and Illinois Environmental Protection Agency," January 2012 or latest edition.

    a. Minimize the areas of bare soil exposed at one time.
    b. Provide temporary control measures such as berms, dikes and drains.
    c. Provide temporary control measures to prevent silting or runoff of silt or sediment from site.

4. Construct fills and waste areas by selective placement to eliminate surface silts or clays which will erode.
5. Periodically inspect earthwork to detect evidence of the start of erosion. Apply corrective measures to control erosion.

1.04 TEMPORARY UTILITIES

A. Description of Utility Systems.

1. Electrical service as required for Contractor's field office.
2. The Contractor shall make necessary arrangements and provide all temporary electric service and lighting required during entire construction period including required fees and permits. Cost of electricity shall be borne by the Contractor. The temporary electric service shall comply with all NEC and OSHA requirements for temporary service.
3. Telephone Service – Coordinate installation with local phone company.
4. Toilets.

    a. Provide temporary toilet facilities for use of all workmen and authorized parties throughout construction period.
    b. Provide a minimum number of approved enclosed combination toilet and urinal units for construction personnel:

        i. For less than 20 employees: 2.
        ii. For 20 or more employees: 3 per 40 workers.

    c. Location:

        i. Obtain Owner's approval.

d. Enclosures for toilet facilities:

i. Weatherproof, sight proof, sturdy temporary enclosures.
ii. Ventilated to meet applicable Federal and State requirements.
iii. For enclosures accommodating two or more persons, provide privacy screens for each toilet fixture.

B. Costs of Installation, Operation, Maintenance and Consumables.

1. Installation, Operation and Maintenance:

a. The Contractor shall make all arrangements necessary and pay all costs associated with permits, fees, the installation, operation, maintenance, restoration and warranty extension of temporary utilities until substantial completion.

2. Consumables:

a. The Contractor shall pay all costs of consumables for temporary utilities until substantial completion.

i. Electrical power.
ii. Telephone charges.
iii. Drinking water.

C. Monitor Temporary Utilities.

1. The Contractor shall be responsible for all damage to his work or to that of other contractors caused by a defect in such utility.

a. Enforce compliance with applicable codes and standards.
b. Enforce safe practices.
c. Prevent abuse of services and utilities.
d. Prevent damage to finishes.

D. Requirements of Regulatory Agencies

1. Request and obtain Owner's prior written authorization to obtain and pay for:

a. Permits and inspections required by governing authorities.

2. Comply with specified codes and regulations:

a. National Electric Code (ANSI C1).
b. National Electrical Safety Code.
c. National Fire Protection Association Pamphlet.
d. Federal and State requirements.
e. Utility company regulations.

PART 2 PRODUCTS

2.01 MATERIALS

A. Materials may be new or used, but shall be adequate for purposes used, shall not create unsafe or unsanitary conditions, nor violate specified codes. Comply with Federal and State regulations.

B. Electrical Power System:

1. Provide and maintain all required facilities, including transformers, poles, conductors, raceways, breakers, fuses and switches.
2. Receptacles, fixtures:

   a. Standard products, meeting UL requirements.
   b. Provide heavy-duty guards on fixtures.
   c. Provide appropriate types of fixtures and receptacles for environment in which used, in accordance with NEC and NEMA standards.

C. Telephone:

1. Coordinate installation with local phone company.

D. Toilets:

1. Equipment: Standard products, meeting code requirements.
2. Toilet Facilities: Self ventilated portable toilets.

   a. Chemical toilets.

PART 3 EXECUTION

3.01 ALL TEMPORARY UTILITIES

A. Comply with Federal and State regulations.

B. Install work in neat and orderly manner.

C. Make structurally, mechanically and electrically sound throughout.

D. Maintain to give safe, continuous service, and to provide safe working conditions.

E. Modify and extend systems as work progress requires.

F. Do not interfere with Owner's operations.

3.02 INSTALLATION

A. Electrical:

1. Do not run branch circuits on ground.
2. Wire all safety devices specified for operation of equipment.
3. Check operation of all safety devices.

B. Telephone:

1. Coordinate installation with local phone company.

C. Toilets:

1. Erect securely, anchor to prevent dislocation.
2. Service as often as necessary to prevent accumulation of wastes, and creation of unsanitary conditions.

D. Contractor's Field Office:

1. See Section 01525 – Field Offices.

3.03 REMOVAL

A. Upon Owner's prior written authorization, completely remove temporary materials and equipment.

B. Repair all damage caused by installation. Restore to original conditions.

END OF SECTION 01500

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDE

A. The Contractor shall provide and maintain a field office located within the facility boundaries shown on the drawings.

1.02 RELATED REQUIREMENTS

A. Specified elsewhere:

1. Section 01110 – Summary of Project.
2. Section 01330 – Submittal Procedures.
3. Section 01500 – Temporary Facilities and Controls.

1.03 DESCRIPTION

A. Construction

1. Structurally sound foundation and superstructure.
2. Weathertight, with raised floors; compatible with occupancy and storage requirements.
3. Temperature transmission resistance: Compatible with occupancy and storage requirements.
4. Exterior finish surfaces: Weather resistant, in neat condition.
5. Interior finishes of offices:

    a. Walls, ceilings: Sheet-type materials, prefinished or painted.
    b. Floors: Resilient floor covering.

6. At Contractor's option, portable buildings or mobile homes may be used for offices.

    a. Mobile homes, when used, shall be modified to convert spaces for office use.
    b. Do not use field offices for living quarters.

B. Trailer for the Owner and Engineer

1. Provide a building separate from Contractor’s office, two entry doors each with lockset and one key per occupant.
2. Area: 224 sq. ft., with minimum dimension of 8 ft. Provide space for project meetings.

    a. Furnishings in meeting area:

i. Portable folding conference table and chairs for at least 6 persons.
ii. Racks and files for project record documents in, or adjacent to, meeting area.

3. Windows

a. Size: 10% of floor area.
b. Operable sash and screens

4. Services

a. Lighting: 50 foot candles at desktop height.
b. Exterior lighting over entrance door.
c. Automatic heating, cooling, to maintain:

i. 68 degrees F. for heating.
ii. 76 degrees F. for cooling.

d. Minimum of eight 120-volt duplex electric convenience outlets, at least one on each wall.
e. Electric distribution panel: Two circuits minimum, providing 120-volt, 60-Hertz service.
f. Water cooler with hot and cold water options and service to provide water containers and removal of empties.
g. Internet connection, high speed. An Ethernet connection shall be required at each of the four workstations.

5. Furnishings

a. Four standard size desks with three drawers.
b. One drafting table, minimum 72 in. wide x 36 in. high x 39 in. off floor, one equipment drawer.
c. One metal, double door storage cabinet under drafting table.
d. One plan rack to hold a minimum of six racks of project drawings.
e. Two standard four-drawer letter-size metal filing cabinets, with locks and keys.
f. Six lineal feet of bookshelves.
g. Four swivel armchairs.
h. One drafting stool.
i. One wastebasket.
j. One tack board, 36 inches x 30 inches.

6. Equipment

a. First aid equipment.
b. One 10-inch outdoor-type mercury thermometer.
c. Fire extinguishers: One standard dry chemical (ABC) type for each office.
d. "Emergency First Aid" sign.
e. Signs for Notices in accord with Federal and State rules and regulations.

C. Contractor's office and facilities

1. Size: Contractor's option. Suitable for specified use.
2. Light and temperature sufficient for Contractor’s use.
3. Telephone: As required by contractor.
4. Furnishings in meeting area.

a. Conference table and chairs for at least six persons.
b. Racks and files for project record documents in, or adjacent to, meeting area.
c. Other furnishings: Contractor's option.
d. Equipment and supplies

i. First aid equipment.
ii. One 10-inch outdoor-type mercury thermometer.
iii. For visitor's use: Six adjustable-band protective helmets.

5. Fire extinguishers

a. One standard dry chemical (ABC) type for each office.

D. Identification

1. Provide a 36 in. x 24 in. sign on each office structure to identify occupants and function.
2. "Emergency First Aid" sign.
3. Signs for Notices in accord with Federal and State rules and regulations.

1.04 REQUIREMENTS OF REGULATORY AGENCIES

A. Comply with Federal and State regulations.

B. Obtain and pay for permits required by governing authorities only on Owner's prior written authorization.

1.05 SUBMITTALS

A. Submit drawings showing:

1. Site areas, locations allocated for offices and storage sheds.

B. Description of construction of all offices and storage sheds.

1.06 JOB CONDITIONS

A. Locate temporary structures where shown on drawings and as approved by Engineer to avoid interference with work.

B. Relocate temporary structures as work progresses.

PART 2 PRODUCTS

2.01 MATERIALS, EQUIPMENT, FURNISHINGS

A. May be new or used, but shall be serviceable, adequate for purpose, and shall not create unsafe conditions or violate specified codes.

PART 3 EXECUTION

3.01 PREPARATION

A. Fill and grade sites for temporary structures to provide drainage.

3.02 INSTALLATION

A. Construct temporary field offices on adequate foundations, with connections for services.

1. Raise portable buildings or mobile homes, when used.
2. Provide steps and landings at entrance doors.

B. Mount thermometer at convenient location, not in direct sunlight.

C. Mount fire extinguishers in prominent locations with clear access to use.

D. Mount sign adjacent to entrance doors of appropriate structures, in conspicuous location.

3.03 MAINTENANCE AND CLEANING

A. Each Contractor is responsible for cleaning, maintaining and keeping their trailer neat, orderly and workmanlike.

3.04 REMOVAL

A. Remove temporary field offices, contents and services, at completion of construction operations, or as directed by Engineer.

B. Remove foundations, debris; grade to indicated elevations and clean area.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. Contractor:

1. Provide and maintain suitable barriers to prevent unauthorized entry into open excavations, and to protect the work, existing facilities and utilities, trees and plants from construction operations.
2. Remove when no longer needed, at completion of the work or as directed

1.02 RELATED SECTIONS

A. Specified elsewhere:

1. Section 01110 – Summary of Project.
2. Division 2.

PART 2 PRODUCTS

2.01 MATERIALS.

A. Materials may be new or used, suitable for purpose. Comply with specified codes.

2.02 FENCING

A. Open mesh fence.

1. Furnish and maintain fencing around the perimeter of all open excavations. The fencing shall be a minimum of 3 feet in height and shall be installed at the end of each work day and when the excavation is left unattended.
2. The fencing shall be held upright with reinforcing bars, steel posts or wooden stakes with the fence securely tied with wire to the bars, posts or stakes.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in a neat and uniform manner.

B. Maintain fences during entire construction period.

C. Relocate fences as construction progresses.

3.02 REMOVAL

A. Remove when authorized by the Engineer.

B. Clean and repair damage caused by installation, fill and grade site areas to indicated elevations and slopes and clean the area.

END OF SECTION 01530

PART 1 GENERAL

1.01 SUMMARY

A. The Contractor shall provide and maintain vehicular access to site and within site.

1.02 RELATED SECTIONS

A. Specified elsewhere:

1. Section 01011 - Site Conditions.

1.03 ROADS AND PARKING AREAS

A. Construct roads, drives, walks and parking facilities to provide uninterrupted access to construction offices, mobilization, work, storage areas and other areas required for execution of the Contract.

1. Location: Where shown on drawings. Consult with Engineer regarding all desired deviations therefrom.
2. Size of parking facilities: Adequate to provide for personnel needs of all contractors.

B. Provide access for emergency vehicles. Maintain driveways a minimum of 15 feet wide between and around combustible materials in storage and mobilization areas.

C. Keep fire hydrants and water control valves free from obstruction and accessible for use.

1.04 EXISTING PAVEMENTS

A. The Contractor shall restore existing roadways which are damaged during the construction activities and as a result of construction activities to their original condition, at no expense to the Owner, and to the satisfaction of the Owner. The Contractor, Engineer and Owner shall inspect the condition of the existing roadways jointly at the pre-construction meeting in order to establish their condition prior to construction activities. The same parties shall inspect and agree to the satisfactory condition of the existing roadways following construction and prior to final acceptance.

B. Use of existing parking facilities for construction personnel or for contractor's vehicles or equipment will not be permitted.

PART 2 RESERVED

PART 3 EXECUTION

3.01 CONSTRUCTION

A. Construction methods at Contractor's option for temporary facilities which will be removed when no longer needed; adequate to provide specified results.

B. Comply with respective specification sections for preparation and construction for work which will become part of permanent construction.

3.02 MAINTENANCE

A. Maintain roads, walks and parking areas in a sound, clean condition. Repair or replace all portions damaged during construction work progress.

3.03 REMOVAL

A. Completely remove temporary materials and construction when construction needs can be met by use of permanent installation or when directed by Engineer.

B. Restore areas to original conditions at completion of work.

END OF SECTION 01550

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: General product requirements that apply to all areas of the Work.

B. Related Sections:

1. Document 00200 – Instructions to Bidders.
2. Document 00700 – General Conditions.
3. Section 01330 – Submittal Procedures.

1.02 BASIC PRODUCT REQUIREMENTS

A. All products provided under this Contract shall be new and of suitable grade for the purpose intended.

B. All products in contact with potable water during normal operation shall be tested and certified by Underwriters Laboratory or NSF International (as an ANSI accredited certifier) against NSF 61: Drinking Water System Components – Health Effects.

C. Submit product data in accordance with Section 01330 – Submittal Procedures for all products. Product data shall be sufficient to clearly demonstrate that the product, material, or equipment described conforms to the intent of the Contract Documents.

D. No products shall contain asbestos materials or lead based paint.

1.03 PRODUCT SUBSTITUTIONS – NOT USED

1.04 PREPARATION FOR SHIPMENT

A. When practical, equipment shall be factory assembled. The equipment parts and assemblies that are shipped unassembled shall be furnished with an assembly plan and instructions. Individual parts and components shall be tagged or otherwise piece-marked and keyed to the assembly plan and instructions. The separate parts and assemblies shall be match-marked or tagged in a manner to facilitate proper field assembly.

B. Generally, machined and unpainted parts subject to damage by the elements shall be protected with an application of a strippable protective coating.

C. Equipment shall be packaged or crated in a manner that will provide protection from damage during shipping, handling, and storage.

D. The outside of the package or crate shall be adequately marked or tagged to indicate its contents by name and equipment number, if applicable; approximate weight; state any special precautions for handling; and indicate the recommended requirements for storage prior to installation.

1.05 RECEIVING

A. The Contractor shall unload and record the receipt of all equipment and materials at the jobsite. Report daily receipts to Engineer in writing.

B. Inspect and accept responsibility of all Owner supplied equipment and materials at the jobsite.

1.06 INSPECTION

A. Immediately upon receipt of equipment and materials at the jobsite, the Contractor shall inspect for completeness and any evidence of damage during shipment. Should there appear to be any damage, notify the Engineer immediately and inform the manufacturers and the transportation company of the extent of damage. If, in the opinion of Engineer and Owner, the item or items require replacing, the Contractor shall take the necessary measures to expedite the replacement at no extra cost to the contract.

B. Inspect materials and equipment for conformation to the Contract Documents and Shop Drawings and notify Engineer of deviations prior to incorporating into the Work.

1.07 HANDLING

A. Handle equipment and materials received for installation on this project in accordance with the manufacturer's recommendations, and in a manner that will prevent damage.

1.08 STORAGE AND LAYDOWN

A. Store equipment and materials prior to installation as recommended by the manufacturer.
B. Store all materials off the ground and out of mud and standing water prior to installation.
C. Store all items subject to the elements, vandalism, or theft such that they are protected and/or secure.
D. Do not store any materials on private property without written permission of the property owner or lessee.

1.09 INSURANCE

A. Refer to the General Conditions for Contractor's insurance requirements for materials delivered but not yet incorporated into the work.

1.10 INVENTORY CONTROL

A. Store equipment and materials in a manner that provides easy access for inspection and inventory control. The Contractor shall keep a running account of all materials in storage to facilitate inspection and to estimate progress payments for materials delivered but not installed in the Work.

1.11 EQUIPMENT MAINTENANCE PRIOR TO OWNER'S ACCEPTANCE

A. The Contractor shall provide the required or manufacturer's recommended equipment maintenance during storage, during installation, and until such time as the Owner accepts the equipment for full-time operation.

1.12 SPARE PARTS

A. Provide spare parts as described in Divisions 3 – 16 of these specifications.

PART 2 PRODUCTS – Not Used.

PART 3 EXECUTION – Not Used.

END OF SECTION 01600

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Procedures and requirements for proposing product substitutions during bidding and construction.
2. General rules and procedures for evaluation of proposed substitutions.

B. Related Requirements:

1. Document 00200 – Instructions to Bidders.
2. Document 00435 – Proposed Product Substitutions.
3. Document 00689 – Substitution Request.
4. Document 00700 – General Conditions.
5. Section 01250 – Contract Modification Procedures.
6. Section 01330 – Submittal Procedures.

C. Unless expressly stated otherwise, proposed product substitutions must meet the specified product requirements including the requirements implied by the proprietary designation of a product that establishes the quality, performance, function, dimension, and appearance of the product specified.

1.02 SUBSTITUTIONS PROPOSED WITH BID

A. List substitutions in Proposal according to Instructions to Bidders.

B. Proposed substitutions will be evaluated in accordance with Instructions to Bidders.

1.03 SUBSTITUTIONS PROPOSED DURING CONSTRUCTION

A. No substitutions shall be considered after Notice of Award except under one or more of the following conditions:

1. Substitutions required for compliance with requirements of governing authority, final interpretations of code requirements, or insurance regulations.
2. Specified product is unavailable or cannot be provided within Contract Time through no fault of Contractor.
3. Subsequent information discloses inability of specified product to perform properly or to fit in designated space.
4. Manufacturer refusal to certify or guarantee performance of specified product as specified.
5. Substitution would be substantially in Owner's best interests.

1.04 SUBSTITUTION REQUIREMENTS

A. Submit Substitution requests in the form and in accordance with procedures required for Change Order Proposals.

B. Submit four (4) copies of each request for substitution for consideration.

C. Request for substitution will be considered if received within sixty (60) days after commencement of work. Requests received more than sixty (60) days after commencement of work may be considered or rejected at discretion of Engineer.

1.05 CONTENTS OF SUBSTITUTION PROPOSAL

A. Complete Substitution Request contained in Section 00689 – Substitution Request. Include information noted below.

B. Include related Specification Section and Drawing numbers.

C. Include complete data substantiating the following:

1. Compliance of proposed substitution with Contract Documents.
2. Conformance of proposed Substitution to requirements specified for product listed in Contract Documents.
3. Equivalence of proposed Substitution to the requirements implied by the proprietary designation of the product listed in the Contract Documents.

D. Include complete product identification, including supplier's and manufacturer's name, address, telephone number, fax number and email address.

E. Include the following manufacturer's literature:

1. Product description.
2. Performance and test data.
3. Reference standards.

F. Include samples when requested or appropriate.

G. Include name and address of similar projects on which product was used and date of installation.

H. Include itemized comparison of proposed substitution with product specified.

I. Include detailed description of changes in construction schedule.

J. Include description of effect of proposed substitution on overall Contract Time.

K. Include description of changes or coordination required.

L. Include accurate cost data on proposed substitution in comparison with product specified, including a proposal of net change, if any, in Contract Sum.

M. Include Certification by Contractor that substitution proposed is equal to or better in every significant respect to that required by Contract Documents, and that it will perform adequately in application indicated.

N. Include Contractor's waiver of rights to additional payment or time, which may subsequently become necessary because of failure of substitution to perform adequately.

1.06 REPRESENTATIONS IMPLIED BY SUBSTITUTION PROPOSAL

A. In making request for Substitution, Contractor represents:

1. Contractor has personally investigated proposed product and determined that it is equal or superior in all respects to the specified product.
2. Contractor shall provide the same guarantee for the Substitution as for the product specified.
3. Contractor shall coordinate installation of accepted substitutions in work, making all changes for work to be complete in all respects.
4. Cost data furnished is complete and includes all related costs under Contract, but excludes:

a. Engineer redesign.
b. Administrative costs of Engineer.

5. Contractor shall pay all additional costs and expenses for Owner and Engineer as required by General Conditions.

B. In listing Substitutions in Proposal, Bidder makes representations equivalent to those listed for Contractor above.

1.07 SUBSTITUTION WILL NOT BE CONSIDERED WHEN:

A. Substitution Proposal does not meet the requirements of this Section.

B. Substitution is indicated or implied on shop drawings or product data submittals without formal request submitted in accordance with this section.

C. Acceptance will require substantial revision of Contract Documents.

D. Request is not directly related to an "or equal" clause or similar language in Contract Documents.

1.08 SUBSTITUTION EVALUATION

A. Within two 2 weeks of receipt of request for substitution, Engineer will request additional information or documentation necessary for evaluation of request.

B. Within two (2) weeks of receipt of request, or receipt of the additional information or documentation, whichever is later, Engineer will notify Contractor of acceptance or rejection of proposed substitution.

C. If a decision on use of a proposed substitute cannot be made or obtained within time allocated, use product specified.

D. Acceptance will be in form of a Work Directive Change or Change Order.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION 01630

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Requirements for site maintenance during progress of the Work and for final cleaning.

B. Related Sections:

1. Section 01110 - Summary of Project.
2. Section 01500 - Temporary Facilities and Controls.
3. Divisions 2 - 16: Cleaning requirements for specific products or work.

1.02 GENERAL

A. At all times maintain areas covered by the Contract, public properties, and adjacent properties free of waste, debris and rubbish caused by construction operations.

B. At completion of work, or at such other times as directed by the Engineer, remove all waste, debris, rubbish, tools, equipment, machinery and surplus materials. Clean all sight-exposed surfaces; leave work clean and ready for occupancy.

C. At completion of project, leave project clean and ready for occupancy.

1.03 QUALITY REQUIREMENTS

A. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

B. Do not burn or bury rubbish or waste materials on project site.

C. Do not dispose of volatile, harmful or dangerous materials into drainage systems or sanitary drains. Do not dispose of wastes into streams or waterways.

D. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.

E. Provide approved on-site containers for collection and disposal of waste materials, debris, and rubbish as required.

F. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

1.04 SAFETY REQUIREMENTS

A. Standards:

1. Maintain project in accordance with following safety and insurance standards:

a. Applicable Federal and State requirements.
b. National Fire Protection Association 241 (NFPA).

B. Hazards Control:

1. Store volatile wastes in covered metal containers separate from other waste and remove from premises every 3 days.
2. Prevent accumulation of wastes which create hazardous conditions.
3. Provide adequate ventilation during use of volatile or noxious substances.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS

A. Select and use all cleaning materials and equipment with care to avoid scratching, marring, defacing, staining or discoloring surfaces cleaned.

B. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 EXECUTION

3.01 DURING CONSTRUCTION

A. During execution of work, clean site and public properties and dispose of waste materials, debris, and rubbish to assure that site and public properties are maintained free from accumulations of waste materials and rubbish.

B. Wet down materials and rubbish to lay dust and to prevent blowing dust.

C. Vacuum interior building areas when ready to receive finish painting and continue vacuum cleaning on an as-needed basis until building is ready for Substantial Completion or Occupancy.

D. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from exposed and semi-exposed surfaces that are the finished surface.

E. Repair, patch, and touch up marred surfaces to specified finish to match adjacent surfaces.

F. Broom clean paved and smooth surfaces; rake clean other surfaces.

G. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.

H. Conduct daily cleanup of adjacent roads as required due to truck traffic and transportation of materials and workers onsite and offsite.

3.02 FINAL CLEANING

A. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

B. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion in accordance with Section 01770 - Closeout Procedures.

1. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
2. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean.
3. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
4. Clean the site, including landscaping development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
5. Remove grease, dust, dirt, stains, labels, fingerprints, protection and other foreign materials from sight-exposed interior and exterior finished surfaces; polish surfaces so designated to specified finish.
6. Repair, patch and touch up marred surfaces to specified finish to match adjacent surfaces.
7. Sweep and mop clean all resilient flooring.
8. Vacuum clean all carpet.
9. Replace air handling (conditioning) filters if units were operated during construction.
10. Vacuum clean ducts, blowers and coils, if air handling (conditioning) units were operated without filters during construction.
11. Maintain finally cleaned areas until project or designated portion thereof, is accepted by Owner.
12. Remove wasted drilling materials and leave the premises in a neat and presentable condition, equal to or better than that prior to the start of the drilling operation.

C. Removal of Protection:

1. Remove temporary protection and facilities installed for protection of work during construction.

D. Compliance:

1. Where extra materials of value remaining after completion of associated work have become Owner's property, arrange for disposition of these materials as directed.

END OF SECTION 01700

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Quality control, submittal, and project record document requirements for Contractor's survey and field engineering.

B. Related Sections:

1. Section 01781 – Project Record Documents.

1.02 QUALITY ASSURANCE

A. Employ a Land Surveyor registered in the State of Illinois and acceptable to Engineer, to perform survey work of this section.

B. Employ a Professional Engineer of the discipline required for specific service on Project, licensed in the State of Illinois.

1.03 SUBMITTALS FOR REVIEW

A. Submit name, address, telephone number and fax number of Surveyor before starting survey work.

B. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

C. On request, submit documentation verifying accuracy of survey work.

D. Submit a copy of site drawing signed by the Land Surveyor that the elevations and locations of the Work are in conformance with Contract Documents.

E. Submit name, address, telephone number and fax number of Engineer before starting field engineering work.

1.04 PROJECT RECORD DOCUMENTS

A. Maintain a complete and accurate log of control and survey work as it progresses.

B. On completion of foundation walls and major site improvements, prepare a certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.

C. Submit Record Documents under provisions of Section 01781 - Project Record Documents.

1.05 EXAMINATION

A. Verify locations of survey control points prior to starting work.

B. Notify Engineer of any discrepancies discovered in accordance with the General Conditions.

1.06 SURVEY REFERENCE POINTS

A. Protect survey control and reference points in accordance with the General Conditions.

B. Control datum for survey is that indicated on Drawings.

C. Electronic copies of the plans (CADD drawings) will be made available to the successful Contractor upon request to facilitate the stake-out of the proposed work. Files will be released to the Contractor upon proper indemnification of the Engineer concerning the use of the drawings.

1.07 SURVEY REQUIREMENTS

A. Provide field engineering services. Utilize recognized engineering survey practices.

1.08 SURVEYS FOR MEASUREMENT AND PAYMENT

A. Perform surveys to determine quantities of unit price work, including control surveys to establish measurement reference lines. Notify Engineer prior to starting work.

B. Contractor's Engineer Responsibilities: Sign surveyor's field notes or keep duplicate field notes and calculate and certify quantities for payment purposes.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION 01725

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Requirements for protecting installed equipment, products, and other components of the Work during construction.

1.02 DEFINITIONS

A. The following definitions shall pertain to the requirements of this section but shall not be taken to contradict or otherwise alter the definition of these terms stated or implied elsewhere in the Contract Documents.

1. Finished Surface shall mean any surface of any component of the Work that is exposed to view during normal operation of the facility.
2. Unfinished Surface shall mean any surface of any component of the Work that is exposed to view during normal operation of the facility and is specified with a surface treatment that has not been applied.
3. Concealed Surface shall mean any surface of any component of the Work that is not exposed to view during normal operation of the facility.
4. Damaged Surface shall mean any finished surface that has been altered by physical or chemical means in such a way that the performance, appearance, durability, or other significant attribute of the specified surface treatment has been affected.
5. Contaminated Surface shall mean any unfinished surface that has been altered by physical or chemical means in such a way that a reasonable chance exists that the performance, appearance, durability, or other significant attribute of the specified surface treatment will be inhibited.
6. Surface Treatment shall mean any application of coating, laminate, paint, sealer, veneer, fabric, wax, polish, or other product specified to enhance the performance, appearance, durability, or other significant attribute of the surface.
7. Surface Damage shall mean any alteration or condition that results in a surface being a damaged surface.
8. Surface Contamination shall mean any alteration or condition that results in a surface being a contaminated surface.

1.03 GENERAL

A. Provide protection to all finished surfaces during shipping, handling, storing, fabricating, erecting, installing, and after installation. Protection shall be adequate to prevent marring, scratching, dulling, staining, abrading, denting, wrinkling, buckling, surface damage.

B. Provide protection to all unfinished surfaces during shipping, handling, storing, fabricating, erecting, installing, and after installation. Protection shall be adequate to prevent any and all surface contamination.

C. Cover, tape, mask, or otherwise shield adjacent surfaces from spills, drips, splashes, spatter, overspray, or other misapplication of paint, coating, sealant, or other liquid products.

D. Submit in writing a detailed description of the means and methods for cleaning and restoring or otherwise correcting damaged surfaces.

E. When requested by Engineer, submit in writing a detailed description of the means and methods for cleaning and restoring or otherwise correcting contaminated surfaces.

F. Normal accumulation of airborne dust particles, that are chemically inert, on a surface during routine construction operations shall not be considered surface damage. Marring, scratching, dulling, staining, or other chemical or physical alteration of a finished surface during cleaning operations shall be considered surface damage.

G. ENGINEER shall make the final determination of whether a surface is a finished, unfinished, concealed, contaminated, or damaged surface.

H. ENGINEER shall make the final determination of the acceptability of any component of the Work subject to cleaning, restoration, or any other correction of a contaminated or damaged surface.

I. Damaged and contaminated surfaces that can not be acceptably cleaned, restored, or otherwise corrected shall be considered defective in accordance with Article 13 of Document 00700 – General Conditions.

J. To prevent permanent transfer of adhesives to finished surfaces, tape, masking, or other adhesive-applied covering products shall not be left in place longer than one week unless Contractor can demonstrate an adhesive removal technique that is acceptable to the Engineer and accepted in writing by the manufacturer of the product or equipment affected.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION 01760

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements for contract closeout.

B. Related Requirements Specified Elsewhere:

1. Section 01110 – Summary of Project.
2. Section 01330 – Submittal Procedures.
3. Section 01700 – Execution Requirements.
4. Section 01781 – Project Record Documents.
5. Section 01782 – Operation and Maintenance Manuals.
6. Divisions 2 – 16: Closeout submittals required in various Sections.

1.02 PRELIMINARY SUBSTANTIAL COMPLETION PROCEDURES

A. Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in request.

1. Prepare list of items to be completed or corrected (Punch List).
2. In Application for Payment that coincides with, or first follows date Substantial Completion is claimed, show 100% completion for portion of work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to Contract Sum.
3. If 100% completion cannot be shown, include a list of incomplete items, value of incomplete construction, and reasons work is not complete.
4. Advise Owner of pending insurance change-over requirements.
5. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
6. Obtain and submit releases enabling Owner unrestricted use of work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
7. Deliver tools, spare parts, extra stock and similar items.
8. Make final change-over of permanent locks and transmit keys to Owner. Advise Owner's personnel of change-over in security provisions.
9. Complete start-up testing of systems and instruction of Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from site, along with construction tools, mock-ups and similar elements.
10. Complete final clean up requirements in accordance with Section 01740 – Cleaning. Touch-up and otherwise repair and restore marred exposed finishes.

1.03 SUBSTANTIAL COMPLETION - INSPECTION PROCEDURES

A. On receipt of a request for inspection, Engineer will either proceed with inspection or advise Contractor of unfilled requirements. Engineer will prepare Certificate of Substantial Completion following inspection or advise Contractor of construction that must be completed or corrected before certificate will be issued.

B. Engineer will repeat inspection when requested and assured that work has been substantially completed.

C. Results of completed inspection will form basis of requirements for final acceptance.

1.04 FINAL ACCEPTANCE - PRELIMINARY PROCEDURES

A. Before requesting final inspection for certification of final acceptance and final payment, complete following. List exceptions in request.

1. Submit final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
2. Submit written declaration that all aspects of contract documents have been complied with.
3. Submit an updated final statement, accounting for final additional changes to Contract Sum.
4. Submit certified copy of Engineer's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.
5. Submit final meter readings for utilities, measured record of stored fuel, and similar data as of date of Substantial Completion, or when Owner took possession of and responsibility for corresponding elements of work.
6. Submit a final liquidated damages settlement statement.
7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
8. Submit Project Record Drawings in accordance with Section 01781 – Project Record Drawings and Section 01330 – Submittal Procedures.
9. Submit Operation and Maintenance Manuals in accordance with Section 01782 – Operation and Maintenance Manuals and Section 01330 – Submittal Procedures.

1.05 REINSPECTION PROCEDURES

A. Engineer will reinspect work upon receipt of notice that work, including inspection list items from earlier inspections, has been completed in accordance with contract documents, except items whose completion has been delayed because of circumstances acceptable to Engineer.

B. Upon completion of reinspection, Engineer will prepare a certificate of final acceptance, or advise Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

C. If necessary, reinspection will be repeated. Contractor pays cost of reinspection over two (2) times.

1.06 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

    a. Project name.
    b. Date.
    c. Name of Engineer and Project Representative.
    d. Name of Contractor.
    e. Page number.

1.07 WARRANTIES

A. Submittal Time: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Partial Occupancy: Not Used

C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2 by 11-inch (215 by 280-mm) paper.

2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

1.08 FINAL APPLICATION FOR PAYMENT - SUBMITTAL ITEMS

A. Application for Payment.

B. Consent of Surety Company to Final Payment.

C. Contractor's Affidavit of Release of Liens.

D. Contractor's Affidavit of Debts and Claims.

E. Final Waivers of Lien from Subcontractors and Suppliers.

F. Duly execute all submittals before delivery to Engineer.

G. Engineer will process final application in accordance with General Conditions.

PART 2 PRODUCTS

2.01 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 EXECUTION

3.01 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

   a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
   b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
   c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
   d. Remove tools, construction equipment, machinery, and surplus material from Project site.
   e. Remove snow and ice to provide safe access to building.
   f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
   g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
   h. Sweep concrete floors broom clean in unoccupied spaces.
   i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
   j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
   k. Remove labels that are not permanent.
   l. Touch and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

      i. Do not paint over “UL” and similar labels, including mechanical and electrical nameplates.

   m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
   n. Replace parts subject to unusual operating conditions.
   o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
   p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
   q. Clean ducts, blowers, and coils if units were operated without filters during construction.

r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

s. Leave Project clean and ready for occupancy.

C. Pest Control (where necessary): Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess material on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01770

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Requirements for preparation of Record Documents (also known as "As-Builts").

B. Related Requirements Specified Elsewhere:

1. Section 01330 – Submittal Procedures: Procedural requirements for Submittals.
2. Section 01770 – Closeout Procedures: Substantial Completion requirements.

1.02 DESCRIPTION

A. Project Record Documents are a complete set of Contract Documents and Drawings prepared by Contractor from a set of Base Documents furnished by Engineer and from Field Sets of Contract Documents.

B. Field Sets of Contract Documents be used for field construction purposes shall be maintained and annotated by the Contractor during construction to record approved changes, additions, addenda, options and deviations and pertinent field notes to Contract Documents.

1.03 SUBMITTALS

A. In accordance with Section 01330 – Submittal Procedures.

B. Submit, at Substantial Completion, one set of Project Record Documents. A Field Set of Contract Documents will not be acceptable.

C. Submit record drawings as follows:

1. Initial Submittal: Submit one set of plots from corrected Record CAD Drawings and one set of marked-up Record Prints. Architect/Engineer will initial and date each plot and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect/Engineer will return plots and prints for organizing into sets, printing, binding, and final submittal.

2. Final Submittal. Submit two sets of marked-up Record Prints. Plot and print each Drawing, whether or not changes and additional information were recorded.

D. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.

E. Record Product Data: Submit one copy of each Product Data submittal.

1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

PART 2 PRODUCTS

2.01 BASE DOCUMENTS

A. Engineer will furnish the Contractor with one (1) set of Contract Drawings (black line prints), one set of Contract Specifications and one set of Contract Addenda to be used in preparation of Record Documents.

2.02 RECORD DOCUMENTS

A. Record Documents shall not be used for field construction purposes.

B. All changes, additions, addenda, options and deviations and pertinent field notes shall be clearly marked using neat ruled lines and legible notes and dimensions as follows.

1. Options and deviations to Contract Documents with red ballpoint pen.
2. All notes, explanations, and sketches with blue ballpoint pen.

C. Maintain on project site, one (1) copy each of the following:

1. Contract Drawings
2. Bid Booklet
3. Interpretations and Supplemental Instructions
4. Addenda
5. Reviewed Shop Drawings
6. Change Orders
7. Other Modifications to Contract
8. Field Test Records
9. All Schedules
10. Correspondence File

2.03 FIELD SETS

A. Field Sets of Contract Documents shall be used for field construction purposes and shall be marked with information required for Project Record Documents.

2.04 INFORMATION TO RECORD

A. Label "PROJECT RECORD DOCUMENTS" in 2" high printed letters on each document.

1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an understandable drawing technique.
c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
d. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
e. Mark important additional information that was either shown schematically or omitted from original Drawings.
f. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Contract Drawings - record actual construction to include but not be limited to the following:

1. Depths of various elements of foundation in relation to floor level.
2. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
3. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
4. Field changes of dimension and detail.
5. Changes made by Change Order.
6. Details not on original contract drawings.

C. Specifications and Addenda - legibly mark up each section to record:

1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
2. Changes made by Change Order or Field Order.
3. Other matters not originally specified.

D. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where Architect/Engineer determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.

1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
2. Consult Architect/Engineer and Project Representative for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

E. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Identification: As follows:

a. Project name.
b. Date.
c. Designation "PROJECT RECORD DRAWINGS."
d. Name of Architect/Engineer and Project Representative.
e. Name of Contractor.

2.05 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Order, Record Product Data and Record Drawings where applicable.

2.06 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.07 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 EXECUTION

3.01 MAINTENANCE

A. Keep record documents up-to-date during progress of the Work by marking any and all changes, additions, addenda, options and deviations and pertinent field notes at the time the work is executed.

B. Indicate on Field Sets all alterations and deviations from original documents known to Each Contractor's and Sub-Contractor's Superintendent on job during course of completion of project.

C. Transfer required information to Record Documents using neat ruled lines and legible notes and dimensions.

3.02 STORAGE

A. Store documents in temporary field office apart from documents used for field construction.

B. Provide files and racks for document storage.

C. Maintain documents in clean, dry legible condition. Protect from deterioration and loss in secure, fire-resistive location.

D. Make documents available during normal working hours for inspection by Engineer and Owner.

3.03 COMPLETION

A. Maintain and store record documents until satisfactory completion of the Contract and submittal of record documents to the Engineer.

B. The contract closeout and final payment under this contract **will not** be finalized and approved until a complete and accurate set of record documents, as described above, have been submitted to the Engineer, reviewed for accuracy and accepted.

END OF SECTION 01781

PART 1 GENERAL

1.01 DESCRIPTION

A. Work Includes:

1. Compile product data and related information appropriate for Owner's maintenance and operation of products provided under Contract.
2. Instruct Owner's personnel in maintenance of products and in operation of equipment and systems.
3. Each Contractor and Sub-Contractor shall prepare copies of Manuals as specified herein and deliver to Engineer.

1.02 SUBMITTALS

A. Form:

1. Manufacturer's standard product or equipment data of same type and form furnished to manufacturer's maintenance personnel.

B. Booklet shall be bound in three-ring-loose-leaf binder with following title lettered on the front, "Record and Information Booklet" and shall include official project title. No sheets larger than 8-1/2" x 11 inches shall be used except sheets that may be neatly folded to 8-1/2 x 11 inches and used as pull-out.

1.03 MANUAL CONTENT

A. Neatly typewritten table of contents for each volume, arranged in systematic order. Follow Project Manual format.

1. Contractor, name of responsible principal, address and telephone number.
2. List of each product required to be included, indexed to volume content.
3. List with each product, the name, address and telephone number of:

a. Subcontractor
b. Maintenance contractor, as appropriate
c. Identify area of responsibility of each
d. Local supply source for parts and replacement

B. Product Data:

1. Include only sheets pertinent to specific product.
2. Annotate each sheet to:

a. Clearly identify specific product or part installed.
b. Clearly identify data applicable to installation.
c. Delete references to inapplicable installation.

C. Drawings:

1. Supplement product data with drawings as necessary to clearly illustrate:

a. Relationship of component parts of equipment and systems.
b. Control and flow diagrams.

2. Coordinate drawings with information in Product Record Documents to assure correct illustration of completed installation.
3. Do not use Project Record Documents as maintenance drawings.

D. Written text, as required to supplement product data for particular installation:

1. Organize in consistent format under separate headings for different procedures.
2. Provide logical sequence of instructions for each procedure.

E. Copy of each warranty, bond and service contract issued.

1. Provide information sheet for Owner's personnel. Give:

a. Proper procedures in event of failure.
b. Instances which might affect validity of warranties or bonds.

F. Emergency instructions.

G. Spare parts list.

1.04 MANUAL FOR MATERIALS AND FINISHES

A. Submit two copies of complete manual in final form.

B. Content for architectural products, applied materials and finishes:

1. Manufacturer's data, giving full information on products.

a. Catalog number, size, composition.
b. Color and texture designations.
c. Information required for re-ordering special-manufactured products.

2. Instructions for care and maintenance.

a. Manufacturer's recommendations for types of cleaning agents and methods.
b. Cautions against cleaning agents and methods detrimental to product.
c. Recommended cleaning and maintenance schedule.

C. Content, for moisture-protection and weather-exposed products.

1. Manufacturer's data, giving full product information.

a. Applicable standards
b. Chemical composition
c. Installation details

2. Instructions for inspection, maintenance and repair.

D. Additional maintenance data requirements - Respective Specification Sections.

E. Provide complete information for products specified in all sections of Specifications.

1.05 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Submit six (6) copies (two for Owner, two for Engineer, two for Contractor) of complete manual in final form.

B. Content, for each unit of equipment and system, as appropriate:

1. Description of unit and component parts.

a. Function, normal operating characteristics and limiting conditions.
b. Performance curves, engineering data and tests.
c. Complete nomenclature and commercial number of all replaceable parts.

2. Operating Procedures:

a. Start-up, break-in, routine and normal operating instructions.
b. Regulation, control, stopping, shut-down and emergency instructions.
c. Summer and winter operating instructions.
d. Special operating instructions.

3. Maintenance procedures:

a. Routine operations.
b. "Trouble-shooting" guide.
c. Disassembly, repair and reassembly.
d. Alignment, adjusting and checking.

4. Servicing and lubrication schedule:

    a. List of required lubricants.

5. Manufacturer's current printed operating and maintenance instructions.
6. Description of sequence of operation by control manufacturer.
7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.

    a. Predicted life of parts subject to wear.
    b. Items recommended to be stocked as spare parts.

8. As-installed control diagrams by control manufacturer.
9. Each contractor's coordination drawings.

    a. As-installed color-coded piping diagrams.

10. Charts of valve tag numbers, with location and function of each valve.
11. List of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.
12. Other data as required in pertinent specification sections.

C. Content, for each electric and electronic system, as appropriate:

1. Description of system and component parts:

    a. Function, normal operating characteristics and limiting conditions.
    b. Performance curves, engineering data and tests.
    c. Complete nomenclature and commercial number of replaceable parts.

2. Circuit directories of panelboards.

    a. Electrical service
    b. Controls
    c. Communications

3. As-installed color-coded wiring diagrams.
4. Operating procedures:

    a. Routine and normal operating instructions.
    b. Sequences required.
    c. Special operating instructions.

5. Maintenance procedures:

    a. Routine operations.
    b. "Trouble-shooting" guide.
    c. Disassembly, repair and reassembly
    d. Adjustment and checking.

6. Manufacturer's current printed operating and maintenance instructions.
7. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
8. Other data as required in pertinent specification sections.

D. Prepare and include additional data when need for such data becomes apparent during instruction of Owner's personnel.

E. Additional requirements for operating and maintenance data - respective Specification Sections.

F. Provide complete information for products specified in:

1. Plumbing Systems
2. Power or Heat Generation
3. Refrigeration
4. Liquid Heat Transfer
5. Air Distribution
6. Controls and Instrumentation
7. Motors (Electrical)
8. Power Transmission
9. Service and Distribution
10. Lighting
11. Special Systems
12. Controls and Instrumentation
13. Division 11 - Equipment

1.06 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
3. Gas leak.
4. Water leak.
5. Power failure.
6. Water outage.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

1.07 SUBMITTAL SCHEDULE

A. Submit two copies of draft of proposed formats and outlines of contents 30 business days prior to Substantial Completion.

1. Engineer will review draft and return one copy with comments within five business days after receipt.

B. Submit one copy of completed data in final form 15 business days prior to Substantial Completion.

1. Copy will be returned within five business days after Substantial Completion, with comments.

C. Submit specified number of copies of approved data in final form at least 10 business days before final acceptance or approval.

1.08 INSTRUCTION OF OWNER'S PERSONNEL

A. Prior to final inspection or acceptance, fully instruct Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of all products, equipment and systems.

B. Arrange for each installer of equipment that requires regular maintenance to meet with Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives.

Include a detailed review of the following items:

1. Maintenance manuals.
2. Record documents.
3. Spare parts and materials.
4. Tools.
5. Lubricants.
6. Fuels.
7. Identification systems.
8. Control sequences.

9. Hazards.
10. Cleaning.
11. Warranties and bonds.
12. Maintenance agreements and similar continuing commitments.

PART 2 PRODUCTS

Not Applicable.

PART 3 EXECUTION

3.01 MANUAL PREPARATION

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.

B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

C. Manual for Materials and Finish: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.
2. Comply with requirements of newly prepared Record Drawings in Division 1 Section "Project Record Documents."

G. Comply with Division 1 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01782

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Requirements for starting and adjusting equipment and products during construction.

B. Related Sections:

1. Section 00685 – Pipeline Pressure Testing Record
2. Section 01435 – Manufacturer's Services.
3. Section 01820 – Demonstration and Training.

1.02 GENERAL

A. Provide starting and adjusting as required by specification sections for particular equipment and systems and as required below. Conduct thorough and systematic performance test of each element of the Work.

1. Division 2 – Site Work
2. Division 3 - Concrete
3. Division 11 - Equipment.
4. Division 13 – Special Construction
5. Division 14 – Conveying Systems
6. Division 15 - Mechanical.
7. Division 16 - Electrical.

B. Conduct thorough and systematic performance test of each element of the Work.

C. Conduct starting, adjusting, and testing in accordance with manufacturer's instructions and applicable industry standards.

D. Provide manufacturer's services for starting and adjusting as required by Section 01435 – Manufacturer's Services.

E. Complete satisfactory pressure testing of piping prior to starting hydraulic systems.

F. Preliminary starting, adjusting, and testing of chemical feed equipment shall be with potable water as the pumped fluid. Final starting, adjusting, and testing shall use chemicals furnished by Owner.

G. Owner will furnish potable water for starting, adjusting, and testing to the water piping installed under this contract.

1.03 SUBMITTALS

A. Submit a written report in accordance with Section 01330 – Submittal Procedures that equipment or system has been properly installed and is functioning correctly.

1.04 COORDINATION

A. Coordinate starting and adjusting with requirements of Section 01820 – Demonstration and Training.

B. Notify Owner thirty (30) days in advance of providing disinfection chemicals for starting and testing of chemical feed systems.

B. Notify Engineer ten (10) days in advance of starting or testing equipment or systems.

1.05 STARTING

A. Prior to starting, verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.

B. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

C. Verify that wiring and support components for equipment are complete and tested.

D. Start and adjust liquid chemical feed systems with potable water. Verify and demonstrate satisfactory operation of chemical feed system through entire operating range prior to draining water and filling system with chemical.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 GENERAL

A. Satellite treatment facility components that comprise the treatment process will require start-up and testing using water.

B. Unless otherwise directed by the Owner, Contractor shall use the potable water source supplying the site. Depending on the piece of equipment being started-up or tested, as well as permission from the Owner and Engineer, Contractor may use water from Riley Creek to supplement or speed up filling of structures.

C. The nature of the equipment being started-up or tested will dictate the quality of water required. Potable water shall be reused and not be wasted.

3.02 PREPARATION

A. Contractor shall have completed all of the aforementioned test preparation and coordination prior to initiating start-up and testing.

B. Contractor shall notify the Owner and Engineer of his intent to begin start-up and testing.

C. Contractor shall prepare a plan that details the means and methods for start-up and testing of the satellite treatment facilities and submit it to the Owner and Engineer for review and approval. Contractor's plan shall utilize site efficiencies and reuse of the potable water, where possible, using the installed equipment on site.

3.03 EXECUTION

A. Tables A1 and A2 below outline the required start-up and testing applicable to each of the treatment components. Contractor shall prepare a start-up and testing plan utilizing the information in the table below.

Table A1

TREATMENT COMPONENT	MECHANICAL START-UP	PROCESS START-UP	TESTING	WATER SOURCE
Conveyance Sewer Pipe & Manholes	Not Applicable	Not Applicable	Leakage: Hydrostatic	Potable Water
Screen Structure	Screen Travel	Not Applicable	Leakage: Hydrostatic	Potable Water
First Flush Tank	Mixers and Air Diffusers	Not Applicable	Leakage: Hydrostatic	Potable Water
Influent Pump Station: wet well	Pumps	Flow & Head	Leakage: Hydrostatic	Potable Water
Influent Pump Station: head box	Not Applicable	Not Applicable	Leakage: Hydrostatic	Potable Water
Swirl Concentrator	Not Applicable	Removal Efficiency With Surface Water	Leakage: Hydrostatic	Potable Water
Disinfection Tank	Not Applicable	Not Applicable	Leakage: Hydrostatic	Potable Water
Foul Sewer Pump Station: wet well	Pumps	Flow & Head	Leakage: Hydrostatic	Potable Water
Foul Sewer Pump Station: head box	Not Applicable	Not Applicable	Leakage: Hydrostatic	Potable Water
Plant Water Pump Station	Booster Pumps	Flow & Head	Backflow Preventer	Potable Water
Plant Water Piping	Not Applicable	Not Applicable	Leakage: Hydrostatic	Potable Water
Chemical Feed Equipment	Metering pumps, ejectors	Flow & Backpressure	Feed piping, Gas Tubing, Leak Detection	Potable Water
Process Piping	Not Applicable	Not Applicable	Leakage: Hydrostatic	Potable Water

Table A2

TREATMENT COMPONENT	APPROXIMATE VOLUME, GALLONS	APPROXIMATE FILL ELEVATION	TEST STANDARD, % ALLOWABLE
Screen Structure	84,000	686.0	0.075% loss/day
First Flush Tank	2,162,000	683.0	0.05% loss/day
Influent Pump Station: wet well	42,000	687.0	0.075% loss/day
Influent Pump Station: head box	3,000	688.0	0.075% loss/day
Swirl Concentrator	23,000	688.0	0.075% loss/day
Disinfection Tank	181,000	687.0	0.05% loss/day
Foul Sewer Pump Station: wet well	11,000	688.0	0.05% loss/day
Foul Sewer Pump Station: head box	1,200	688.0	0.05% loss/day
Plant Water Pump Station	44	Not Applicable	0.075% loss/day
Plant Water Piping	1,500	Not Applicable	240 gallons/inch diameter/mile/day
Chemical Feed Equipment	40	Not Applicable	0.075% Loss/day
Process Piping	27,000	Not Applicable	240 gallons/inch diameter/mile/day

B. Reinforced concrete structures and tanks shall be filled slowly (no greater than 4 foot / 1 hour) so that if there are any structural defects, they are identified and the filling process stopped to address the defect. Structures to be filled and tested shall be full of water for at least 72 hours before calculating a % loss.

C. Contractor shall document the filling, start-up, testing and draining of structures and tanks using the Hydrostatic Leakage Testing Record For Structures form provided.

D. Contractor shall document the filling, start-up, testing and draining of pipelines using the Pipeline Pressure Testing Record form provided.

HYDROSTATIC LEAKAGE TESTING RECORD FOR STRUCTURES

RILEY CREEK CSO SATELLITE TREATMENT FACILITY

DATE:_____ RECORD NO._____

Treatment Component:_____

Location & Description:_____

Component Dimensions:_____

Component Surface Area:_____

Testing Water Volume:_____ Gallons

Specification Fill Elevation:_____ Feet

Actual Fill Elevation:_____ Feet

Test Started (Full Structure)_____ (Time and Date)

Test Completed:_____(Time and Date)

Duration (minimum 72 hours): _____ Elevation Drop_____

Allowable % Loss / Day (Table A2):_____

% Loss / Day Calculation:_____

Test: Pass/Fail_____

Witness By:_____ Date:_____
Owner (Authorized Signature)

Title:_____ For: City of Mattoon
(Owner)

Witness By:_____ Date:_____
Contractor (Authorized Signature)

Title:_____ For:_____
(Contractor's Name)

Description of Repairs Made: See Reverse Side

General Comments: See Reverse Side

Distribution: Owner, CMT, Contractor, Sub-Contractor, _____

Description of Repairs Made:

General Comments:

PIPELINE PRESSURE TESTING RECORD

RILEY CREEK CSO SATELLITE TREATMENT FACILITY

DATE:_____ RECORD NO._____

Plant Location:_____

Pipe Line Tested (Service):_____

Location & Description:_____

Pipe Size & Materials:_____

Length of Pipe Line Tested:_____

Operating Pressure:_____ PSIG

Specification Test Pressure:_____ PSIG

Actual Test Pressure:_____ PSIG

Testing Material (Water, Air, etc.):_____

Test Started:_____ Pressure:_____ PSIG

Test Completed:_____ Pressure:_____ PSIG

Duration: _____ Pressure: Rise/Drop_____ PSIG

Test: Pass/Fail_____

Witness By:_____ Date:_____
Owner (Authorized Signature)

Title:_____ For: City of Mattoon
(Owner)

Witness By:_____ Date:_____
Contractor (Authorized Signature)

Title:_____ For:_____
(Contractor's Name)

Description of Repairs Made: See Reverse Side

General Comments: See Reverse Side

Distribution: Owner, CMT, Contractor, Sub-Contractor, _____

Description of Repairs Made:_____

General Comments:

END OF SECTION 01817

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Requirements for demonstration of operation and training of Owner's personnel for equipment, systems, and complete Work.

B. Related Sections:

1. Section 01400 – Quality Requirements
2. Section 01435 - Manufacturer's Service: Services provided by Manufacturer prior to and during starting and adjusting.
3. Section 01782 - Operation and Maintenance Manuals: Preliminary O&M manual requirements
4. Section 01817 - Starting and Adjusting.

1.02 SUBMITTALS

A. For each equipment or system provided, submit approval of formal training procedure by equipment or system manufacturer or authorization of instructor by equipment or system manufacturer.

B. Submit schedule of demonstration and training sessions.

1.03 COORDINATION

A. Coordinate demonstration and training with Owner.

B. Coordinate demonstration and training with equipment and system manufacturers.

C. Coordinate demonstration and training with Startup procedures as required by Section 01817 – Starting and Startup.

1.04 TRAINING

A. Provide training as required by specification sections for particular equipment and systems and as required below.

B. Provide formal training by manufacturer's authorized instructor or as approved by manufacturer for all systems and equipment.

C. Provide preliminary O&M Manuals as required by Section 01785 - Operation and Maintenance Manuals to serve as the basis for training.

D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

E. Provide training to Owner's personnel selected by Owner (not to exceed 10 persons).

1.05 DEMONSTRATION

A. Provide demonstration as required by specification sections for particular equipment and systems and as required below.

B. For all equipment and systems, demonstrate compliance with the requirements of the Contract Documents, start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment to Engineer and Owner's personnel.

C. Demonstrate operation and maintenance of Products to Owner's personnel two (2) weeks prior to date of final inspection.

D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

1.06 QUALITY ASSURANCE

A. Facilitator Qualifications: RESERVED

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 1 Section "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Photographer Qualifications: RESERVED

D. Preinstruction Conference: Conduct conference at Project site to review methods and procedures related to demonstration and training including, but not limited to, the following:

1. Inspect and discuss locations and other facilities required for instruction.
2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
3. Review required content of instruction.
4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.07 COORDINATION

A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Engineer.

PART 2 PRODUCTS

2.01 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training for each system and equipment not part of a system, as required by individual Specification Sections, and as follows:

1. Motorized doors, including overhead coiling doors, overhead coiling grilles, and automatic entrance doors.
2. Equipment, including screens, pumps, valves, gates, and mixers.
3. Conveying systems, including cranes.
4. Laboratory equipment, including laboratory air and vacuum equipment and piping.
5. HVAC systems, including air-handling equipment, air distribution systems and terminal equipment and devices.
6. HVAC instrumentation and controls.
7. Electrical service and distribution, including transformers, switchboards, panelboards, uninterruptible power supplies and motor controls.
8. Packaged engine generators, including transfer switches.
9. Lighting equipment and controls.
10. Communication systems, including intercommunication, surveillance, clocks and programming, voice and data and television equipment.

B. Training: Develop a learning objective and teaching outline for each section of the training. Include a description of specific skills and knowledge that participant is expected to master. Include instruction for the following:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:

   a. System, subsystem, and equipment descriptions.
   b. Performance and design criteria if Contractor is delegated design responsibility.
   c. Operating standards.
   d. Regulatory requirements.
   e. Equipment function.
   f. Operating characteristics.
   g. Limiting conditions.
   h. Performance curves.

2. Documentation: Review the following items in detail:

   a. Emergency manuals.
   b. Operations manuals.
   c. Maintenance manuals.

d. Project Record Documents.
e. Identification systems.
f. Warranties and bonds.
g. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable.

a. Instructions on meaning of warnings, trouble indications, and error messages.
b. Instructions on stopping.
c. Shutdown instructions for each type of emergency.
d. Operating instructions for conditions outside of normal operating limits.
e. Sequences for electric or electronic systems.
f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:

a. Startup procedures.
b. Equipment or system break-in procedures.
c. Routine and normal operating instructions.
d. Regulation and control procedures.
e. Control sequences.
f. Safety procedures.
g. Instructions on stopping.
h. Normal shutdown instructions.
i. Operating procedures for emergencies.
j. Operating procedures for system, subsystem, or equipment failure.
k. Seasonal and weekend operating instructions.
l. Required sequences for electric or electronic systems.
m. Special operating instructions and procedures.

5. Adjustments: Include the following:

a. Alignments.
b. Checking adjustments.
c. Noise and vibration adjustments.
d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:

a. Diagnostic instructions.
b. Test and inspection procedures.

7. Maintenance: Include the following:

a. Inspection procedures.
b. Types of cleaning agents to be used and methods of cleaning.

c. List of cleaning agents and methods of cleaning detrimental to product.
d. Procedures for routine cleaning.
e. Procedures for preventive maintenance.
f. Procedures for routine maintenance.
g. Instruction on use of special tools.

8. Repairs: Include the following:

a. Diagnosis instructions.
b. Repair instructions.
c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
d. Instructions for identifying parts and components.
e. Review of spare parts needed for operation and maintenance.

PART 3 EXECUTION

3.01 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training. Assemble training sections into a combined training manual.

B. Set up instructional equipment at instruction location.

3.02 INSTRUCTION

A. Facilitator: RESERVED

B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Engineer will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
2. Owner will furnish an instructor to describe Owner's operational philosophy.
3. Owner will furnish Contractor with names and positions of participants.

C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with Owner through Project Representative with at least seven day's advance notice.

D. Evaluation: At conclusion of each training section, assess and document each participant's mastery of information.

E. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

3.03 DEMONSTRATION AND TRAINING VIDEOTAPES (RESERVED)

END OF SECTION 01820

SPRINGFIELD METRO SANITARY DISTRICT
SUGAR CREEK WASTEWATER TREATMENT PLANT

DIVISION 2 – SITE WORK

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PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Requirements of the contract regarding differing subsurface conditions.

1.02 SOIL REPORT

A. Soil borings have been taken throughout the project area. Copies of the boring logs and associated soil reports with any amendments will be provided electronically with the Contract Documents. Soil boring reports are titled:

Midwest Engineering and Testing, Inc. – Champaign, IL
Subsurface Exploration and Geotechnical Evaluation
Proposed Riley Creek CSO Satellite Treatment Facility
Mattoon, Illinois
MET Project No. 33075
&
Midwest Engineering and Testing, Inc. – Champaign, IL
Subsurface Exploration and Geotechnical Evaluation
Proposed Riley Creek CSO Satellite Treatment Facility – New Conceptual Layout
Mattoon, Illinois
MET Project No. 33075.1R1

B. The soil borings and reports do not relieve the Contractor of his responsibility to take additional borings as he deems appropriate to determine the subsurface conditions that will be encountered or to assume the risk of encountering conditions which may not be consistent with the available borings. The Engineer and Owner do not assume any responsibility for the accuracy or adequacy of the soil borings. Contractor will bear all costs associated with any additional subsurface investigations that he deems necessary to determine subsurface conditions.

1.03 SOIL BORINGS

A. The soil borings cannot reveal all conditions that exist on the site and do not relieve the Contractor of his responsibility to take additional borings as he deems appropriate to determine the subsurface conditions that will be encountered or to assume the risk of encountering conditions that may not be consistent with the available borings.

B. The Contractor will be responsible for all costs associated with additional subsurface investigations.

C. The recommendations described in the soil report shall not be construed as a requirement of this bid package, unless specifically referenced in the Specifications.

1.04 DIFFERING SUBSURFACE CONDITIONS

A. In the event subsurface or latent physical conditions are found materially different from those indicated in these Documents, and differing materially from those ordinarily encountered and generally recognized as inherent in the character of work covered in these Contract Documents, the Contractor shall promptly, and before such conditions are disturbed, notify the Engineer in writing of such changed conditions.

B. The Engineer will investigate such conditions promptly and following this investigation, the Contractor shall proceed with the work, unless otherwise instructed by the Engineer. If the Engineer finds that such conditions materially differ and cause an increase or decrease in the cost of, or in the time required for performing the work, the Engineer will recommend to the Owner the amount of adjustment in cost and time he considers reasonable. The Owner will make the final decision on all change orders to the contract regarding any adjustment in cost or time for completion.

END OF SECTION 02010

PART 1 GENERAL

1.01 DESCRIPTION OF THE WORK

A. Included in this section is the grubbing and stripping of any topsoil and vegetation from the construction site as specified and as required to conduct the Work under this Contract.

1.02 RELATED WORK

A. Section 02316 – Excavating
B. Section 02317 – Backfilling and Compacting
C. Section 02370 – Erosion Control
D. Section 02920 – Topsoil
E. Section 02936 – Seeding

1.03 SUBMITTALS

A. No submittals are required in this section.

PART 2 PRODUCTS OR MATERIALS

Not Applicable.

PART 3 EXECUTION

3.01 STRIPPING TOPSOIL

A. Stripping of any vegetation and topsoil is required. Topsoil shall be removed from all building and pavement areas a minimum of 5 feet, in all directions, beyond the limits of construction. Any area used as a source of fill should also be stripped of topsoil. Stripping depth shall be a minimum of 6". Additional stripping depth may be required to adequately remove vegetation and heavily organic soils. The Contractor shall stockpile topsoil to be used when the site construction is complete. Contractor shall indicate to the Engineer the areas of topsoil stockpile(s) for approval prior to commencing work.

3.02 DISPOSAL

A. Disposal of removed material will be the Contractor's responsibility and shall be disposed of off-site in an environmentally friendly, legal and safe manner at no additional cost to the Owner.

END OF SECTION 02100

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Maintaining excavations in a dewatered state to facilitate construction. Work in this section shall be performed in conjunction with that specified in Section 02160 – Excavation Support System. It is the intent that the dewatering system is to compliment excavation support system.

B. For the purpose of this section, the following definitions shall apply:

1. Dewatering is defined as lowering of ground water to ensure stable, firm working conditions and reduction to safe levels of any hydrostatic uplift pressures in any confined foundation strata and/or aquifers which is necessary to ensure stability and integrity of foundation.
2. Dewatering system is defined as machinery, equipment and appurtenances necessary for and related to accomplishment of dewatering, and collection and disposal of all surface water within the protected area.

1.02 RELATED SECTIONS

A. Section 01500 – Temporary Facilities and Controls.
B. Section 02010 – Subsurface Investigation.
C. Section 02160 – Excavation Support System.
D. Section 02305 – Utility Excavation and Backfill.
E. Section 02316 – Excavating.
F. Section 02317 – Backfilling and Compacting.
G. Section 02370 – Erosion Control and SWPPP
H. Division 3 – Concrete.

1.03 REFERENCE TO STANDARDS

A. Occupational Safety and Health Administration (OSHA): Contractor shall note the OSHA requirements for excavations, particularly requirements set forth in Federal Register, Tuesday, October 31, 1989, 29 CFR Part 1926. Compliance with this publication and any other OSHA excavation requirements is the Contractor's responsibility only.

1.04 SYSTEM DESCRIPTION

A. Dewatering System

The dewatering/support system shall be of a type and capacity to accomplish all requirements specified herein.

1. The water level shall be maintained continuously so that construction operations can be performed without interruption due to wet conditions.

2. The dewatering system shall be designed, constructed, and operated at all times so as to prevent movement of adjacent structures, foundations, excavation slopes, and backfill materials.
3. The dewatering systems shall consist of wells, pumps, sumps, ditches, and necessary appurtenances capable of intercepting seepage before it exits on any interior surface or excavation face and of providing control of interior (excavation) surface water. The system shall be operated as required in paragraph 1 above to prevent damage to the work. Protection of all slopes will be required to prevent erosion under normal surface runoff and construction conditions.
4. Power for the dewatering system shall be supplied in accordance with Section 01500 – Temporary Facilities and Controls. The Contractor shall furnish diesel or gasoline fueled portable electric generators for standby power for all pumps in service at the site.

1.05 SUBMITTALS

A. Submit under the provisions of Division 1, Section 01330 – Submittal Procedures.

B. Shop Drawings: Drawings and complete design data showing proposed methods and equipment to be utilized in dewatering, retention of excavation slopes, and in maintaining the excavation in a dewatered condition shall be submitted to the Engineer for review within sixty (60) calendar days after receipt of Notice to Proceed or thirty (30) days minimum prior to installation. The data to be submitted shall include, but not necessarily be limited to, the following:

1. Drawings indicating the location and size of all equipment.
2. Capacities of pumps, prime movers, and standby equipment.
3. Design calculations proving adequacy of system and selected equipment.
4. Detailed description of dewatering procedure, maintenance, and plan for monitoring operation of the systems.

C. The Engineer's review and comment on the as-submitted plan or revised plan shall not be interpreted as the Owner or the Engineer accepting responsibility for the performance of the dewatering system and shall not relieve the Contractor of full responsibility for the proposed design, installation, maintenance, operation, and actual performance of both the individual system components and the entire system.

D. Submittals required for the excavation support system shall be submitted per Section 02160 – Excavation Support System. The plan for excavation will be reviewed concurrently with the dewatering submittal.

1.06 QUALIFICATIONS

A. The design of the dewatering system, supervision of the installation and supervision of the construction operations associated with deep excavation shall be made by qualified individual(s) in this type of work.

B. Design for the dewatering system associated with the temporary excavation support system shall be performed by or under the direction of a Licensed Professional Engineer, registered in the State of Illinois (Designer of Record). The design drawings and associated calculations for the dewatering system shall bear the seal of the Licensed Professional Engineer, registered in the State of Illinois. There shall be no exceptions to this requirement.

1.07 QUALITY ASSURANCE

A. Once installed and tested, the Contractor shall establish and maintain quality control for all dewatering operations to assure compliance with contract requirements.

1.08 MAINTENANCE SERVICE

A. If, during the progress of work, installed dewatering system proves inadequate to meet the requirements specified, the Contractor shall, at his expense, furnish, install, and operate such additional dewatering facilities and/or make such changes, either in features of system or plan of operation, as may be necessary to perform required dewatering in a satisfactory manner. Such changes and additions shall be submitted in writing to Engineer prior to being made.

PART 2 PRODUCTS – Not Applicable.

PART 3 EXECUTION

3.01 EXAMINATION (RESERVED)

3.02 PREPARATION (RESERVED)

3.03 DEWATERING

A. Design

1. Design, furnish, install, operate and maintain such facilities necessary to accomplish the following:

   a. Protect excavation walls and/or side slopes as well as existing and new construction adjacent to excavation areas.
   b. Collect and dispose of all surface water in the protected area regardless of source.
   c. Control and dispose of all surface water around the periphery of the excavation area to prevent such water from entering the excavation.

2. The design, installation, construction sequence, and operation of different items of work shall be such that there shall be no loss of ground from the bottoms of excavations or around the areas of construction. The excavations shall remain dewatered as specified until backfilled to the original surface or proposed grade.

B. Damage Restitution

1. The Contractor shall be responsible for and shall repair without cost to the Owner, any damages to work in place, other contractor's equipment, existing facilities, temporary berms, and excavation, including damage to the bottom of the excavation, including removal of material and pumping out of the excavated area, that may result from his negligence, inadequate or improper design and operation of the dewatering system, any mechanical or electrical failure of the dewatering system, or flooding for any other reason.

C. Operation

1. The Contractor will be required to perform such dewatering and to maintain the work areas in a dry condition as long as is necessary for the work to be completed under this contract. Once an area is dewatered, it shall be maintained in a dewatered condition until all work in that area is completed and the excavation is backfilled to the original surface or proposed grade.

D. Control of Water

1. The Contractor shall control, by acceptable means, all water regardless of source. The site shall be graded such that all surface drainage shall be away from excavation areas. All access roads in the vicinity of the excavations shall be constructed so as to prevent surface drainage into the excavations. Discharge from wellpoints or dewatering wells shall be at approved locations so as not to damage existing facilities or new construction. The Contractor shall be fully responsible for the disposal of the water and shall provide all necessary means to accomplish this at no additional cost to the Owner.

E. Maintenance and Service

1. The Contractor shall be responsible for the maintenance, service, and repairs of the entire dewatering system and appurtenances during the life of the Contract, including replacement of any and all wells and wellpoints found performing unsatisfactorily.
2. System maintenance shall also include periodic operation of standby equipment previously described in this Specification, and any other work required by the Contractor to maintain the excavations in a dewatered state. Dewatering by whatever means shall be a continuous operation and interruptions due to outages, below freezing temperatures, or any other reason shall not be permitted.

F. Discontinuing Operation of Dewatering Systems

1. The Contractor shall maintain the dewatering system in each area in operation until work in the area being dewatered has been completed.

END OF SECTION 02140

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Support and maintain excavations as required for construction of structures and all other excavations as deemed necessary by the Contractor.

B. Support existing pipes during excavating and construction.

C. For the purpose of this section, the following definition shall apply:

1. Excavation Support System is defined as methods of stabilizing the excavation slopes for the construction of the various facilities.

1.02 RELATED SECTIONS

A. Section 02140 – Dewatering
B. Section 02316 – Excavating
C. Section 02317 – Backfilling and Compacting

1.03 REFERENCE TO STANDARDS

A. American Safety for Testing and Materials (ASTM):

1. ASTM A-328 Standard Specification for Sheet Piling.

B. Occupational Safety and Health Administration (OSHA): Contractor shall note the OSHA requirements for excavations, particularly requirements set forth in Federal Register, Tuesday, October 31, 1989, 29 CFR Part 1926. Compliance with this publication and any other OSHA excavation requirements is the Contractor's responsibility only.

1.04 PERFORMANCE REQUIREMENTS

A. Design, provide, monitor, and maintain an anchored and braced excavation support and protection system capable of resisting soil and hydrostatic pressure and supporting sidewalls of excavations.

1. Work includes removing excavation support and protection systems when no longer needed.
2. Prevent surface water from entering excavations by grading, dikes, or other means.
3. Install excavation support and protection systems without damaging existing buildings, pavements, and other facilities adjacent to excavation.

1.05 SUBMITTALS

A. Submit under the requirements of General Requirements, Section 01330 – Submittal Procedures.

B. Shop Drawings: Prepare and furnish shop drawings to the Engineer for review within sixty (60) calendar days after receipt of the Notice to Proceed or 30 days minimum prior to installation. The Contractor shall be responsible for the correctness and accuracy of the shop drawings. Shop drawings shall include but not be limited to the following items:

1. A general layout plan showing location of each temporary excavation support system, top and bottom of support system and location of existing and new nearby utilities and structures.
2. The dewatering system and temporary excavation support system shall be designed to work in concert.
3. Drawings and calculations shall show the proposed design, method of excavation support and other details left open to choice. The Designer of Record shall furnish with the drawings and computations, detailed specifications or special conditions associated with the design.
4. If required, the temporary excavation support system shall consist of engineered structural components consisting of standard sheet pile sections, structural steel sections, structural timber members, reinforced concrete sections or a combination of the above.
5. Provide details of any standard fabricated sections that are to be used.
6. Bracing scheme (if any) and associated details, including member sizes, locations, spacing, placement and removal sequences.
7. The Designer of Record must review any shop drawing submittals associated with the design and provide written evidence of satisfactory review prior to submitting such drawings to the Owner for review.
8. Provisions for removal of the temporary excavation support system shall be given.

C. The Engineer's review and comment on the as-submitted support system shall not be interpreted as the Owner or Engineer accepting responsibility for the performance of the Excavation Support System and shall not relieve the Contractor of <u>full</u> responsibility for the proper design, installation, maintenance operation and actual performance of both the individual system components and the entire system.

D. Review of the excavation support system will be done in conjunction with the dewatering system specified in Section 02140 - Dewatering. The dewatering system and excavation support system shall be designed to interact.

E. Product Data:

1. If the system consists of sheet piling, submit sheet piling data including, but not limited to, physical properties including grade of steel, nominal width of piling sections, weight of piling sections, and section moduli of standard wall sections and rolled corner sections.

2. If system consists of structural steel or timber members, submit structural data, including but not limited to physical properties, weight of members, section moduli, cross sectional areas, allowable stresses, etc.

1.06 QUALIFICATIONS

A. The design of the Excavation Support System, supervision of the installation and supervision of the construction operations associated with excavations shall be made by qualified individual(s) in this type of work.

B. Design for temporary excavation support system shall be performed by or under the direction of a Licensed Structural Engineer, registered in the State of Illinois (Designer of Record). The design drawings and associated calculations for the temporary excavation support system shall bear the seal of the Licensed Structural Engineer, registered in the State of Illinois. THERE SHALL BE NO EXCEPTIONS TO THIS REQUIREMENT. Submittals with drawings and computations without the Illinois Structural Engineer seal, signature and date shall be immediately rejected without any review. The seal of a non-Illinois licensed engineer practicing structural engineering shall not be regarded as a substitute for the seal of an Illinois Structural Engineer. THERE SHALL BE NO EXCEPTIONS TO THIS REQUIREMENT.

1.07 QUALITY ASSURANCE

A. If, during the progress of the work, the installed Excavation Support System proves inadequate to meet the requirements specified, the Contractor shall at his expense furnish and install additional components as may be necessary to perform the required support of the Excavation in a satisfactory manner. Such changes and additions shall be submitted in writing to the Engineer prior to being made.

1.08 MAINTENANCE SERVICE

A. Any and all damage to existing or proposed structures, facilities, or roadways due to construction activity and/or unsatisfactory performance of the Excavation Support System shall be the responsibility of the Contractor and he shall repair any and all such damages in a manner acceptable to the Owner or Engineer and at no additional cost to the Owner.

1.09 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by the Owner or others unless permitted in writing by the Engineer and then only after arranging to provide temporary utility services according to requirements indicated.

B. Project Site Information: A geotechnical report has been prepared for this Project and is available for information only. The report is not part of the Contract Documents. The opinions expressed in this report are those of the geotechnical engineer and represent interpretations of the subsoil conditions, tests, and results of analyses conducted by the geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from this data by the Contractor.

1. The Contractor shall make additional test borings and conduct other exploratory operations as necessary.
2. The geotechnical report is referenced elsewhere in the Contract Documents.

C. The Contractor shall survey adjacent structures and improvements (see Section 01725 – Field Engineering); establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

1. The Contractor shall, during installation of excavation support and protection systems, regularly resurvey benchmarks, maintaining an accurate log of surveyed elevations for comparison with original elevations. Promptly notify Engineer if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.

PART 2 PRODUCTS

2.01 GENERAL

A. Materials need not be new but must be in serviceable condition.

B. Structural Steel: ASTM A 36 (ASTM A 36M).

C. Steel Sheet Piling: ASTM A 328 (ASTM A 328M) or ASTM A 572 (ASTM A 572M).

D. Wood Lagging: Lumber, mixed hardwood, nominal rough thickness of 3 inches (75 mm).

2.02 MATERIALS AND COMPONENTS

A. Steel sheet piling shall conform to ASTM A328. Steel sheet piling shall have standard interlocking sections, including standard corner sections. Piling can be new or used. Used material shall be straight and uniform and shall be capable of being driven straight and providing proper interlock.

B. Structural Steel Plates, Shapes and Bars: ASTM A36.

C. Structural Steel Tubing: Hot-formed, welded or seamless, ASTM A500, Grade B, 46 ksi.

D. Steel Pipe: ASTM A53; type as selected; Grade A; black finish unless galvanizing is required; standard weight (Schedule 40), unless otherwise shown or specified.

2.03 FASTENERS

A. Bolts and Nuts: Regular hexagon head type, ASTM A307, Grade A or ASTM 325 bolts. Provide washers and shims as required.

B. Lag Bolts: Square head type, Federal Specification FF-B-561.

C. Machine Screws: Cadmium plated steel, Federal Specification FF-S-92.

D. Wood Screws: Flat head carbon steel, Federal Specification FF-S-111.

E. Plain Washers: Round, carbon steel, Federal Specification FF-W-92.

F. Lock Washers: Helical spring type carbon steel, Federal Specification FF-W-84.

PART 3 EXECUTION

3.01 PREPARATION

A. Contractor shall protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.

1. Shore, support, and protect utilities encountered.

B. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

C. Locate excavation support and protection systems clear of permanent construction and to permit forming and finishing of concrete surfaces.

D. Monitor excavation support and protection systems daily during excavation progress and for as long as excavation remains open. Promptly correct bulges, breakage, or other evidence of movement to ensure excavation support and protection systems remain stable.

E. Promptly repair damages to adjacent facilities caused by installing excavation support and protection systems.

3.02 EXAMINATION

A. The products for use in establishing the excavation support system shall be examined by the Engineer for visible defects. The Engineer may reject products from being used as part of the excavation support system based upon his examination.

3.03 INSTALLATION – EXCAVATION SUPPORT SYSTEM

A. The Contractor shall design, furnish, install and maintain such facilities necessary to accomplish the following:

1. Protect excavation walls and/or side slope as well as existing and new

construction adjacent to or within the excavation limits.

B. Damage Restitution: The Contractor shall be responsible for and shall repair without any cost to the Owner, any damages to work in place, Subcontractor's equipment, existing structures, temporary berms, existing roadways, and the excavation, including damage to the bottom of excavation including removal of material and pumping out of the excavated area, that may result from his negligence, inadequate or improper design, installation or maintenance of the Excavation Support System.

C. Upon completion of the work required to be protected by the Excavation Support System, the Contractor shall remove all excavation support system components. Removal of these components shall begin after receipt of written consent of the Engineer.

3.04 SOLDIER BEAMS AND LAGGING

A. Install steel soldier piles before starting excavation. Space soldier piles at intervals indicated. Accurately align exposed faces of flanges to vary not more than 2 inches (50 mm) from a horizontal line and not more than 1:120 out of vertical alignment.

B. Install wood lagging within flanges of soldier piles as excavation proceeds. Trim excavation as required to install lagging. Fill voids behind lagging with soil, and compact.

C. Install wales horizontally at centers indicated and secure to soldier piles.

3.05 SHEET PILING

A. If required, install one-piece sheet piling and tightly interlock to form a continuous barrier. Accurately align exposed faces of sheet piling to vary not more than 2 inches (50 mm) from a horizontal line and not more than 1:120 out of vertical alignment. Cut tops of sheet piling to uniform elevation at top of excavation.

3.06 PILE DRIVING

A. The Contractor shall drive the piling with a steam, air or diesel hammer that meets the approval of the Engineer.

B. Pile driving procedures shall be established by the Contractor to prevent overheating of the interlocks to the point of melting and bonding if a vibratory hammer is used.

C. Piles driven out of interlock with adjacent piles, or otherwise damaged, shall be removed and replaced with a pile that meets the specifications at the Contractor’s expense.

3.07 TIEBACKS

A. Tiebacks: Drill for, install, tension, and grout tiebacks into position. Test load-carrying capacity of each tieback and replace and retest deficient tiebacks.

3.08 BRACING

A. Bracing: Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move a brace, install new bracing before removing original brace.

1. Do not place bracing where it will be cast into or included in permanent concrete work, unless otherwise approved by Architect.
2. Install internal bracing, if required, to prevent spreading or distortion of braced frames.
3. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

3.09 REMOVAL AND REPAIRS

A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and bear soil and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils and damaging structures, pavements, facilities, and utilities.

1. Repair or replace, as approved by Engineer, adjacent work damaged or displaced by removing excavation support and protection systems.

B. Where directed by the Engineer, leave excavation support and protection systems permanently in place 48" below grade.

END OF SECTION 02160

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Demolition of structures, paving, and utilities.
2. Filling voids created as a result of removals or demolition.

B. Related Sections

1. Section 02100 – Site Preparation
2. Section 02317 – Backfilling & Compacting
3. Section 03001 – Controlled Low Strength Material

1.02 REGULATORY REQUIREMENTS

A. Conform to applicable State and local codes for the demolition of structures, safety of adjacent structures, dust control, and erosion control.

B. Obtain required permits and licenses from appropriate authorities. Pay associated fees including disposal charges.

C. Notify affected utility companies before starting work and comply with their requirements.

D. Do not close or obstruct public or private roadways, sidewalks, or fire hydrants without appropriate permits or written authorization.

E. Conform to applicable regulatory procedures when hazardous or contaminated materials are discovered.

F. Test soils around buried tanks for contamination.

1.03 SUBMITTALS

A. Project Record Documents: Accurately record actual locations of capped utilities and subsurface obstructions that will remain after demolition. Submit record as part of closeout submittals.

1.04 PROJECT CONDITIONS

A. Structures to be demolished will be discontinued in use and vacated prior to start of work.

B. Owner assumes no responsibility for condition of structures to be demolished.

C. Conditions existing at time of inspection for bidding purposes will be maintained by Owner as reasonably practical. Variations within structures may occur by Owner's removal and salvage operations prior to start of demolition work.

D. Unless otherwise indicated in Contract Documents or specified by the Owner, items of salvageable value to Contractor shall be removed from site and structures. Storage or sale of removed items on site will not be permitted and shall not interfere with other work specified.

E. Explosives shall not be brought to site or used without written consent of authorities having jurisdiction. Such written consent will not relieve Contractor of total responsibility for injury to persons or for damage to property due to blasting operations. Performance of required blasting shall comply with governing regulations.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. Fill material shall be as specified in Section 02317 or 03001.

PART 3 EXECUTION

3.01 PREPARATION

A. Provide, erect, and maintain erosion control devices, temporary barriers, and security devices at locations indicated on Construction Drawings.

B. Protect existing landscaping materials, appurtenances, and structures, which are not to be demolished. Repair damage to existing items to remain caused by demolition operations.

C. Prevent movement or settlement of adjacent structures and pavements. Provide bracing and shoring as necessary.

D. Mark location of utilities. Protect and maintain in safe and operable condition utilities that are to remain. Prevent interruption of existing utility service to occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities as acceptable to governing authorities and Owner.

E. Notify adjacent property owners of work that may affect their property, potential noise, utility outages, or other disruptions. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon, or limit access to their property. Provide a copy of the written permission to the Owner and Engineer prior to commencing work.

3.02 GENERAL DEMOLITION REQUIREMENTS

A. Conduct demolition to minimize interference with adjacent structures or pavements to remain.

B. Cease operations immediately if adjacent structures appear to be in danger. Notify authority having jurisdiction. Do not resume operations until directed by authority.

C. Conduct operations with minimum of interference to public or private access. Maintain ingress and egress at all times.

D. Sprinkle work with water to minimize dust. Provide hoses and water connections for this purpose.

E. Comply with governing regulations pertaining to environmental protection.

F. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing prior to start of work.

3.03 DEMOLITION

A. Demolish site improvements designated to be removed as shown on the drawings. Site improvements shall include but not be limited to structures, retaining walls, foundations, pavements, curbs and gutters, drainage structures, utilities, signage or landscaping.

B. Disconnect and cap or remove utilities to be abandoned as shown on the drawings.

C. Fill or remove underground tanks, piping, and appurtenances as shown.

D. Demolish buildings completely and remove from site using methods as required to complete work within limitations of governing regulations. Small structures may be removed intact when acceptable to Owner and authorities having jurisdiction.

E. Locate demolition equipment and remove materials to prevent excessive loading to supporting walls, floors, or framing.

F. Demolish concrete and masonry in small sections. Break up concrete slabs-on-grade that are to remain and are 2-feet or more below proposed subgrade to permit moisture drainage. Remove slabs-on-grade and below grade construction within 2-feet of proposed subgrade.

3.04 FILLING BASEMENTS AND VOIDS

A. Completely fill below grade areas and voids resulting from the demolition or removal of structures, underground fuel storage tanks, wells, cisterns, etc., using aggregate fill materials consisting of stone, gravel, or sand free from debris, trash, frozen materials, roots, and other organic matter.

B. Areas to be filled shall be free of standing water, frost, frozen or unsuitable material, trash, and debris prior to fill placement.

C. Place fill materials in accordance with Section 02317 unless subsequent excavation for new work is required.

D. Grade surface to match adjacent grades and to provide flow of surface drainage after fill placement and compaction.

3.05 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove from site debris, rubbish, and other materials resulting from demolition operations. Leave areas of work in clean condition.

B. No burning of any material, debris, or trash on-site or off-site will be allowed except when allowed by appropriate governing authority and Owner. If allowed as stated above, burning shall be performed in manner prescribed by governing authority. Attend burning materials until fires have burned out and have been completely extinguished.

C. Transport materials removed from demolished structures with appropriate vehicles and dispose off-site to areas that are approved for disposal by governing authorities and appropriate property owners.

END OF SECTION 02220

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Excavation and backfill for utilities and piping.

B. Related Sections:

1. Section 02140 – Dewatering
2. Section 02160 – Excavation Support System
3. Section 02317 – Backfilling and Compacting
4. Section 02500 – Site Piping
5. Section 15260 – Process Piping

C. Alternates: Not Used.

1.02 REFERENCE TO STANDARDS

A. The portions of the work specified in this section shall conform to the following standards, rules, and regulations with modifications and additional requirements as stated in or reasonably inferred from the Contract Documents.

1. Standard Specifications: “Standard Specifications for Construction of Water and Sewer Main in Illinois”, latest edition.
2. 10-States Standards: “Recommended Standards for Water Works” as issued by the Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 2003 Edition.
3. IEPA Technical Policy Statement: “Rules and Regulations for Public Water Supplies” as issued by the Illinois Pollution Control Board (Title 35, Subtitle F, Chapter II, Parts 651-654 of the Illinois Administrative Code).
4. Illinois Department of Transportation Standard Specifications for Road and Bridge Construction adopted January 1, 2012 and applicable sections of the Supplemental Specifications and Recurring Special Provisions adopted January 1, 2015, hereinafter referred to as IDOT Standard Specifications.
5. Occupational Safety and Health Administration (OSHA): Current OSHA Occupational Safety and Health Standards – Excavations, 29 CFR Part 1926, including any successor regulations.
6. ANSI/AWWA C600-93, AWWA Standard for Installation of Ductile-Iron Water Mains and their Appurtenances, as published by American Water Works Association.
7. ANSI/AWWA C605-94, AWWA Standard for Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water, as published by American Water Works Association.
8. ASTM D2321-04 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.

9. Ductile Iron Pipe Research Associate (DIPRA) "Installation Guide for Ductile Iron Pipe," latest edition.

1.03 SUBMITTALS

A. Submit in accordance with Section 01330 – Submittal Procedures.

B. Submit certification that all backfill materials meet Illinois Department of Transportation requirements.

1.04 DEFINITIONS

A. Cohesionless Soils: Soils which do not demonstrate a well-defined moisture-density relationship in compaction testing. Also referred to as granular soils.

B. Cohesive Soils: Soils which demonstrate a well-defined moisture-density relationship in compaction testing.

C. Pavement or Paved Surfaces: Existing or proposed surface treatments of bituminous asphalt, Portland cement concrete, or compacted aggregate.

D. Type A Trench: Pipe trench for all pipes below structures extending to five feet beyond outside limits of any structure.

E. Type B Trench: Pipe trench for flexible pipes including the following materials: PVC, CPVC, GFRPM, HDPE Polyethylene, and Polypropylene up to five feet beyond the outside limits of any structure.

F. Type C Trench: Pipe trench for semi-rigid pipes including the following materials: Cast Iron, Ductile Iron, Steel, and Copper up to five feet beyond the outside limits of any structure.

G. Type D Trench: Pipe trench for rigid pipes including the following materials: Reinforced Concrete (RCP) up to five feet beyond the outside limits of any structure.

H. Foundation: The natural or improved bottom of the trench which supports the pipe and its bedding.

I. Bedding: The four (4) inch minimum layer of material on which the pipe lies.

J. Haunching: The material placed on each side of the installed pipe, from the top of bedding to the centerline of the pipe.

K. Initial Backfill: The backfill from the centerline of the pipe to twelve (12) inches above the top of the pipe.

L. Final Backfill: The backfill from twelve (12) inches over the top of the pipe to the top of the trench.

PART 2 PRODUCTS

2.01 Native soil salvaged from the trench excavation for use as backfill shall meet the requirements of Suitable Soil as defined in Section 02317 and shall not exceed the allowable moisture content per Section 02317. Native soil that is deemed as Unsuitable Soil as defined in Section 02317 shall be disposed of off-site at no additional cost to the Owner.

2.02 All aggregate fill materials shall be IDOT Class A fine or coarse aggregates with the gradations as specified. Fill materials shall be placed at or near their optimum moisture content to achieve the specified compaction.

2.03 PIPE FOUNDATION

A. The pipe foundation shall be undisturbed, native soil or engineered fill compacted to 97% standard proctor. Where native soil is soft, spongy or otherwise unsuitable, the unsuitable material shall be undercut and replaced with up to 12" of compacted CA7. For undercut depths greater than 12", the replacement shall be 12" of CA7 capped with CA6 compacted to 97% standard proctor. The CA6 shall be placed in 8" loose lifts.

B. At pipe crossing locations, the bedding, haunching, initial backfill, and final backfill of the lower pipe trench shall meet the requirements of trench backfill under paved surfaces, as specified herein, in order to provide a solid foundation for the upper pipe.

2.04 BACKFILL MATERIAL - TYPE A TRENCH

A. Bedding, Haunching, Initial Backfill and Final Backfill Material in Type A trench areas below structures and extending to five (5) feet beyond the outside limits of the structure shall be as specified in Section 15260.

2.05 BACKFILL MATERIAL - TYPE B TRENCH

A. Areas under or within five feet of pavement or paved surfaces:

1. Bedding material in a Type B trench shall conform to IDOT gradations CA6, CA7, FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Bedding shall have a minimum thickness of 4".
2. Haunching material in a Type B trench shall conform to IDOT gradations CA6, CA7, FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Haunching shall be placed in compacted lifts not exceeding 6".
3. Initial Backfill material in a Type B trench shall conform to IDOT gradations CA6, CA7, FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Initial Backfill shall be placed in compacted lifts not exceeding 8".
4. Final Backfill material in a Type B trench shall conform to IDOT gradations CA6, CA7, FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Final Backfill shall be placed in compacted lifts not exceeding 8".

B. Unpaved areas:

1. Bedding material in a Type B trench shall conform to IDOT gradations CA6, CA7, FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Bedding shall have a minimum thickness of 4”.
2. Haunching material in a Type B trench shall conform to IDOT gradations CA6, CA7, FA1, FA2, FA5, or FA6 compacted to 90% standard proctor density. Haunching shall be placed in compacted lifts not exceeding 6”.
3. Initial Backfill material in a Type B trench shall conform to IDOT gradations CA6, CA7, FA1, FA2, FA5, or FA6 compacted to 90% standard proctor density. Initial Backfill shall be placed in compacted lifts not exceeding 8”.
4. Final Backfill material in a Type B trench shall be native soil conforming to section 2.01 of this specification compacted to 90% standard proctor density. Final Backfill shall be placed in compacted lifts not exceeding 8”.

2.06 BACKFILL MATERIAL - TYPE C TRENCH

A. Areas under or within five feet of pavement or paved surfaces:

1. Bedding material in a Type C trench shall conform to IDOT gradations FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Bedding shall have a minimum thickness of 4”.
2. Haunching material in a Type C trench shall conform to IDOT gradations FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Haunching shall be placed in compacted lifts not exceeding 6”.
3. Initial Backfill material in a Type C trench shall conform to IDOT gradations FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Initial Backfill shall be placed in compacted lifts not exceeding 8”.
4. Final Backfill material in a Type C trench shall conform to IDOT gradations FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Final Backfill shall be placed in compacted lifts not exceeding 8”.

B. Unpaved areas:

1. Bedding material in a Type C trench shall be the native trench foundation as specified in section 2.03 of this specification.
2. Haunching material in a Type C trench shall be native soil conforming to section 2.01 of this specification compacted to 90% standard proctor density. Haunching shall be placed in compacted lifts not exceeding 6”.
3. Initial Backfill material in a Type C trench shall be native soil conforming to section 2.01 of this specification compacted to 90% standard proctor density. Initial Backfill shall be placed in compacted lifts not exceeding 8”.
4. Final Backfill material in a Type C trench shall be native soil conforming to section 2.01 of this specification compacted to 90% standard proctor density. Final Backfill shall be placed in compacted lifts not exceeding 8”.

2.07 BACKFILL MATERIAL - TYPE D TRENCH

A. Areas under or within five feet of pavement or paved surfaces:

1. Bedding material in a Type D trench shall conform to IDOT gradations CA6, CA7, FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Bedding shall have a minimum thickness of 4".
2. Haunching material in a Type D trench shall conform to IDOT gradations CA6, CA7, FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Haunching shall be placed in compacted lifts not exceeding 6".
3. Initial Backfill material in a Type D trench shall conform to IDOT gradations CA6, CA7, FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Initial Backfill shall be placed in compacted lifts not exceeding 8".
4. Final Backfill material in a Type D trench shall conform to IDOT gradations CA6, CA7, FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Final Backfill shall be placed in compacted lifts not exceeding 8"

B. Unpaved areas:

1. Bedding material in a Type D trench shall conform to IDOT gradations CA6, CA7, FA1, FA2, FA5, or FA6 compacted to 97% standard proctor density. Bedding shall have a minimum thickness of 4".
2. Haunching material in a Type D trench shall conform to IDOT gradations CA6, CA7, FA1, FA2, FA5, or FA6 compacted to 90% standard proctor density. Haunching shall be placed in compacted lifts not exceeding 6".
3. Initial Backfill material in a Type D trench shall be native soil conforming to section 2.01 of this specification compacted to 90% standard proctor density. Initial Backfill shall be placed in compacted lifts not exceeding 8".
4. Final Backfill material in a Type D trench shall be native soil conforming to section 2.01 of this specification compacted to 90% standard proctor density. Final Backfill shall be placed in compacted lifts not exceeding 8".

2.08 TEMPORARY SURFACE OVER TRENCH

A. Trenches under and within 5' of proposed or existing pavement shall be capped with a minimum of 12" of CA6, compacted to 97% standard proctor density.

B. Temporary trench surfaces shall be maintained in a serviceable condition for the proper operation of the Owner's existing facility until the proposed pavement or existing pavement replacement is installed.

PART 3 EXECUTION

3.01 EXCAVATION, BACKFILL, and COMPACTION

A. Trench excavations shall be protected in accordance with the applicable federal, state, and local regulations, laws, and rules; but shall not be less than the standards and regulations established by OSHA in 29 CFR Part 1926.

B. If the contractor elects to construct the trench with sloped or benched sides in lieu of shoring, no additional compensation will be allowed for the trench backfill material required outside the vertical limits of the specified trench width.

C. Haunching or backfill materials disturbed by moving or removing any shoring shall be removed, replaced, and recompacted in accordance with this specification.

D. The trench bottom shall be excavated and prepared to provide uniform, stable support of the pipe. Relief cuts shall be made at pipe bells, fittings, and couplings.

E. The trench shall be dewatered until backfill as been placed to prevent softening of the foundation and to prevent buoyant forces from deflecting the pipe alignment and grade. Dewatering shall be implemented at no additional cost to the owner.

F. Haunching shall be worked around the pipe by hand to eliminate voids underneath the pipe.

G. Backfill materials shall be placed and compacted as per Section 02317 – Backfilling and Compacting and as specified herein.

H. All excavations located in a street, highway, or parking pavement shall be backfilled by the end of the workday and shall not be left open overnight. Trenches not located in a pavement may be left open only if surrounded by construction fence and barricades.

3.02 EXCESS DIRT

A. Excess clay or clayey silt shall be hauled from the site and disposed of by the Contractor.

3.03 JETTING OF TRENCHES WITH WATER

A. Jetting of trench backfill materials is NOT an acceptable means of consolidation and will not be allowed on this project.

END OF SECTION 02305

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Excavation and stockpiling of existing earth materials and dewatering of excavations as required under the project.

1.02 RELATED SECTIONS

A. Section 02140 – Dewatering.
B. Section 02160 – Excavation Support System.
C. Section 02317 – Backfilling and Compacting.
D. Section 02340 – Soil Stabilization
E. Section 02370 – Erosion Control and SWPPP.

1.03 REFERENCE TO STANDARDS

A. American Safety for Testing and Materials (ASTM).

B. Illinois Department of Transportation (IDOT): Standard Specifications for Road and Bridge Construction adopted January 1, 2012 and applicable sections of the Supplemental Specifications and Recurring Special Provisions adopted January 1, 2015, hereinafter referred to as IDOT Standard Specifications.

C. Occupational Safety and Health Administration (OSHA): Current OSHA Occupational Safety and Health Standards - Excavations, 29 CFR Part 1926, including any successor regulations.

1.04 REGULATORY REQUIREMENTS

A. Codes and Standards

1. Perform excavation and backfilling work in compliance with applicable requirements of governing authorities having jurisdiction.
2. Prior to the commencement of construction, the Contractor shall be aware of, and become familiar with applicable local, state and federal safety regulations, including the current OSHA Occupational Safety and Health Standards - Excavations, 29 CFR Part 1926, including any successor regulations.
3. Additionally, the Contractor shall be aware that slope height, slope inclination and excavation depths (including utility trench excavations) should in no case exceed those specified in local, state or federal safety regulations.

1.05 COORDINATION

A. Do not interrupt existing utilities serving facilities occupied and used by Owner or others except when permitted in writing by the Engineer and then only after acceptable temporary utility services have been provided. Provide minimum of 48 hour notice prior to enacting an approved temporary interruption.

1.06 SUBMITTALS

A. Submit under the provisions of Division 1, Section 01330 – Submittal Procedures. All materials shall be submitted for approval. Samples shall be submitted when requested by the Engineer.

B. The Contractor shall submit a list of equipment intended to be utilized on this project to the Engineer.

PART 2 PRODUCTS – Not Used.

PART 3 EXECUTION

3.01 EXAMINATION

A. Site Information

1. Data indicated on subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that Owner, and Engineer will not be responsible for interpretations or conclusions drawn therefrom by Contractor. Data are made available for convenience of Contractor.
2. Contractor shall be responsible for determining the actual ground water elevation and soil conditions at the specific site prior to commencing with the excavation. It may be expedient to drill auger holes, excavate test pits or make additional soil borings at or adjacent to the construction area immediately prior to construction to determine the prevailing soil conditions and water table elevation. It is the Contractor's responsibility to make auger holes, excavate test pits or make additional soil borings as he deems appropriate to determine the ground water and soil conditions that will be encountered. Additional test borings and other exploratory operations made by the Contractor shall be at no cost to the Owner.

3.02 PREPARATION

A. Establish extent of excavated areas.

B. Set specified lines, levels, contours and grades.

C. Maintain bench marks, monuments and other reference points.

D. Before starting excavation, establish location and extent of underground utilities occurring in work area. Contact Joint Utility Locating Information for Excavators (J.U.L.I.E.) (800) 892-0123, or 811and all other utility companies on the project site which are not members of this system. If the Contractor ruptures or causes damage to such objects while digging or during any construction, it is the responsibility of the party performing the construction work to pay the utility company for repairs and such costs shall not be borne by the Owner or the Engineer.

E. Maintain, reroute or extend existing utility lines to remain which pass through work area.

3.03 EXCAVATION

A. General

1. Excavation consists of removal of material encountered when establishing required grade and subgrade elevations and cross sections.
2. The Contractor is solely responsible for designing and constructing stable excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. All excavations shall comply with applicable local, state and federal safety regulations including the current OSHA Occupational Safety and Health Standards - Excavations, 29 CFR Part 1926, including any successor regulations.
3. All sheeting, shoring and bracing of trenches, pits and excavations shall be the sole responsibility of the Contractor.
4. Construction site safety is the sole responsibility of the Contractor, including but not limited to, the means, methods, and sequencing of construction operations.
5. Earth excavation consists of removal and disposal of pavements and other obstructions visible on ground surface, underground structures and utilities indicated to be demolished and removed, material of any classification indicated in data on sub-surface conditions, and other materials encountered that are not classified as unauthorized excavation.

B. Unauthorized Excavation

1. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the Engineer. Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at Contractor's expense. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, only when determined necessary by the Engineer. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of the same classification, unless otherwise directed by the Engineer.

C. Additional Excavation

1. When excavation has reached required sub-grade elevations, notify the Engineer's qualified independent testing firm who will make an inspection of conditions. If unsuitable bearing materials are encountered at required sub-grade elevations, carry excavations deeper and replace excavated material as directed by the Engineer. Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to change in work.

D. Dewatering

1. Prevent surface water and subsurface or ground water from flowing into excavation and from flooding project site and surrounding area.
2. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
3. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.
4. Dewatering for supported excavations shall be accomplished in accordance with Articles 3.03.D.1 through 3.03.D.3 (above) and Section 02140 – Dewatering.

E. Material Storage

1. Stockpile satisfactory excavated materials until required for backfill or fill. Place, grade and shape stockpiles for proper drainage. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain. Contain excavated silt/soil runoff with silt fences in accordance with the project SWPPP.

F. Excavation for Structure

1. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 feet, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction and for inspection.
2. In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement or base material is placed. Trim bottoms to required lines and grades to leave solid base to receive other work. After completion of excavation and prior to placement of base material, excavations shall be inspected by the Engineer or the Engineer's qualified independent testing firm to insure that suitable bearing has been obtained. Twenty-four (24) hours notice shall be given to the Engineer.

3. Placing of footings and foundations on earth fill will not be permitted. Fill excess cuts under footings and foundations with IDOT CA-6 Class C compacted to 100% Standard Proctor ASTM D698 and fill any excess cuts under slabs with lean concrete.

G. Excavation Near Utilities

1. Protect, support, shore, brace, etc. all utility services uncovered by excavation.
2. Accurately locate and record abandoned and active utility lines rerouted or extended, on Project Record Documents.
3. Repair damaged utilities to the satisfaction of the Utility Owner.

H. Disposal of Excess and Waste Materials

1. Removal from Owner's Property

a. Remove waste materials, trash and debris and legally dispose of it off Owner's property at no expense to Owner.

2. Excess Material

a. Excess excavated material shall be removed from the site and properly disposed of.

3.04 FIELD QUALITY CONTROL

A. The Contractor shall allow bearing surfaces at the bottom of excavations to be inspected by the Engineer or the Engineer’s qualified independent testing firm prior to placement of any backfill materials.

B. Proofrolling: Subgrades shall be proofrolled to detect areas of insufficient bearing, insufficient compaction, or areas of unstable soils. Proofrolling shall be accomplished by making minimum of 2 complete passes with fully-loaded tandem-axle dump truck with a maximum weight of 20 tons, or approved equal, in each of 2 perpendicular directions while under the supervision and direction of the Engineer or the Engineer’s qualified independent testing firm. Areas of failure shall be excavated and recompacted as specified herein. Continual failure areas shall be stabilized in accordance with Section 02340 at no additional cost to Owner. Subgrade exposed longer than 48 hours or on which precipitation has occurred shall be re-proofrolled.

3.05 PROTECTION

A. Stability of Excavation

1. Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible either because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

2. Comply with current OSHA Occupational Safety and Health Standards - Excavations, 29 CFR Part 1926, including any successor regulations.
3. Where indicated on the drawings, sloped and vertical sides of excavations shall be stabilized with an erosion control system as specified in Section 02370 – Erosion Control.

B. Cold Weather Protection

1. Protect excavation bottoms against freezing when atmospheric temperature is less than 35ºF (1ºC).

C. Protection of Persons and Property

1. Barricade open excavations occurring as part of this work and post with warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required by authorities having jurisdiction.
2. Protect structures, landscaping, utilities, sidewalks, pavements or other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.
3. Comply with current OSHA Occupational Safety and Health Standards - Excavations, 29 CFR Part 1926, including any successor regulations.

END OF SECTION 02316

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Backfilling and compacting for structures, pavement and general site.

B. Site rough and finish grading.

C. Preparation of subgrade for slabs, pavements and installation of footings.

D. Standard Proctor density testing and compaction testing.

1.02 RELATED SECTIONS

A. Section 02316 – Excavating.
B. Section 02340 – Soil Stabilization
C. Section 02370 - Erosion Control.
D. Division 3 – Concrete.
E. Division 15 – Mechanical.
F. Division 16 – Electrical.

1.03 REFERENCE TO STANDARDS

A. ASTM D698 - Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3).

B. ASTM D 4253 Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.

C. ASTM D 4254 Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.

D. Illinois Department of Transportation Standard Specifications for Road and Bridge Construction adopted January 1, 2012 and applicable sections of the Supplemental Specifications and Recurring Special Provisions adopted January 1, 2015, hereinafter referred to as IDOT Standard Specifications.

1.04 REGULATORY REQUIREMENTS

A. Codes and Standards

1. Perform excavation and backfilling work in compliance with applicable requirements of governing authorities having jurisdiction.
2. Prior to the commencement of construction, the Contractor shall be aware of, and become familiar with applicable local, state and federal safety regulations, including the current OSHA Occupational Safety and Health Standards - Excavations, 29 CFR Part 1926, including any successor regulations.

3. Additionally, the Contractor shall be aware that slope height, slope inclination and excavation depths (including utility trench excavations) should in no case exceed those specified in local, state or federal safety regulations.

1.05 COORDINATION

A. Do not interrupt existing utilities serving facilities occupied and used by Owner or others except when permitted in writing by the Engineer and then only after acceptable temporary utility services have been provided. Provide minimum of 48 hour notice prior to enacting an approved temporary interruption.

1.06 SUBMITTALS

A. Submit under the provisions of Division 1, Section 01330 – Submittal Procedures. All materials shall be submitted for approval. Samples shall be submitted when requested by the Engineer

B. Manufacturer's Certificate and Product Data: Certify that products meet or exceed specified requirements.

C. The Contractor shall submit a list of equipment intended to be utilized on this project to the Engineer.

1.07 FIELD TESTS

A. Provide in accordance with Division 1, Section 01400 – Quality Requirements.

B. Compaction Tests

1. Standard Proctor Density Testing and Compaction Testing of fill materials and inspection of subgrades and fill layers will be performed by the Contractor's qualified independent testing laboratory.
2. If in the opinion of the Contractor's qualified independent testing firm, based on proofrolls, field density tests, or inspections, subgrades and fills which have been placed below the specified density or subgrades and fills which exhibit the characteristics of unstable soils, the Contractor shall provide additional compaction, soil stabilization per Section 02340, and/or removal and replacement of the material at no additional cost to the Owner.
3. When, during progress of work, tests indicate that compacted materials will not meet specifications, remove defective work, replace and retest at no additional cost to the Owner.
4. Ensure that all compacted fills are tested before proceeding with placement of surface materials.

PART 2 PRODUCTS

2.01 DEFINITIONS

A. Suitable Soil: Suitable soil is a soil having less than 6% organic matter by weight as determined by Loss on Ignition Test (determine weight loss caused by heating sample to 500 degrees C for six hours after drying in accordance with ASTM D-2216, “Laboratory Determination of Moisture Content of Soil”).

B. Unsuitable Soil: Unsuitable soil is a soil that contains 6% or more organic matter as determined by the Loss on Ignition test, soils with a Proctor maximum dry density less than 100 pcf, soils with a Plasticity Index of less than 4, shale, weathered shale, coal, rubbish, vegetable matter of any kind, roots and rocks larger than two inches in dimension which might interfere with the proper bonding to adjacent surfaces, or as otherwise determined unsuitable by Engineer or the Engineer’s qualified independent testing laboratory.

D. Stable Soil: soil is considered sufficiently stable when it

1. Prevents rutting and shoving during standard construction practices
2. Limits the amount of rebound deflections under wheel loadings (pumping)
3. Provides good support of placement and compaction of subsequent layers of fill

2.02 STRUCTURAL FILL MATERIALS

A. General

1. Structural fill for all structures listed above shall meet the requirements of IDOT CA-6 or shall be composed of suitable lean (silty or sandy) clay with liquid limit no greater than 50% and plasticity index no greater than 25%. The on-site lean clay materials obtained from excavations may be used as structural fill provided that it is not deemed unsuitable per Section 2.01-B.
2. Engineer shall engage a qualified independent testing laboratory to test materials from on-site and off-site sources to test materials for conformance to this specification.

2.03 BACKFILL MATERIALS

A. Base Materials

1. Under floors, structural slabs, pads, concrete landings, exterior walks, steps, or grade slabs, base material shall be IDOT CA-6 crushed limestone Class C Quality material with a Plasticity Index (PI) range of 0 to 4, minimum of 6 inches in depth unless otherwise shown. All materials to be compacted to 97% Standard Proctor Density in accordance with ASTM D-698.

B. Backfill Materials

1. Controlled Low Strength Material: Provide Controlled Low Strength Material (CLSM) backfill in accordance with Section 03001 – Controlled Low Strength Material at the locations indicated on the drawings.

2. Granular Backfill: When called for on the plans, granular backfill under steps, concrete landings, walks, slabs and against substructure walls is defined as granular soils IDOT FA-1 or FA-2, Class C quality, or CA-6 Class C quality with a Plasticity Index (PI) range of 0 to 4.
3. Cohesive Backfill: Provide acceptable soil materials in accordance with geotechnical report provided that it is not deemed unsuitable per Section 2.01-B.

2.04 FILTER FABRIC

A. Nonwoven needle punched geotextile composed of polypropylene filaments formed into a stable network. Filter fabric shall be inert to biological degradation and to naturally encountered chemicals, alkalines and acids.

B. Filter fabric shall be Mirafi 1100N or an equal material conforming to the properties listed below:

PROPERTY	TEST METHOD	UNIT	MINIMUM AVERAGE VALUE
Weight	ASTM D-5261	oz/yd^2	10.3
Thickness	ASTM D-5199	mils	100
Grab Tensile Strength	ASTM D-4632	lbs.	250
Grab Tensile Elongation	ASTM D-4632	%	50
Mullen Burst Strength	ASTM D-3786	psi	500
Puncture Strength	ASTM D-4833	lbs.	155
Trapezoid Tear Strength	ASTM D-4533	lbs.	100
Apparent Opening Size	ASTM D-4751	U.S. Std. Sieve	100
Permittivity	ASTM D-4491	Sec^{-1}	1.0
Permeability	ASTM D-4491	inch/sec	0.2
Flow Rate	ASTM D-4355	gpm/ft^2	75

C. Filter fabric shall be shipped in roll sizes to minimize the number of laps required during installation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to placement of any fill or backfill and prior to placement of all subsequent fill lifts, Engineer shall contact his/her qualified independent testing laboratory for inspection and testing of excavation subgrade and testing of each compacted layer of fill and backfill material. Results of this testing shall be submitted to the Engineer in a timely manner for review.

3.02 PREPARATION

A. Provide all items and perform all preparation and work for access roads and culverts in accord with IDOT Standard Specifications, referenced sections:

1. Section 205. Embankment.
2. Section 502. Excavation for Structures.
3. Section 542. Pipe Culverts.

B. Backfilling and compaction shall not occur until the following conditions are satisfied:

1. Acceptance by the Engineer of construction below finish grade including, where applicable, dampproofing, geocomposite wall drain, perimeter insulation and filter fabric.
2. Inspection, testing, approval and recording locations of underground utilities.
3. Removal of concrete formwork.
4. Removal of trash and debris, vegetation, snow or ice, water, unsatisfactory soil materials, obstructions and deleterious materials.
5. Removal of shoring and bracing and backfilling of voids with satisfactory material.
6. Ensure that ground surface within excavated area to be backfilled is not frozen.
7. When existing ground surface has a density less than that specified under Article 3.03-C of this Section for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content and compact to required depth and percentage of maximum density. Ground conditioning shall be performed at no additional cost to the Owner.

3.03 BACKFILLING AND COMPACTING

A. General

1. Definition

a. Backfilling shall consist of placing and compacting the necessary fill materials within the space excavated for the structures to the grade limits shown on the drawings or as directed by the Engineer.

2. Place acceptable material in layers to required subgrade elevations, for each area classification listed below.

   a. In lawn or unpaved areas, use satisfactory excavated or borrow fill material.
   b. Buildings, structures, pavements, walks, steps, and slabs, use granular fill or base material as indicated.

B. Placement and Compaction

1. Place backfill, base and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand operated tampers. Heavy equipment including compaction equipment shall not operate within 2 feet of substructure walls. Compaction in these areas shall be obtained with hand operated compaction equipment or devices.
2. Before compaction, moisten or aerate each layer as necessary to provide a placement with moisture content between 2% below and 3% above the optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen or contain frost or ice.
3. Place backfill and fill materials evenly adjacent to structure to required elevations. Take necessary precautions to prevent wedging action of backfill against structures by carrying the material uniformly around structure to approximately same elevation in each lift.
4. Allow the Engineer or the qualified independent testing firm to inspect and test each fill layer before further construction work is performed.

C. Percentage of Maximum Density Requirements

1. Unless otherwise noted on the plan sheets, the Contractor shall compact each layer of soil to not less than the following percentages of maximum density for soils which exhibit a well-defined moisture density relationship (cohesive soils) determined in accordance with ASTM D698, Standard Proctor Compaction Test; and not less than the following percentages of relative density, determined in accordance with ASTM D 4253 and ASTM D 4254, for soils which will not exhibit a well-defined moisture-density relationship (cohesionless soils).

REQUIRED COMPACTIVE EFFORT				
MATERIAL TESTED	PROCTOR TYPE	MIN % DRY DENSITY	MOISTURE CONTENT	MIN FREQUENCY OF TESTING
Structural Fill	Standard	97%	-2 to +3%	1 per 2,500 sf of fill placed
Base Under Slabs and Pavements	Standard	97%	-2 to +3%	1 per 2,500 sf of fill placed
Landscape Fill (non-load bearing)	Standard	90%	-2 to +3%	1 per 5,000 sf of fill placed
Utility Trench	Standard	97%	-2 to +3%	1 per 200 lf of backfill placed

D. Moisture Control

1. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to top surface of subgrade or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.
2. For subgrade soil materials that are too wet to permit compaction to the specified density and optimum moisture content, scarify and air-dry or remove and replace with suitable materials meeting the satisfaction of the Engineer.

E. Grading

1. General

a. Uniformly grade areas within limits of grading under this Section, including adjacent transition areas. Smooth finished surface within specified tolerances. Compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.
b. Loosen grades of lawn areas not receiving additional topsoil to a minimum depth of 4". Remove stones over 1-1/2" in any dimension and sticks, roots, rubbish and other extraneous matter.
c. Grading Outside Building Lines:

i. Grade areas adjacent to building lines to drain away from structures and to prevent ponding.
ii. Finish surfaces free from irregular surface changes within 0.10' above or below proposed subgrade elevation.

2. Grading Surface of Backfill Under Walks and Slabs

a. Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 1/4" when tested with a 10' straightedge.

3. Compaction

a. After grading, compact subgrade surfaces to the depth and percentage of maximum or relative density for each area classification.

F. Maintenance

1. Protection of Graded Areas

a. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
b. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

2. Reconditioning Compacted Areas

a. Where completed fill areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape and compact to required density prior to further construction.

3. Settling

a. Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance quality and condition of surface or finish to match adjacent work and eliminate evidence of restoration to greatest extent possible.

3.04 FILTER FABRIC INSTALLATION

A. Install filter fabric as shown on the drawings and in accordance with manufacturer's installation procedures, including lap splice and anchorage requirements. Minimum lap splice of filter fabric shall be 2'-0".

3.05 FIELD QUALITY CONTROL

A. Quality Control Testing During Construction

1. Proofrolling: Subgrades shall be proofrolled to detect areas of insufficient bearing, insufficient compaction, or areas of unstable soils. Proofrolling shall be accomplished by making minimum of 2 complete passes with fully-loaded tandem-axle dump truck with a maximum weight of 20 tons, or approved equal, in each of 2 perpendicular directions while under the supervision and direction of the Contractor's qualified independent testing firm. Areas of failure shall be excavated and recompacted as specified herein. Continual failure areas shall be stabilized in accordance with Section 02340 at no additional cost to Owner. Subgrade exposed longer than 48 hours or on which precipitation has occurred shall be re-proofrolled.
2. The qualified independent testing firm, employed by and paid by the Contractor shall conduct compaction testing at intervals no less than the minimum requirements defined in IDOT Standard Specifications or as specified herein.
3. Allow the qualified independent testing firm to inspect and test subgrades and fill layers before further construction work is performed.
4. If in the opinion of the Contractor's qualified independent testing firm, based on proofrolls, field density tests, or inspections, subgrades and fills which have been placed below the specified density or subgrades and fills which exhibit the characteristics of unstable soils, the Contractor shall provide additional compaction, soil stabilization per Section 02340, and/or removal and replacement of the material at no additional cost to the Owner.

END OF SECTION 02317

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Excavation, treatment, and backfilling of subgrade for lime, cement, fly ash, or bridge lift stabilization.

B. Geotextile fabric and geogrid for stabilization of subgrade.

1.02 RELATED SECTIONS

A. Section 02316 – Excavation
B. Section 02317 – Backfilling and Compaction

1.03 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

B. ASTM International (ASTM)

1. ASTM C150 - Portland Cement.
2. ASTM C618 - Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete.
3. ASTM C977 - Quicklime and Hydrated Lime for Soil Stabilization.
4. ASTM D1633 - Compressive Strength of Molded Soil-Cement Cylinders.

C. American Association of State Highway and Transportation Officials (AASHTO)

1. AASHTO M216 - Lime for Soil Stabilization.

D. National Lime Association (NLA)

1. NLA Bulletin 326 - Lime Stabilization Construction Manual.

E. State Department of Transportation (DOT):

1. Illinois Department of Transportation Standard Specifications for Road and Bridge Construction adopted January 1, 2012 and applicable sections of the Supplemental Specifications and Recurring Special Provisions adopted January 1, 2015, hereinafter referred to as IDOT Standard Specifications.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Do not install mixed materials in wind in excess of 10 mph or when temperature is below 45 degrees Fahrenheit. Additionally, the temperature of the soil, measured 6" below the surface shall be a minimum of 50 degrees Fahrenheit.

1.05 SUBMITTALS

A. Submit gradation and certification that material meets the minimum requirements of the Illinois Department of Transportation.

B. Submit name of each materials supplier and specific type and source of each material. Obtain approval of Owner prior to change in source.

C. Submit mix designs, materials mix ratio, and laboratory test data to the Engineer per Section 01330 – Submittal Procedures. Certify materials and mix ratios will achieve the specified requirements as indicated in the Construction Documents or as specified by state and local agencies for soil stabilization if not stated in the Construction Documents.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with state and local standards in conjunction with requirements specified herein.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide products from one of the following manufacturers as specified in the Materials paragraph below:

1. TenCate Geosynthetics Americas, Pendergrass, GA., (706) 693-2226, www.tencate.com
2. WEBTEC, INC., Charlotte, NC. (800) 438-0027, www.Webtecgeos.com
3. Tensar International Corporation, Alpharetta, GA. (800) 292-4459, www.tensarcorp.com
3. Thrace-LINQ Inc., Summerville, SC (800) 445-4675, www.thracelinq.com

2.02 MATERIALS

A. Soil Treatment Materials:

1. Hydrated Lime: Code L, ASTM C207 Type N
2. Portland Cement: ASTM C150, Type I.
3. Fly Ash: ASTM C618, Class C

B. Aggregate

1. Coarse Aggregate: Crushed carbonate, crushed gravel, crushed air-cooled slag, granulated slag, a mixture of crushed and granulated slag, or other types of suitable material meeting the following gradation requirements:

Sieve Size	Percent Passing
2 inches	100
1 inch	70-100
3/4 inch	50-90
No. 4	30-60
No. 30	7-30
No. 200	0-5

2. Fine Aggregate: Sand – Natural River or bank sand; washed; free of silt, clay, loam, friable or soluble materials, and organic matter meeting the following gradation requirements:

Sieve Size	Percent Passing
No. 4	90-100
No. 50	7-40
No. 200	0-5

C. Subsoil: Existing to be reused.

D. Bridge Lift Material: Surge stone, granular fill, or shot rock fill.

2.03 ACCESSORIES

A. Curing Seal: Asphalt Emulsion Primer.

B. Geotextile Fabric for Stabilization: Provide one of the following:

1. Mirafi HP 370 or HP 570, by Marafi.
2. SF40 or SF56, by Dupont.
3. GTF-200 or 300, by Thrace-LINQ Inc.
4. TerraTex HD, by WEBTEC.

C. Geogrid for Stabilization: Provide one of the following:

1. Geogrid BX 1100, by Tensar.
2. Geogrid BX 1200, by Tensar.
3. Mirafi BasXgrid 11, by Marafi.
4. Mirafi BasXgrid 12, by Marafi.

PART 3 EXECUTION

3.01 PREPARATION

A. Obtain approval of mix design before proceeding with placement.

B. Start stabilization only when weather and soil conditions are favorable for successful application of proposed material.

C. Proofroll subgrade to identify areas in need of stabilization.

3.02 EQUIPMENT

A. Perform operations using suitable, well maintained equipment capable of excavating subsoil, mixing and placing materials, wetting, consolidating, and compacting of material.

3.03 EXCAVATION

A. Excavate subsoil to depth sufficient to accommodate soil stabilization.

B. Remove lumped subsoil, boulders, and rock that interfere with achieving uniform subsoil conditions.

C. Do not excavate within normal 45 degree bearing splay of any foundation.

D. Notify Engineer of unexpected subsurface conditions. Discontinue affected work in area until notified to resume work.

E. Correct areas over-excavated in accordance with Section 02316.

F. Remove excess excavated material from site.

3.04 GEOTEXTILE FABRIC AND/OR GEOGRID

A. Place geotextile fabric and/or geogrid over subsoil surface, lap edges and ends in accordance with manufacturer’s recommendations in those areas that are shown on Construction Drawings or in those areas that need additional stabilization prior to placement of base course. Bridge lift sections may require the use of geotextile fabric and/or geogrid for stabilization prior to placement of fill.

B. Place geotextile fabric and/or geogrid in accordance with manufacturer's recommendations.

3.05 SOIL TREATMENT AND BACKFILLING

A. Lime Stabilized Subgrade: Where indicated on Construction Drawings or as required after continual failure, treat prepared subgrade with hydrated lime in accordance with state highway department specifications.

B. Cement Stabilized Subgrade: Where indicated on Construction Drawings or as required after continual failure, treat prepared subgrade with portland cement in accordance with state highway department specifications.

C. Fly Ash Stabilized Subgrade: Where indicated on Construction Drawings or as required after continual failure, treat prepared subgrade with fly ash in accordance with state highway department specifications.

D. Bridge Lifts: Where indicated on Construction Drawings or as required after continual failure, treat prepared subgrade by application of a bridge lift. Bridging over existing soils shall be acceptable only when approved in writing by the Owner. Place geotextile fabric or geogrid over existing soils to be bridged. The geotextile fabric or geogrid selected shall be appropriate for the bridge lift material being placed. Place bridge lift over geotextile fabric or geogrid. Surge stone and shot rock will be approved by the Owner's representative on a submittal basis. The Owner and the Owner's representative shall have sole discretion as to the acceptability of all submittals.

E. Backfill and compaction of treated subsoil shall be in accordance with Sections 02317.

F. Maintain optimum moisture of mixed materials to attain required stabilization and compaction.

G. Finish subgrade surface in accordance with Section 02317.

H. Remove surplus materials from site.

3.06 CURING

A. Immediately following compaction of mix, seal top surface with curing seal.

B. Do not permit traffic for 72 hours after sealing top surface.

3.07 FIELD QUALITY CONTROL

A. Responsibilities: Unless otherwise specified, the quality control tests and inspections specified below will be conducted by the Engineer or the Engineer's qualified independent testing firm at no cost to the Contractor in accordance with Section 01458. The Contractor shall perform additional testing or inspection as considered necessary by the Contractor for assurance of quality control.

B. Field Density: Field in-place density shall be determined as specified in Section 02317.

C. If tests indicate work does not meet specified requirements, Contractor shall remove and replace work. Corrected areas shall be retested.

END OF SECTION 02340

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This work shall consist of Micropiles; designed, furnished, installed and tested in accordance with these specifications and as shown on the contract drawings.

B. Unless otherwise directed, the contractor shall select the Micropile type and the installation method, and determine the length and diameter. The contractor shall be responsible for installing in accordance with the testing subsection of this specification. Contractor's proposal for said work shall explain in detail the materials, methods, and design assumptions he will employ.

1.02 RELATED SECTIONS

A. Section 02316 – Excavating
B. Section 03300 – Cast In-Place Concrete
C. Section 055000 – Metal Fabrications

1.03 QUALIFICATION

A. The contractor performing the work described in the specification shall have installed Micropiles for a minimum of five years. At the time of bid, the contractor shall submit a list containing at least five projects on which the contractor has installed Micropiles. A brief description of each project and a reference shall be included for each project listed. As a minimum, the reference shall include an individual's name and current phone number.

B. The engineer shall approve or reject the contractor's qualifications and staff within 15 working days after receipt of the submission. Work shall not be started on any piling nor any materials ordered until approval of the contractor's qualifications is given. The engineer may suspend the Micropile work if the contractor substitutes unqualified personnel for approved personnel; the contractor shall be fully liable for additional costs resulting from the suspension of work and no adjustment in contract time resulting from the suspension of work will be allowed.

1.04 SUBMITTALS

A. The contractor shall prepare and submit to the engineer for review and approval, working drawings and design submission describing the micropile system or systems intended for use. The working drawings and design submission shall be submitted 30 calendar days prior to the commencement of the micropile work. The working drawing and design submission shall include the following:

1. A drawing showing the location and orientation of each micropile.
2. A micropile schedule giving:

a. micropile number;
b. micropile design load; and
c. Type and size of micropile.

B. The engineer shall review and return the contractor's working drawings and design submission within 30 calendar days after receipt of the submission.

C. The contractor shall submit to the engineer for review mill test reports for the steel components.

D. The contractor shall submit to the engineer for review and approval or rejection calibration data for each test jack, pressure gauge and master pressure gauge to be used. The calibration tests shall have been performed by an independent testing laboratory and test shall have been performed within 60 calendar days of the date submitted. The engineer shall approve or reject the calibration data within five working days after receipt of the data. Testing cannot commence until the engineer has approved the jack, pressure gauge and master pressure gauge calibration.

E. The contractor shall submit to the engineer within 30 calendar days after completion of the micropile work a report containing:

1. As-built drawings showing the locations of the micropiles and the piles length.
2. Steel manufacturer's mill test reports for the steel components incorporated in the installation.
3. Grouting records indicating the cement type, and quantity injected.
4. Micropile test results.

1.05 QUALITY ASSURANCE

A. Prior to the start of work, the contractor shall submit a list identifying the engineer, drill operators and on-site supervisors who will be assigned to the project. The list shall contain a summary of each individual's experience and it shall be complete enough for the Engineer to determine whether or not each individual has satisfied the following qualification.

B. The contractor shall assign an engineer to supervise the work with at least three years of experience in the design and construction of Micropiles. The use of consultants or manufacturer's representatives does not satisfy the requirements of this section. Drill operators and on-site supervisors shall have a minimum of one year experience installing Micropiles with the contractor's organization.

C. The contractor shall submit a detailed narrative within his proposal describing the construction method he intends to employ and encompassing all aspects, peripheral or otherwise, of his site operation.

PART 2 PRODUCTS

2.01 MATERIAL

A. Cement

1. Type I, II or III conforming to AASHTO M85 shall be used for grout. In some applications where voids exist, sand may be added to the grout.

B. Admixtures

1. Admixtures which control bleed, improve flowability, reduce water content and retard set may be used in the grout subject to the approval of the engineer. Admixtures, if used, shall be compatible manufacturer's recommendation.

C. Water

1. Water for mixing grout shall be potable.

D. Steel Components

1. All-thread bar – ASTM A722, 150 KSI ultimate stress

PART 3 EXECUTION

3.01 INSTALLATION

A. Drilling

1. Unless otherwise directed, core drilling, rotary drilling, percussion drilling, auger drilling, or other acceptable means can be used. The micropile can be installed in the drill hole after drilling or it can be advanced by the drill.

B. Grouting

1. The contractor shall use a neat cement grout or a sand-cement grout with a minimum 28 day unconfined compressive strength of 4,000 psi. The cement shall not contain lumps or other indications of hydration. Admixtures, if used, shall be mixed in accordance with the manufacturer's recommendation.
2. The grouting equipment shall produce a grout free of lumps and undispersed cement. The pump shall be equipped with a pressure gauge to monitor grout pressures. The pressure gauge shall be capable of measuring pressure of at least 150 psi or twice the actual grout pressures used by the contractor, whichever is greater. The grouting equipment shall be sized to enable the grout to be pumped in one continuous operation. The mixer should be capable of continuously agitating the grout.
3. The grout shall be injected from the lowest point of the drill hole. The grout may be pumped through grout tubes, casing, hollow-stem-augers or drill rods. The quantity of the grout and the grout pressures shall be recorded.

The grout pressures and grout takes shall be controlled to prevent excessive heave in cohesive soils or fracturing of rock formations.

4. Upon completion of grouting, the grout tube may remain in the hole but it shall be filled with grout.
5. After grouting, the micropile shall not be loaded for a minimum of three days.

3.02 TESTING

A. A minimum of two tension test piles shall be loaded to twice the design load. The test piles may be production piles, but shall be on opposite sides of the structure and at least 50 feet apart. The load tests shall be evaluated by the contractor and engineer to determine compliance with job performance requirements.

B. The load shall be applied with a calibrated hydraulic jack and the jack shall be set in position with the load centered on the pile.

C. The tests shall be performed in accordance with ASTM D 3689-07(2013), Standard Test Methods for Deep Foundations Under Static Axial Tensile Load. The test load shall be applied in compliance with ASTM D 3689-07(2013), Section 8.1.2. Quick Test.

D. Contractor guarantees that should the test pile fail to give acceptable results, he will modify his design and install and test another pile at his expense. He also guarantees that he will repair or replace at his own expenses all structural damage caused by inability of his piles to support the working loads satisfactorily for a period of two years.

END OF SECTION 02350

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Installation of temporary and permanent erosion and sedimentation control systems.
2. Installation of temporary and permanent slope protection systems.
3. Storm water Pollution Prevention Plan (SWPPP).

B. Related Sections and Documents

1. Section 02936 – Seeding
2. Storm water Pollution Prevention Plan
3. Construction Drawings (“Site Maps”)
4. Construction Storm water Details

1.02 ENVIRONMENTAL REQUIREMENTS

A. Protect adjacent properties, any identified endangered or threatened species and/or critical habitat, any identified cultural or historic resources, and receiving water resources from erosion and sediment damage until final stabilization is achieved. All storm water controls and systems must be installed & functioning as designed and free of accumulated sediment and debris before final project approval.

PART 2 REFERENCE TO STANDARDS

2.01 Illinois Department of Transportation (IDOT): Standard Specifications for Road and Bridge Construction, Latest Edition.

2.02 Illinois Urban Manual, latest edition.

PART 3 PRODUCTS

3.01 MATERIALS

A. Seed, sod, and ground covers for the establishment of vegetation in accordance with Section 02936.

B. All erosion control products, sediment control devices, or materials for non-storm water BMPs as specified herein and on the Construction Drawings.

C. Rolled erosion control products according to Erosion Control Technology Council (ECTC) standard specifications.

D. Temporary mulches such as loose straw, wood cellulose, or hydraulically applied materials.

E. Rip-Rap (stone protection) as specified on Plans.

F. Temporary and permanent outfall structures as specified on the drawings.

3.02 SUBMITTALS

A. Contractor shall submit shop drawings or material certifications for all manufactured erosion and sediment control materials.

PART 4 EXECUTION

4.01 PREPARATION

A. Review the drawings and Storm Water Pollution Prevention Plan.

B. Conduct storm water pre-construction meeting with Site Contractor, all ground-disturbing Sub-contractors, site engineer of record or their representative who is familiar with the site and SWPPP, and state or local agency personnel if available.

C. Revise SWPPP as necessary to address potential pollution from site identified after issuance of the SWPPP at no additional cost to owner.

4.02 EROSION AND SEDIMENTATION CONTROL AND SLOPE PROTECTION IMPLEMENTATION

A. Place erosion and sediment control systems in accordance with the drawings and Storm Water Pollution Prevention Plan or as may be dictated by site conditions in order to maintain the intent of the specifications and permits.

B. The Storm Water Pollution Prevention Plan and Site Maps shall be maintained, corrected or modified by the Contractor as site conditions progress throughout construction. Contractor must obtain approval from Owner's Engineer prior to modifying or substituting Best Management Practices.

C. The Contractor shall modify installed Best Management Practices to conform to changing conditions throughout construction. Contractor shall also be required to maintain all installed Best Management Practices in accordance with the Illinois Urban Manual.

D. The Contractor shall maintain an up to date site plan of installed BMP's at an on-site location during construction until a Notice of Termination is filed. Critical information shall be maintained directly on the site plan including dates of installation for each BMP, dates of maintenance, replacement, repair or removal.

E. The Owner shall be responsible for providing an inspector for conducting required inspections under the Illinois General NPDES Permit for Construction Sites (ILR10). Copies of Inspection Reports shall be provided to the Contractor after each inspection. All observed non-conformances which are resulting in sediment leaving the project site shall be mitigated immediately upon notification. Other non-conformances with the SWPPP and General Permit shall be remedied by the Contractor within 24 hours of notification. In the event that remedy is not possible within 24 hours of notification due to site conditions (i.e. weather), the Contractor shall provide a proposal to the Owner and Engineer within 72 hours detailing steps to be undertaken to remedy the non-compliance as soon as possible.

F. Owner has authority to limit surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and embankment operations and to direct Contractor to provide immediate permanent or temporary pollution control measures.

G. Maintain erosion and sedimentation control systems as dictated by site conditions, indicated in the construction documents, or as directed by governing authorities or Owner to prevent erosion and control sediment until final stabilization. Contractor shall respond to maintenance or additional work ordered by Owner or governing authorities immediately or as set forth within the time frames in (E) above at no additional cost to the Owner.

H. Contractor shall incorporate permanent erosion control features, permanent slope stabilization, and vegetation into project at earliest practical time to minimize need for temporary controls. Temporary stabilization, including temporary seeding shall be utilized to ensure compliance with ILR10 at no additional cost to the Owner.

I. Permanently seed and mulch cut and fill slopes as construction proceeds to extent considered desirable and practical.

J. Disturbed areas that will not be graded or actively worked for the time frame established in the SWPPP and General Permit, shall be temporarily stabilized as work progresses with vegetation or other acceptable means in accordance with Section 02936 unless otherwise specified in the Contract Documents. In the event it is not practical to seed areas, slopes shall be temporarily stabilized with mulch and tackifier, bonded fiber matrix, netting, blankets or other means to reduce the erosive potential of the area.

END OF SECTION 02370

STORM WATER POLLUTION PREVENTION PLAN

FOR

CONSTRUCTION ACTIVITIES

AT

Riley Creek CSO Satellite Treatment Facility
Contract 1

Mattoon, IL

Prepared for:

City of Mattoon, Illinois
208 North 19th Street
Mattoon, IL 61938

Prepared by:

Crawford, Murphy & Tilly, Inc.

2750 West Washington Street
Springfield, IL 62702
(217)787-8050

CMT

Project #: 12078-03-00

May 2015

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

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PART 5 SUMMARY OF PERMIT AND PROGRAM REQUIREMENTS

5.01 The Storm Water Pollution Prevention Plan (SWPPP) includes, but is not limited to, Specification Section 02370 (which includes the SWPPP) with appendices, the Erosion and Sedimentation Control Plans included in the Construction Drawings with the Detail Sheet, the Notice of Intent, Permit Authorization (Notice of Coverage), General Permit, Notice of Termination, all records of inspections and activities which are created during the course of the project, and other documents as may be included by reference to this SWPPP. Changes, modifications, revisions, additions, or deletions shall become part of this SWPPP as they occur.

5.02 The owner of the Project has completed the Owner's Certification of the Storm Water Pollution Prevention Plan, incorporated into this SWPPP as Appendix A.

5.03 The Contractor shall fill out the Certification of Qualifications letter included in Appendix B. All signed certifications must be kept in the jobsite SWPPP Binder and be available for inspection on the construction site. Signed documents including permits, certifications and qualification forms cannot be modified or revised in the field.

5.04 The General Contractor and all subcontractors involved with a construction activity that disturbs site soil or who implement a pollutant control measure identified in the SWPPP must complete and submit a copy of the Contractor/Subcontractor Certification form located in Appendix C and comply with the requirements of the General Permit and any local governing agency having jurisdiction concerning NPDES, storm water, erosion and sedimentation control.

5.05 General Permit Information

A) Facilities which are operating under approved local sediment and erosion plans, grading plans, or storm water management plans, in addition to filing copies of the Notice of Intent in accordance with the General Permit, shall also submit signed copies of the Notice of Intent to the local agency approving such plans in accordance with the deadlines of the General Permit.

B) **Prohibition on Non-Storm Water Discharges**. All discharges covered by this permit shall be composed entirely of storm water except as noted below.

1. Discharges of materials other than storm water must be in compliance with a NPDES permit (other than the permit for this project) issued for the discharge.
2. The following non-storm water discharges may be authorized by this permit provided the non-storm water component of the discharges is in compliance with Part IV.D.5 of the General Permit: discharges from firefighting activities, fire hydrant flushings, waters used to wash vehicles where detergents are not used, waters used to control dust, potable water sources including uncontaminated waterline flushings, landscape irrigation drainages, routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; uncontaminated air conditioning condensate, springs; uncontaminated ground water and foundation or footing drains where flows are not contaminated with process materials such as solvents.

3. The following non-storm water discharges are prohibited by the Illinois General Permit and include concrete and wastewater from washout of concrete (unless managed by an appropriate control), drywall compound, wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials, fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance, soaps, solvents or detergents, toxic or hazardous substances from a spill or other release, or any other pollutant that could cause or tend to cause water pollution.

C) **Discharges into Receiving Waters with an Approved Total Maximum Daily Load (TMDL)**. Discharges to waters for which there is a TMDL allocation for sediment or a parameter that addressed sediment (such as total suspended solids, turbidity, or siltation) are not eligible for coverage under the permit unless a SWPPP that is consistent with the assumptions and requirements in the approved TMDL is developed and certified.

1. Discharges covered by the General Permit, alone or in combination with other sources, shall not cause or contribute to a violation of any applicable water quality standard.
2. For any site which discharges directly to an impaired water identified on the Agency's website for 303(d) listing for suspended solids, turbidity, or siltation, the storm water pollution prevention plan shall be designed for a storm event equal to or greater than a 25-year, 24-hour rainfall event. If required by federal regulations or the Illinois Environmental Protection Agency's Illinois Urban Manual, the storm water pollution prevention plan shall adhere to a more restrictive design criterion. Refer to the Agency's website at http://www.epa.state.il.us/water/tmdl/303d-list.html.

D) **Public Posting**. A copy of the letter of Notification Of Coverage along with the General NPDES Permit for Storm Water Discharges from Construction Site Activities or other indication that storm water discharges from the site are covered under a NPDES permit shall be posted at the site in a prominent place for public viewing, such as alongside a building permit except for those portions of the permit claimed as confidential in accordance with 40 CFR Part 2.

1. All storm water pollution prevention plans and all completed inspection forms/reports required under this permit are considered reports that shall be available to the public at any reasonable time upon request.

E) **Keeping Plans Current**. The Owner or their duly authorized representatives shall amend the SWPPP whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to Waters of the State and which has not otherwise been addressed in the plan or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified in the Erosion and Sediment Control Plan sheets, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with construction site activity. In addition, the plan shall be amended to identify any new contractor and/or subcontractor that will implement a measure of the SWPPP. Any revisions of the documents for the storm water pollution prevention plan shall be kept on site at all times.

1. This SWPPP intends to control water-borne, air-borne and liquid pollutant discharges by some combination of interception, sedimentation, filtration, and containment. The General Contractor and subcontractors implementing this SWPPP must remain alert to the need to periodically refine the update to the SWPPP in order to accomplish the intended goals. The General Contractor (GC) is ultimately responsible for all site conditions and permit compliance.

F) **Inspections**. Qualified personnel, provided by the Owner, shall inspect disturbed areas of the construction site that have not been finally stabilized, structural control measures, and location where vehicles enter or exit the site at least once every seven (7) calendar days and within twenty-four (24) hours of the end of a storm that is 0.5 inches or greater or equivalent snowfall. Qualified personnel means a person knowledgeable in the principles and practices of erosion and sediment control measures, such as a licensed Professional Engineer (P.E.), a certified Professional in Erosion and Sediment Control (CPESC), a Certified Erosion Sediment and Storm Water Inspector (CESSWI) or other knowledgeable person who possesses the skills to assess conditions at the construction site that could impact storm water quality, assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activities, and is empowered to implement BMPs in order to increase effectiveness to an acceptable level.

1. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.
2. Based on the results of the inspection, the description of potential pollutant sources identified in this plan shall be revised as appropriate as soon as practicable after such inspection. Such modifications shall provide for timely implementation of any changes to the plan within seven (7) calendar days following the inspection.
3. The Owner shall be responsible to notify the appropriate Agency Field Operations Section office by email at epa.swnoncomp@illinois.gov, telephone, or fax within 24 hours of any incidence of noncompliance for any violation of the SWPPP observed during any inspection conducted, or for violations of any condition of the permit. The Owner shall complete and submit within five (5) days an “Incidence of Noncompliance” (ION) report (located in Appendix E) for any violation of the SWPPP observed during any inspection conducted, or for violations of any conditions of the permit. Submission shall include specific information on the cause of noncompliance, actions taken to prevent further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance.

4. After the initial contact has been made with the appropriate Agency Field Operations Section Office, all reports of noncompliance shall be mailed to the Agency at:

IEPA Division of Water Pollution Control
Compliance Assurance Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

G) **Retention of Records**. The Contractor shall retain a copy of the SWPPP and any revisions to said plan required by the General Permit at the construction site from the date of project initiation to the date of final stabilization.

1. After final stabilization, the contractor shall turn all SWPPP documentation over to the Owner who shall retain the documentation, in its entirety, for a period of at least three (3) years from the date that the permit coverage expires or is terminated. This period may be extended by request of the IEPA at any time.

H) **Notice of Termination**. When the site has been finally stabilized and all storm water discharges from construction sites that are authorized by this permit are eliminated, the contractor shall, at the direction of and at the sole discretion of the Owner and their Civil Engineer of Record, submit a completed and appropriately signed Notice of Termination (NOT) in accordance with the General Permit.

1. Final Stabilization means that all soil disturbing activities at the site have been completed, and either of the two following conditions are met:

i. A uniform (e.g. evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or
ii. Equivalent permanent stabilization measures (such as the use of rip rap, gabions, or geotextiles) have been employed.

PART 6 SITE SPECIFIC PLAN CONTENTS

6.01 **Introduction**. This SWPPP has been prepared for activities associated with the construction of:

Riley Creek CSO Satellite Treatment Facility
Contract 1
2521 North 6th Street
Mattoon, IL 61938

This SWPPP, including the applicable General Permit, includes the elements necessary to comply with the General Permit for construction activities administered by the U.S. Environmental Protection Agency (USEPA) under the National Pollutant Discharge Elimination System (NPDES) program and all local governing agency requirements. This SWPPP must be implemented at the start of construction.

Information contained in this section is for SWPPP purposes and information only and not to be used for quantity calculations in bidding.

Construction phase pollutant sources anticipated at the site are disturbed soil, vehicle fuels and lubricants, chemicals and coatings associated with site or building construction and pavement installation, construction-generated litter and debris, and building materials. Without adequate control there is a potential for each type of pollutant to be transported by storm water.

6.02 **Site Description**. Included as part of this SWPPP, are the project Construction Drawings – "Riley Creek CSO Satellite Treatment Facility – Contract 1". Refer to the Construction Drawings for detailed site information. The following is a description of the construction activity which is the subject of this plan:

The project consists of approximately 5.5 acres bounded on the north by Riley Creek, on the east by North 6th Street Road, agricultural land on the south and Canadian National Railway on the west. The area to be disturbed for the project will be used for a satellite treatment facility for combined sewer overflow (CSO) originating from the north side of Mattoon. Part of the project site contains the existing Riley Creek Pump Station that conveys sewage to the Mattoon wastewater plant (WWTP). All potentially disturbed areas are either currently planted in turf grass or row crops.

6.03 **Project Sequencing**. The above referenced plans include a detailed sequence of major construction activities that will disturb soils for portions of the site.

Sequence of Construction – Contract 1

1. Install construction entrances at locations shown.
2. Install perimeter BMP's (silt fence, check dams, etc) as shown on the plans prior to disturbing on-site soils.
3. Strip topsoil begin grading and excavation work.
4. Install underground piping and construction on-site structures.
5. Final grading, site paving, and turf establishment.

6.04 **Rainfall Information**. The following table provides the average monthly rainfall data for the project area.

	Jan	Feb	Mar	April	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Total
Average rainfall in inches	2.14	2.03	3.00	4.20	3.96	3.96	4.17	3.02	3.33	3.09	3.49	2.87	39.26

The design rain event for this project is the 25-yr, 24-hour storm which produces 5.37 inches of rainfall. The 10-yr, 24 hour storm which produces 4.44 inches of rainfall.

6.05 **Site Soils**.

Soil type and texture:

The USDA soil survey of Coles County, Illinois states that the site has soils belonging to various silt categories. Some of these soils are gently sloping and range from poorly drained to moderately well drained.

Average depth of topsoil: Generally approximately 8 inches (per geotechnical report).

Average depth to groundwater: Generally range from approximately 10 feet below existing grade (per geotechnical report).

6.06 **Total Site Area, Area to be Disturbed, and Runoff Coefficient**

The project site contains 5.5 acres.

The area to be disturbed on the project site is 5.5 acres.

Area(s) to be disturbed as part of this project that are located beyond the permitted project area: N/A.

Pre-Construction Runoff Coefficient [or SCS TR-55 Curve Number]: "c" = 30

Post-Construction Runoff Coefficient [or SCS TR-55 Curve Number]: "c" = 0.35

6.07 **Site Topography.**

Lowest elevation on project site: 681.0 ft.

Highest elevation on project site: 684.0 ft.

Percent slope variation: Approximately 0.75%

Topography changes: Moderate grading changes as shown on the construction plans.

Vegetation: N/A.

6.08 **Receiving Surface Waters.**

Receiving waters: All storm water run-off from the site flows into Riley Creek which ultimately flows into the Embarras River.

Distance to named receiving waters: Riley Creek is located directly along the north perimeter of the project site. The Embarras River is approximately 12 miles east of Riley Creek.

Receiving water quality: Riley Creek is not specified on the IEPA 303(d) list of impaired waters.

Discharge criteria include: There are no project-specific discharge water quality criteria associated with this site.

6.09 Erosion and Sedimentation Control Plan

See C- 106, C-107, and C-301 of the Riley Creek CSO Satellite Treatment Facility for site plans and details on the required erosion and sedimentation control plan.

PART 7 STORM WATER POLLUTION PREVENTION MEASURES AND CONTROLS

7.01 A variety of storm water pollutant controls are recommended for this project. Some controls are intended to function temporarily and will be used as needed for pollutant control during the construction period such as silt fence, sediment basins and stabilized construction entrances. Permanent stabilization will be accomplished in all disturbed areas by such measures as covering the soil with pavement or stone, or permanent vegetation.

7.02 Erosion and Sediment Controls

A) Minimization of Disturbed Areas

Note to General Contractor: Owner has authority to limit surface area of exposed earth material created by clearing, grubbing, excavation, borrow and embankment operations and to direct General Contractor to provide immediate permanent or temporary pollution control measures to provide compliance with the Illinois General Permit.

B) Soil Stabilization

The purpose of soil stabilization is to prevent soil from eroding and leaving the site. In the natural condition, soil is stabilized by native vegetation. The primary technique to be used at this project for stabilizing site soils will be to provide a protective cover of grass for either temporary or permanent installation.

1. Temporary Seeding or Stabilization – All denuded areas that will be inactive for 7 days or more (unless they are to be reworked within 14 days), must be stabilized temporarily with the use of fast-germinating annual grass/grain varieties appropriate for site soil and climate conditions, straw/hay mulch, wood cellulose fibers, tackifiers, netting and/or blankets. Stockpiles and diversion ditches/berms must be stabilized to prevent erosion and dust issues.

   Note to General Contractor: Temporary stabilization is not achieved simply through seeding. Mulch, hydromulch, rolled erosion control projects of tackifiers must also be used. In order for an area or stockpile to be sufficiently stabilized via temporary vegetation, seed must germinate, grow and provide adequate vegetative density.

2. Permanent Seeding, Sod or Mulching – All areas at final grade must be seeded or covered with sod as soon as practicable after completion of work in that area and within the periods specified in the General Permit. Seed immediately after final grade is achieved and soils are prepared to take advantage of soil moisture and seed germination conditions. At the completion of ground-disturbing activities the entire site must have permanent vegetative cover, meeting minimum vegetative density requirements, or be covered with hardwood mulch per landscape plan, in all

areas not covered by hardscape (pavement, buildings, stone etc.).

Seeded areas shall be protected with straw mulch, hydraulic mulch or a rolled erosion control product on slopes 3:1 or steeper. Straw mulch must be tackified or crimped by disc or other machinery and rolled erosion control products must be installed per manufacturer recommendations.

To minimize the potential for erosion and maximize seed germination & growth, the General Contractor must evaluate the short and long-term local forecast prior to applying permanent seed or sod.

Final site stabilization is achieved when perennial vegetative cover provides permanent stabilization with a density greater than **70 percent** over the entire area to be stabilized by vegetative cover. This area is exclusive of areas that are covered with stone, (crushed granite, gravel, etc.) hardwood landscape mulch, pavement or have a building or other permanent structure on them.

C) Structural Controls

Silt fence will be place at specified down slope areas to allow sediments to filter out the stormwater. Ditch checks placed along the natural ditch drainage paths controls erosion and sedimentation as areas of the site are cleared. Outfalls are protected by sediment traps with gravel and riprap outlets.

1. **Sediment Basins** – Temporary sediment basins are depressions constructed downslope of construction activity and located such that stormwater runoff from upland areas of less than 100 acres are diverted through the basin. Sediment basins shall be constructed as directed by the SWPPP and shall be constructed as part of the initial Clearing Phase BMP's whenever practical. An overflow pipe is incorporated at the outlet to discharge flow from the basin.

2. **Silt Fence** – Silt fence is a synthetic permeable woven or non-woven geotextile fabric incorporating metal support stakes at intervals sufficient to support the fence (5-feet maximum distance between posts), water, and sediment retained by the fence. The fence is designed to retain sediment-laden stormwater and allow settlement of suspended soils before the stormwater and allow settlement of suspended soils before the stormwater flows through the fabric and discharges from the site. Silt fence shall be located on the contour to capture overland, low-velocity sheet flows and is typically installed with a wire fence backing for additional support. Wire fence backing is required unless the silt fence is installed using the slicing method as the slicing method ensures the silt fence fabric is anchored securely in the ground.

   Install silt fence at a fairly level grade along the contour with the ends curved uphill to provide sufficient upstream storage volume for the anticipated runoff. Drainage areas shall not exceed ½ acre per 100 feet of wire-reinforced silt fence for slopes less than 2 percent.

3. **Construction Entrance** – All access points from the public street into the construction site shall include a construction entrance composed of

course stone to the dimensions shown on the Construction Drawings detail sheet. The rough texture of the stone helps to remove clumps of soil adhering to the construction vehicle tires through the action of vibration and jarring over the rough surface and the friction of the stone matrix against soils attached to vehicle tires.

In addition to the stone at the construction entrance, it may be necessary to install devices such as pipes (cattle guard) to increase the vibration and jarring. It may also be necessary to install a wheel wash system. If this is done, a sediment trap control must be installed to treat the wash water before it discharges from the site.

All site access must be confined to the construction entrance(s). Barricade to prevent use, any locations other than the construction entrance(s) where vehicles or equipment may access the site. Use jersey barriers, construction fencing/drums, etc. near construction entrance(s) to prevent traffic by-pass or short circuiting.

4. Check Dams – Defined channels subject to concentrated flows in large quantities and higher velocities may be protected with rock or other manufactured device (Geo-ridge for example) that can be used as a check dam. The dams impound sediment-laden water and allow for settlement of suspended soil before the stormwater flows over and through the device. Dams shall be placed along the water course at linear intervals in which the elevation of the bottom of the upper most check dam is at the same elevation as the top of the check dam immediately below it. This will allow the most ponding capacity and will not increase the velocity of the water flowing along the channel.

   Location and spacing of check dams are shown on the Site Maps. Check dams are composed of crushed stone or riprap or of other manufactured devices. See the detail sheet within the Construction Drawings for the types of dams to be used on this site.

5. **Diversion Ditch/Berm** – Diversion ditches (swales) and berms (dikes) are constructed as shown on the Site Maps at locations within the construction site to intercept overland flow and direct or divert flow to a sediment basin or other point where discharge can be controlled. Ditches are excavated in the surface soils with the spoils from the excavation typically placed along the downstream edge of the ditch to provide additional capacity. Berms are built up on the surface soils and compacted to create a stable diversion.
6. Straw Wattles – To retain sediment-laden stormwater and allow settlement of suspended soils before the stormwater flows through the material and discharges from the site. See detail sheet within the Construction Drawings for materials and specifications for straw wattles.

D) Other Pollutant Controls. This section includes the controls of pollutants other than sediment and additional requirements of the General Permit.

1. **Dust Control**. Construction traffic must enter and exit the site at the stabilized construction exit. The purpose is to trap dust and mud that would

otherwise be carried beyond the permitted project area by construction traffic. Large areas of soil that are denuded of vegetation and have no protection from particles being picked up and carried by wind should be protected with a temporary cover or kept under control with water or other soil adhering products to limit wind transported particles exiting the site perimeter.

Water trucks or other dust control agents will be used as needed during construction to minimize dust generated on the site. Tackifiers may be used to hold soil in place and prevent dust. Manufacturer recommendations for application locations and rates must be used for dust control applications. Dust control must be provided by the General Contractor to a degree that is in compliance with applicable local and state dust control regulations.

2. **Dewatering**. Verify discharges from dewatering activities are allowed non-storm water discharges under the General Permit. Obtain a dewatering permit according to local regulations, if necessary. Discharges from dewatering operations must be directed through an appropriate pollution prevention/treatment measure, such as a pump discharge filter bag, sediment trap or sediment basin prior to being discharged from the site or into a water body of the State. Under no circumstances are discharges from dewatering operations to be discharged directly into streams, rivers, lakes or other areas beyond the permitted project area. Likewise, discharges into storm sewer systems that do not drain to a suitable on-site treatment facility, such as a basin, are also prohibited. Discharges from dewatering operations must also be conducted in a manner sufficient to prevent erosion from the discharge runoff.

   Use best management practices when dewatering. Place intake hose on a flotation or similar device and do not pump directly from the bottom of the basin, trench, etc. Always pump through a sediment control BMP and dewater within the permitted limits of disturbance to ensure discharge criteria are achieved. Do not discharge on a slope greater than three percent or within 20’ of a surface water body. Dewatering should not occur during or immediately after precipitation events, but exceptions will be evaluated on case by case basis.

3. **Solid Waste Disposal**. No solid materials, including building materials, are allowed to be discharged from the site with storm water. All solid waste, including disposable materials incidental to the major construction activities, must be collected and placed in containers. The containers will be emptied when 95% full, or as necessary, by a certified trash disposal service and hauled away from the site. Covers for the containers will be provided as necessary to meet state and local requirements. Construct covers as practicable, or required, to prevent storm water contact and pollutant discharges from solid waste receptacles. The location of solid waste receptacles shall be shown on the Site Maps.

   Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary in order to ensure that they do not discharge from the site. As an example, special care must be exercised during equipment fueling and servicing operations. If a spill

occurs, it must be contained and disposed of so that it will not flow from the site or enter groundwater, even if this requires removal, treatment, and disposal of soil. In this regard, potentially polluting substances should be handled in a manner consistent with the impact they represent.

4. **Sanitary Facilities**. All personnel involved with construction activities must comply with state and local sanitary or septic system regulations. Temporary sanitary facilities will be provided at the site throughout the construction phase. They must be utilized by all construction personnel and will be serviced by a commercial operator. The location of sanitary facilities shall be shown on the Site Maps. Portable toilets must be securely anchored and are not allowed within 30' of inlets or permitted limit of disturbance or within 50' of a water of the State.

5. **Non-Storm Water Discharges**. Non-stormwater components of site discharges must be clean water. Water used for construction which discharges from the site must originate from a public water supply or private well approved by the State Health Department. Water used for construction that does not originate from an approved public supply must not discharge from the site. It can be retained in the ponds until it infiltrates and evaporates. Other non-stormwater discharges would include ground water. Only uncontaminated ground water can be discharged from the site, as allowed by and in accordance with applicable local ground water dewatering permits/regulations. When non-stormwater is discharged from the site, it must be done in a manner such that it does not cause erosion of the soil during discharge.

   Process water such as power washing which uses detergents and concrete cutting must be collected for treatment and disposal. It is not to be flushed into the site storm drain system.

6. **Fuel Tanks**. Temporary on-site fuel tanks for construction vehicles shall meet all state and federal regulations. Tanks shall have approved spill containment with the capacity required by the applicable regulations. From NFPA 30: All tanks shall be provided with secondary containment (i.e. containment external to and separate from primary containment). Secondary containment shall be constructed of materials of sufficient thickness, density, and composition so as not to be structurally weakened as a result of contact with the fuel stored and capable of containing discharged fuel for a period of time equal to or longer than the maximum anticipated time sufficient to allow recovery of discharged fuel. It shall be capable of containing 110% of the volume of the primary tank if a single tank is used, or in the case of multiple tanks, 150% of the largest tank or 10% of the aggregate, whichever is larger.

   The tanks shall be in sound condition free of rust or other damage which might compromise containment. Fuel storage areas will meet all EPA, OSHA and other regulatory requirements for signage, fire extinguisher, etc. Hoses, valves, fittings, caps, filler nozzles, and associated hardware shall be maintained in proper working condition at all times. The location of fuel tanks shall be shown on the Site Maps and shall be located to minimize exposure to weather and surface water drainage features.

A Spill Prevention, Control and Countermeasure (SPCC) Plan must be developed if aboveground oil storage *capacity* at the construction site exceeds 1,320-gallons. Containers with a storage capacity of less than 55-gallons are not included when calculating site storage capacity. The General Contractor shall work with the Engineer to develop and implement a SPCC Plan in accordance with the Oil Pollution Prevention regulation at Title 40 of the Code of Federal Regulations, Part 112, (40 CFR 112).

7. **Hazardous Material Management and Spill Reporting Plan**. Any hazardous or potentially hazardous material that is brought onto the construction site will be handled properly in order to reduce the potential for storm water pollution. All materials used on this construction site will be properly stored, handled, dispensed and disposed of following all applicable label directions. Flammable and combustible liquids will be stored and handled according to 29 CFR 1926.152. Only approved containers and portable tanks shall be used for storage and handling of flammable and combustible liquids.

   Material Safety Data Sheets (MSDS) information will be kept on site for any and all applicable materials.

   In the event of an accidental spill, immediate action will be undertaken by the General Contractor to contain and remove the spilled material. All hazardous materials, including contaminated soil and liquid concrete waste, will be disposed of by the Contractor in the manner specified by federal, state and local regulations and by the manufacturer of such products. As soon as possible, the spill will be reported to the appropriate agencies. As required under the provisions of the Clean Water Act, any spill or discharge entering waters of the United States will be properly reported. The General Contractor will prepare a written record of any spill and associated clean-up activities of petroleum products or hazardous materials in excess of the Reportable Quantity. The General Contractor will provide notice to Owner immediately upon identification of a reportable spill. An Incidence of Noncompliance form is located in Appendix E.

   Any spills of petroleum products or hazardous materials in excess of Reportable Quantities as defined by EPA or the state or local agency regulations, shall be immediately reported to the EPA National Response Center (1-800-424-8802) and the Illinois Emergency Management Agency (1-800-782-7860).

   A spill of 25 gallons of petroleum is considered a Reportable Quantity by the State of Illinois. In addition, any size release which causes a sheen on receiving waters must be reported also. The reportable quantity for hazardous materials can be found in 40 CFR 302 and in the "List of Lists" published by the U.S. EPA. A copy of the "List of Lists" can be obtained from the Illinois Emergency Management Agency, Hazardous Materials Department at (217) 782-7860.

   In order to minimize the potential for a spill of petroleum product or hazardous materials to come in contact with storm water, the following steps will be implemented:

a) All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, additives for soil stabilization, concrete, curing compounds and additives, etc.) will be stored in a secure location, under cover and in appropriate, tightly sealed containers when not in use.

b) The minimum practical quantity of all such materials will be kept on the job site and scheduled for delivery as close to time of use as practical.

c) A spill control and containment kit (containing for example, absorbent material such as kitty litter or sawdust, acid neutralizing agent, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided on the construction site and location(s) shown on Site Maps.

d) All of the product in a container will be used before the container is disposed of. All such containers will be triple rinsed, with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with storm water discharges.

e) All products will be stored in and used from the original container with the original product label.

f) All products will be used in strict compliance with instructions on the product label.

g) The disposal of excess or used products will be in strict compliance with instructions on the products label.

E) **Long-Term Pollutant Controls**. Storm water pollutant control measures installed during construction that will also provide storm water management benefits after construction are included in this project. The primary control will be grassed filter strips adjacent to curbed inlets and area inlets. This system will allow for nutrient and sediment removal after construction is complete.

F) **"Best Management Practices" (BMPs).** Owner has authority to limit surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and embankment operations and to direct the General Contractor to provide immediate permanent or temporary pollution control measures.

During the construction phase, the General Contractor shall implement the following measures:

1. Any materials resulting from clearing and grubbing or excavation operations shall be stockpiled up slope from adequate sedimentation controls. Materials removed to sites beyond the permitted project area shall be protected with appropriate controls and properly permitted and otherwise comply with applicable laws, all in accordance with this SWPPP, including Section V.D. below.

2. The General Contractor shall designate areas on the Site Maps for equipment cleaning, maintenance, and repair. The General Contractor and subcontractors shall utilize such designated areas. Cleaning, maintenance, and repair areas shall be protected by a temporary perimeter berm, shall not occur within 150 feet of any waterway, water body or wetland, and in areas located as far as practical from storm sewer inlets.

3. Use of detergents for large scale washing is prohibited (i.e. vehicles, buildings, pavement surfaces, etc.).

4. Chemicals. Paints, solvents, fertilizers, and other toxic materials must be stored in waterproof containers. Except during application, the containers, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated, and disposed of at an approved solid waste and chemical disposal facility.

7.03 **Inspections and System Maintenance.** Between the time this SWPPP is implemented and final Notice of Termination has been submitted, all disturbed areas and pollutant controls must be inspected once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater or equivalent snowfall. The purpose of site inspections is to assess performance or pollutant controls. The inspections will be conducted by the General Contractor's Site Superintendent. Based on these inspections, the General Contractor will decide whether it is necessary to modify this SWPP, add or relocate controls, or revise or implement additional Best management practices in order to prevent pollutants from leaving the site via stormwater runoff. The General Contractor has the duty to cause pollutant control measures to be repaired, modified, supplemented, or take additional steps as necessary in order to achieve effective pollutant control. Note: If a BMP is covered by snow, mark the BMP as not applicable and document the reason the BMP cannot be inspected on the report.

Examples of specific items to evaluate during site inspections are listed below. This list is not intended to be comprehensive. During each inspection, the inspector must evaluate overall pollutant control system performance as well as particular details of individual system components. Additional factors should be considered as appropriate to the circumstances. The General Contractor is responsible for measuring and recording site-specific rainfall amounts.

A) **Construction Entrance and Track Out**. Locations where vehicles enter and exit the site must be inspected for evidence of sediment tracking beyond the permitted project area. A stabilized construction entrance shall be constructed where vehicles enter and exit. Entrances shall be maintained or supplemented with additional rock as necessary to prevent the release of sediment from vehicles leaving the site. Any sediment deposited on the roadway shall be swept as necessary throughout the day and disposed of in an appropriate manner. Sediment shall NOT be washed into storm sewer systems. **Note to General Contractor:** Track out is a sediment release (sediment from the construction site is not allowed beyond the permitted limits of disturbance). All sediment releases must be reported to the SWCT Hotline at (800-530-9928). See Item H below for additional information.

B) **Erosion Control Devices**. Rolled erosion control products (nets, blankets, turf reinforcement mats) and marginally vegetated areas (areas not meeting required vegetative densities for final stabilization) must be inspected daily. Formation of rills, rutting and other signs of erosion indicate the erosion control device is not

functioning properly and additional erosion control devices are warranted.

C) **Sediment Control Devices**. Sediment barriers, silt fence, traps and basins must be inspected and they must be cleaned out at such time as their original capacity has been reduced by 50 percent. All material excavated from behind sediment barriers or in traps and basins shall be incorporated into on-site soils or spread out on an upland portion of the site and stabilized. To minimize the potential for sediment releases from the project site perimeter control devices shall be inspected with consideration given to changing up-gradient conditions.

D) **Material Storage Areas**. Material storage areas should be located to minimize the exposure of stored materials to weather. Such materials would include bagged goods (cement, mortar) lubricants, fuel, oils, greases or any other materials which may decompose and pollute if subject to rain or inclement conditions. Inspections shall evaluate disturbed areas and areas used for storing materials that are exposed to rainfall for evidence of, or the potential for, pollutants entering the drainage system or discharging from the site. If necessary, the materials must be covered or original covers must be repaired or supplemented. Also, protective berms must be constructed, if needed, in order to contain runoff from material storage areas. All state and local regulations pertaining to material storage areas will be adhered to.

E) **Vegetation.** Consideration must be given to anticipated climate and seasonal conditions when specifying and planting seed. Seed shall be free of weedy species and appropriate for site soils and regional climate. Seed and mulch per the construction drawings and specifications immediately after topsoil is applied and final grade is reached. Grassed areas shall be inspected to confirm that a healthy stand of grass is maintained. The site has achieved final stabilization once all areas are covered with building foundation or pavement, or have a stand of grass with a minimum of 70 percent density or greater of natural background cover over the entire vegetated area in accordance with the General Permit requirements. Vegetated areas must be watered, fertilized, and reseeded as needed to achieve this requirement. The vegetative density must be maintained through project completion to be considered stabilized. Areas protected by erosion control blankets are not permanently stabilized until the applicable General Permit requirement for final vegetative density is achieved.

Rip-rap, mulch, gravel, decomposed granite or other equivalent permanent stabilization measures may be employed in lieu of vegetation based on site-specific conditions <u>and</u> governing authority approval.

F) **Discharge Points**. All discharge points must be inspected to determine whether erosion and sediment control measures are effective in preventing discharge of sediment from the site or impacts to receiving waters.

G) **Sediment Releases**. The Inspection Report Form must identify all deficiencies, any corrections, whether they are identified during the current inspection or have occurred since the previous inspection, and any additional comments. Based on inspection results, any modification necessary to increase effectiveness of this SWPPP to an acceptable level must be made immediately but no longer than within 48 hours of the inspection. The inspection reports must be complete and additional information should be included if needed to fully describe a situation. An important aspect of the inspection report is the description of additional measures that need to be taken to enhance plan effectiveness. The inspection report must identify whether the site was in compliance with the SWPPP at the time of inspection and specifically identify all incidents of non-compliance and complete an Incidence of

Noncompliance (ION) form and submit it to the Owner and the Agency.

A responsible corporate officer must sign a form with the site superintendent as the authorized position for conducting the required inspections. A copy of this form is included in Appendix B. The inspector must be considered a “Storm water Professional”. Inspection reports must include an original, authorized signature and date of the inspection. Inspection reports must be retained by the General Contractor as an integral part of this SWPPP for at least three years from the date of submission of the Notice of Termination of permit coverage.

Ultimately, it is the responsibility of the General Contractor to assure the adequacy of site pollutant discharge controls. Actual physical site conditions or contractor practices could make it necessary to install more structural controls than are shown on the plans. For example, localized concentrations of runoff could make it necessary to install additional sediment barriers. Assessing the need for additional controls and implementing them or adjusting existing controls will be a continuing aspect of this SWPPP until the site achieves final stabilization. Any modifications, additions or deletions of sediment control devices that may alter the hydraulic design of the site or are located in areas of potential high flow (basins, traps, check dams, diversions. etc.) should be approved by the Engineer of Record through the request for information process (RFI).

APPENDIX A	**OWNERS CERTIFICATION OF THE SWPPP**
APPENDIX B	**CERTIFICATION OF QUALIFICATIONS**
APPENDIX C	**CONTRACTOR/SUBCONTRACTOR CERTIFICATION**
APPENDIX D	**IEPA NOTICE OF INTENT (NOI)**
APPENDIX E	**IEPA INCIDENCE OF NONCOMPLIANCE (ION) FORM**
APPENDIX F	**RECORD OF STABILIZATION AND CONSTRUCTION ACTIVITY DATES**
APPENDIX G	**IEPA NOTICE OF TERMINATION (NOT)**
APPENDIX H	**IEPA GENERAL PERMIT**

APPENDIX A

OWNER'S SWPPP CERTIFICATION

[Owner's SWPPP Certification – reproduce the following on company letterhead]

Date: _____

RE: **Riley Creek CSO Satellite Treatment Facility – Contract 1**
Mattoon, Illinois

Address: 208 North 8th Street, Mattoon, Illinois 61938.

CERTIFICATION OF THE STORM WATER POLLUTION PREVENTION PLAN

GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

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

Sincerely,

_____
Signature

_____
Printed Name

_____
Title

_____
Company

APPENDIX B

CERTIFICATION OF QUALIFICATIONS

Certification of Qualifications

Riley Creek CSO Satellite Treatment Facility – Contract 1

Certification of Compliance Officer for Storm water Qualifications

I certify under penalty of law that the Compliance Officer: _____
Print Name

_____
Compliance Officer E-mail Address

1) is an Officer of the Corporation and a Storm Water Professional; and
3) is able to adequately identify and implement storm water sediment and erosion control practices and effectively instruct employees and contractors in the implementation of such practices.

_____ _____
Contractor Company Name Date

_____ _____ _____
Name of Officer of the Company Signature of Officer Title

Certification of Project Superintendent Storm Water Qualifications

I certify under penalty of law that the superintendent:

_____
Print Name

State or local Certificate #, as applicable _____

_____
Superintendent E-mail Address

1) is a Storm water Professional* ; and
2) is able to adequately identify and implement storm water sediment and erosion control practices and effectively instruct employees and contractors in the implementation of such practices.

_____ _____
Contractor Company Name Date

_____ _____ _____
Name of Officer of the Company Signature of Officer Title

*A Storm water Professional is a person knowledgeable of the principles and practices of erosion and sediment control measures, such as a Professional Engineer (PE), a Certified Professional in Erosion and Sediment Control (CPESC), a Certified Erosion Sediment and Storm Water Inspector (CESSWI), or other qualified individual.

NOTE: Only one (1) Compliance Officer and one (1) Superintendent can be certified on this form. Additional Compliance Officers and Superintendents associated with this project must complete and execute (obtain officer signature) a separate form and save in the SWPPP Binder on top of old/obsolete forms.

APPENDIX C

CONTRACTOR/SUBCONTRACTOR CERTIFICATION

CONTRACTOR/SUBCONTRACTOR CERTIFICATION

Riley Creek CSO Satellite Treatment Facility – Contract 1

The General Contractor and all contractors and/or subcontractors that will implement and maintain the pollution control measures in the SWPPP and/or are involved in ground-disturbing activities on the site must be identified below. An authorized representative (an Officer of the Corporation) from each company on the construction project must sign this form certifying that company representatives understand the General Permit authorizing storm water discharges during construction. These certifications must be maintained in the SWPPP file.

Contractor/Subcontractor Employee Name _____ Trade _____

Company Name _____ Business Phone Number _____

Business Address _____ City, State Zip _____

CERTIFICATION (Part IV, Section F.2. of the Illinois General Permit):

"I certify under penalty of law that I understand the term and conditions of the National Pollutant Discharge Elimination System (NPDES) General Permit (ILR10) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification. The SWPPP and General Permit have been made available to me to review and I agree to stay in compliance with the permit."

Signature _____ Date _____

Printed Name _____

_____ Initial here if you received a copy of storm water compliance Guidance material appropriate for the conditions at the site.

Title (Must be an Officer of company if form is a permit requirement. See Note below.)

✷ **All employees of contractors and subcontractors have the responsibility of notifying the General Contractor's Superintendent of any Storm water BMP deficiencies or damage.**

The above listed contractor is responsible for the following BMPs: (check all that apply)

✓	**Best Management Practice**	✓	**Best Management Practice**	✓	**Best Management Practice**
	Construction Exit		Diversions		Solid Waste
	Silt Fence		Sediment Traps		Sanitary Waste
	Check Dams		Sediment Basins		Hazardous Waste Management
	Inlet Protection		Dust Control		Record Keeping
	Erosion Control		Concrete Wash-out		SWPPP modifications
	Vegetation		Fuel Storage/Containment		

Note: This form is a requirement of the State of Illinois and must be signed by an officer of the Corporation.

APPENDIX D

IEPA NOTICE OF INTENT (NOI)

Illinois Environmental Protection Agency

Bureau of Water • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Division of Water Pollution Control
Notice of Intent (NOI) for General Permit
to Discharge Storm Water Associated with Construction Site Activities

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at the above address.

For Office Use Only

Permit No. ILR10 _____

OWNER INFORMATION

Company/Owner Name: City of Mattoon

Mailing Address: 208 North 19th Street Phone: 217-235-5460

City: Mattoon State: IL Zip: 61938 Fax: 217-235-5143

Contact Person: Dean Barber, PE - Public Works Director E-mail: BarberD@mattoonillinois.org

Owner Type (select one) City

MS4 Community: ☐ Yes ☑ No

CONTRACTOR INFORMATION

Contractor Name: _____

Mailing Address: _____ Phone: _____

City: _____ State: ____ Zip: _____ Fax: _____

CONSTRUCTION SITE INFORMATION

Select One: ☒ New ☐ Change of information for: ILR10 _____

Project Name: Riley Creek CSO Satellite Treatment Facility County: Coles

Street Address: 2521 North 6th Street City: Mattoon IL Zip: 61938

Latitude: ____ ____ ____ (Deg) (Min) (Sec) Longitude: ____ ____ ____ (Deg) (Min) (Sec) 12 Section 12 North Township 7 East Range

Approximate Construction Start Date _____ Approximate Construction End Date _____

Total size of construction site in acres: _____

If less than 1 acre, is the site part of a larger common plan of development?

☐ Yes ☐ No

Fee Schedule for Construction Sites:
Less than 5 acres - $250
5 or more acres - $750

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Has the SWPPP been submitted to the Agency? ☐ Yes ☑ No

(Submit SWPPP electronically to: epa.constilr10swppp@illinois.gov)

Location of SWPPP for viewing: Address: _____ City: _____

SWPPP contact information: Inspector qualifications:

Contact Name: Shane Remmert P.E.

Phone: 217-787-8050 Fax: 217-787-4183 E-mail: sremmert@cmtengr.com

Project inspector, if different from above Inspector qualifications:

Inspector's Name: _____ _____

Phone: _____ Fax: _____ E-mail: _____

IL 532 2104 WPC 623
Rev 5/10

This Agency is authorized to require this information under Section 4 and Title X of the Environmental Protection Act (415 ILCS 5/4, 5/39). Failure to disclose this information may result in: a civil penalty of not to exceed $50,000 for the violation and an additional civil penalty of not to exceed $10,000 for each day during which the violation continues (415 ILCS 5/42) and may also prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

TYPE OF CONSTRUCTION **(select one)**

Construction Type Industrial

SIC Code: _____

Type a detailed description of the project:

Site clearing, topsoil stripping, and excavation to construct a combined sewer overflow satellite treatment facility with all the necessary utilities, roadway and appurtenances.

HISTORIC PRESERVATION AND ENDANGERED SPECIES COMPLIANCE

Has the project been submitted to the following state agencies to satisfy applicable requirements for compliance with Illinois law on:

Historic Preservation Agency ☑ Yes ☐ No

Endangered Species ☑ Yes ☐ No

RECEIVING WATER INFORMATION

Does your storm water discharge directly to: ☐ Waters of the State or ☑ Storm Sewer

Owner of storm sewer system: City of Mattoon

Name of closest receiving water body to which you discharge: Riley Creek

Mail completed form to: Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276
or call (217) 782-0610
FAX: (217) 782-9891

Or submit electronically to: epa.constilr10swppp@illinois.gov

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, I certify that the provisions of the permit, including the development and implementation of a storm water pollution prevention plan and a monitoring program plan, will be complied with.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Owner Signature:	Date:
Dean Barber	Public Works Director
Printed Name:	Title:

INSTRUCTIONS FOR COMPLETION OF CONSTRUCTION ACTIVITY NOTICE OF INTENT (NOI) FORM

Submit original, electronic or facsimile copies. Facsimile and/or electronic copies should be followed-up with submission of an original signature copy as soon as possible. Please write "copy" under the "For Office Use Only" box in the upper right hand corner of the first page.

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276
or call (217) 782-0610
FAX: (217) 782-9891

Or submit electronically to: epa.constilr10swppp@illinois.gov

Reports must be typed or printed legibly and signed.

Any facility that is not presently covered by the General NPDES Permit for Storm Water Discharges From Construction Site Activities is considered a new facility.

If this is a change in your facility information, renewal, etc., please fill in your permit number on the appropriate line, changes of information or permit renewal notifications do not require a fee.

NOTE: FACILITY LOCATION IS NOT NECESSARILY THE FACILITY MAILING ADDRESS, BUT SHOULD DESCRIBE WHERE THE FACILITY IS LOCATED.

Use the formats given in the following examples for correct form completion.

	Example	Format
Section	12	1 or 2 numerical digits
Township	12N	1 or 2 numerical digits followed by "N" or "S"
Range	12W	1 or 2 numerical digits followed by "E" or "W"

For the Name of Closest Receiving Waters, do not use terms such as ditch or channel. For unnamed tributaries, use terms which include at least a named main tributary such as "Unnamed Tributary to Sugar Creek to Sangamon River."

Submission of initial fee and an electronic submission of Storm Water Pollution Prevention Plan (SWPPP) for Initial Permit prior to the Notice of Intent being considered complete for coverage by the ILR10 General Permits. Please make checks payable to: Illinois EPA at the above address.

Construction sites with less than 5 acres of land disturbance - fee is $250.

Construction sites with 5 or more acres of land disturbance - fee is $750.

SWPPP should be submitted electronically to: epa.constilr10swppp@illinois.gov When submitting electronically, use Project Name and City as indicated on NOI form.

APPENDIX E

IEPA INCIDENCE OF NONCOMPLIANCE (ION) FORM

Illinois Environmental Protection Agency

Bureau of Water • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Division of Water Pollution Control
Construction Site Storm Water Discharge Incidence of Non-Compliance (ION)

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Compliance Assurance Section at the above address. You may email this completed form to: epa.swnoncomp@illinois.gov

For Office Use Only
Permit No. ILR10_____

Permittee Information:

Name: City of Mattoon

Street Address: 208 North 19th Street P.O. Box: _____

City: Mattoon State: IL Zip Code: 61938 County: Coles

Phone: 217-235-5460 Email: BarberD@mattoonillinois.org

Construction Site Information:

Site Name: Riley Creek CSO Satellite Treatment Facility

Street Address: 2521 North 6th Street

City: Mattoon State: IL Zip Code: 61938

Latitude:	39	30	33	Longitude:	88	21	35	1	12 North	7 East
	(Deg)	(Min)	(Sec)		(Deg)	(Min)	(Sec)	Section	Township	Range

Cause of Non-Compliance

Actions Taken to Prevent Any Further Non-Compliance

Environmental Impact Resulting From the Non-Compliance

Actions Taken to Reduce the Environmental Impact Resulting From the Non-Compliance

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Owner Signature: _____ Date: _____

Dean Barber — Printed Name:

Public Works Director — Title:

IL 532 2105 WPC
624 Rev. 10/2011

This Agency is authorized to require this information under Section 4 and Title X of the Environmental Protection Act (415 ILCS 5/4, 5/39). Failure to disclose this information may result in: a civil penalty of not to exceed $50,000 for the violation and an additional civil penalty of not to exceed $10,000 for each day during which the violation continues (415 ILCS 5/42) and may also prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

DIVISION OF WATER POLLUTION CONTROL
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
FIELD OPERATIONS SECTION

GUIDELINES FOR COMPLETION OF INCIDENCE OF NON-COMPLIANCE (ION) FORM

Complete and submit this form for any violation of the Storm Water Pollution Prevention Plan observed during any inspection conducted, including those not required by the SWPPP. Please adhere to the following guidelines:

Initial submission within 24 hours by email, telephone or fax (see region fax numbers) of any incidence of non-compliance for any violation. Submit email copy to: epa.swnoncomp@illinois.gov. After 24 hours notification, submit signed original ION within 5 days to the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance #19
Post Office Box 19276
Springfield, Illinois 62794-9276

FIELD OPERATIONS HEADQUARTERS
Bruce Yurdin, Manager
Phone: 217/782-3362 Fax: 217/785-1225
EMAIL: epa.swnoncomp@illinois.gov

Region 1 - ROCKFORD
Chuck Corley, Manager
Phone: 815/987-7760 Fax: 815/987-7005

Region 2 - DESPLAINES
Jay Patel, Manager
Phone: 847/294-4000 Fax: 847/294-4058

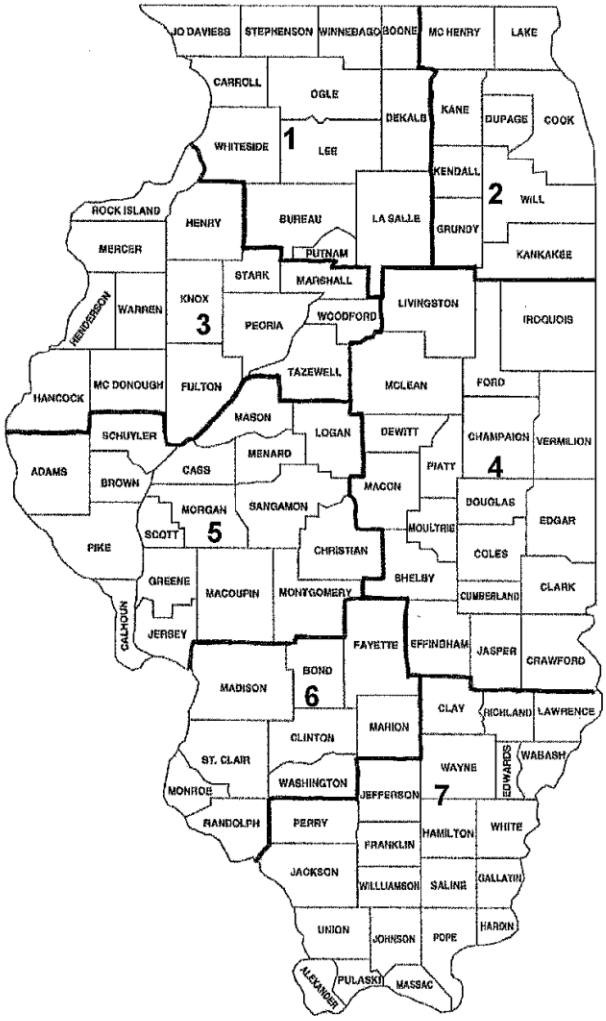
Region 3 - PEORIA
Jim Kammueller, Manager
Phone: 309/693-5463 Fax: 309/693-5467

Region 4 - CHAMPAIGN
Joe Koronkowski, Manager
Phone: 217/278-5800 Fax: 217/278-5808

Region 5 - SPRINGFIELD
Bruce Yurdin, FOS Manager
Phone: 217/782-3362 Fax: 217/785-1225

Region 6 - COLLINSVILLE
Bruce Yurdin, FOS Manager
Phone: 217/782-3362 Fax: 217/785-1225

Region 7- MARION
Byron Marks, Manager
Phone: 618/993-7200 Fax: 618/997-5467



APPENDIX F

RECORD OF STABILIZATION AND

CONSTRUCTION ACTIVITY DATES

SITE STABILIZATION and CONSTRUCTION ACTIVITY DATES

A record of dates when BMPs are installed or removed, stabilization measures are initiated, major grading activities occur, and construction activities temporarily or permanently cease on a portion of the site shall be maintained until final site stabilization is achieved and the Notice of Termination (NOT) is filed. This form must be updated continuously throughout the project until the NOT is filed. **NOTE:** The General Contractor shall complete at least 1-pg of stabilization and grading activities for each month of active construction. Activities noted in this log must reflect information provided on Site Maps.

MAJOR STABILIZATION AND GRADING ACTIVITIES

Description of
Activity:_____
Contractor performing Activity: _____ Begin (date): _____ End (date):_____
Location:_____

Description of
Activity:_____
Contractor performing Activity: _____ Begin (date): _____ End (date):_____
Location:_____

Description of
Activity:_____
Contractor performing Activity: _____ Begin (date): _____ End (date):_____
Location:_____

Description of
Activity:_____
Contractor performing Activity: _____ Begin (date): _____ End (date):_____
Location:_____

Description of
Activity:_____
Contractor performing Activity: _____ Begin (date): _____ End (date):_____
Location:_____

Description of
Activity:_____
Contractor performing Activity: _____ Begin (date): _____ End (date):_____
Location:_____

Description of
Activity:_____
Contractor performing Activity: _____ Begin (date): _____ End (date):_____
Location:_____

Description of
Activity:_____
Contractor performing Activity: _____ Begin (date): _____ End (date):_____
Location:_____

Description of
Activity:_____
Contractor performing Activity: _____ Begin (date): _____ End (date):_____
Location:_____

APPENDIX G

IEPA NOTICE OF TERMINATION (NOT)

Illinois Environmental Protection Agency

Bureau of Water • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Division of Water Pollution Control
NOTICE OF TERMINATION (NOT)
of Coverage under the General Permit for Storm Water Discharges Associated with Construction Site Activities

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at the above address.

Permit No. ILR10 _____

OWNER INFORMATION

Owner Name: City of Mattoon

Owner Type (select one) City

Mailing Address: 208 North 19th Street Phone: 217-235-5460

City: Mattoon State: IL Zip: 61938 Fax: 217-235-5143

Contact Person: Dean Barber, PE - Public Works Director E-mail: BarberD@mattoonillinois.org

CONTRACTOR INFORMATION

Contractor Name: _____

Mailing Address: _____ Phone: _____

City: _____ State: ___ Zip: _____ Fax: _____

CONSTRUCTION SITE INFORMATION

Facility Name: Riley Creek CSO Satellite Treatment Facility

Street Address: 2521 North 6th Street

City: Mattoon IL Zip: 61938 County: Coles

NPDES Storm Water General Permit Number: ILR10 _____

Latitude:	39	30	33	Longitude:	- 88	21	35	1	12 North	**7 East**
	(Deg)	(Min)	(Sec)		(Deg)	(Min)	(Sec)	Section	Township	Range

DATE PROJECT HAS BEEN COMPLETED AND STABILIZED: _____

NOTE: Coverage under this permit cannot be terminated without the completion date.

I certify under penalty of law that disturbed soils at the identified facility have been finally stabilized or that all storm water discharges associated with industrial activity from the identified facility that are authorized by an NPDES general permit have otherwise been eliminated. I understand that by submitting this notice of termination, that I am no longer authorized to discharge storm water associated with industrial activity by the general permit, and that discharging pollutants in storm water associated with industrial activity to Waters of the State is unlawful under the Environmental Protection Act and the Clean Water Act where the discharge is not authorized by an NPDES Permit.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

_____ Owner Signature: _____ Date:

Mail completed form to: Illinois Environmental Protection Agency
Division of Water Pollution Control, Attn: Permit Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

(Do not submit additional documentation unless requested)

This Agency is authorized to require this information under Section 4 and Title X of the Environmental Protection Act (415 ILCS 5/4, 5/39). Failure to disclose this information may result in: a civil penalty of not to exceed $50,000 for the violation and an additional civil penalty of not to exceed $10,000 for each day during which the violation continues (415 ILCS 5/42) and may also prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

IL 532 2102
WPC 621 Rev 12/11

GUIDELINES FOR COMPLETION OF NOTICE OF TERMINATION (NOT) FORM

Please adhere to the following guidelines:

Submit original, electronic or facsimile copies. Facsimile and/or electronic copies should be followed-up with submission of an original signature copy as soon as possible.

Submit completed forms to:

Illinois Environmental Protection Agency
Division of Water Pollution Control, Attn: Permit Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276
or call (217) 782-0610
FAX: (217) 782-9891

Or submit electronically to: epa.constilr10swppp@illinois.gov

Reports must be typed or printed legibly and signed.

NOTE: FACILITY LOCATION IS NOT NECESSARILY THE FACILITY MAILING ADDRESS, BUT SHOULD DESCRIBE WHERE THE FACILITY IS LOCATED.

Use the formats given in the following examples for correct form completion.

	Example	Format
Section	12	1 or 2 numerical digits
Township	12N	1 or 2 numerical digits followed by "N" or "S"
Range	12W	1 or 2 numerical digits followed by "E" or "W"

Final stabilization has occurred when:

(a) all soil disturbing activities at the site have been completed;

(b) a uniform perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas not covered by permanent structures; or

(c) equivalent permanent stabilization measures have been employed.

APPENDIX H

IEPA GENERAL PERMIT

NPDES Permit No. ILR10

General NPDES Permit No. ILR10

Illinois Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276
www.epa.state.il.us

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

General NPDES Permit
For
Storm Water Discharges From Construction Site Activities

Expiration Date: July 31, 2018

Issue Date: July 30, 2013

Effective Date: August 1, 2013

In compliance with the provisions of the Illinois Environmental Protection Act, the Illinois Pollution Control Board Rules and Regulations (35 Ill. Adm. Code, Subtitle C, Chapter I), and the Clean Water Act, and the regulations thereunder the following discharges are authorized by this permit in accordance with the conditions and attachments herein.

Alan Keller

Alan Keller, P.E.
Manager, Permit Section
Division of Water Pollution Control

Part I. COVERAGE UNDER THIS PERMIT

A. **Permit Area**. The permit covers all areas of the State of Illinois with discharges to any waters of the State.

B. **Eligibility**.

1. This permit shall authorize all discharges of storm water associated with industrial activity from a construction site that will result in the disturbance of one or more acres total land area or a construction site less than one acre of total land that is a part of a larger common plan of development or sale if the larger common plan will ultimately disturb one or more acres total land area. This permit may authorize discharges from other construction site activities that have been designated by the Agency as having the potential to adversely affect the water quality of waters of the state. This permit also authorizes discharges from construction sites previously approved by the Agency under the previous version of ILR10 that are still occurring after the effective date of this permit, except for discharges identified under Part I.B.3 (Limitations on Coverage). Where discharges from construction sites were initially covered under the previous version of the ILR10, the Storm Water Pollution Prevention Plan must be updated/revised as necessary to ensure compliance with the provisions of this reissued ILR10 permit in accordance with Part II.A.2.

2. This permit may only authorize a storm water discharge associated with industrial activity from a construction site that is mixed with a storm water discharge from an industrial source other than construction, where:

   a. the industrial source other than construction is located on the same site as the construction activity;

   b. storm water discharges associated with industrial activity from the areas of the site where construction activities are occurring are in compliance with the terms of this permit; and

   c. storm water discharges associated with industrial activity from the areas of the site where industrial activities other than construction are occurring (including storm water discharges from dedicated asphalt plants and dedicated concrete plants) are covered by a different NPDES general permit or an individual permit authorizing such discharges.

3. **Limitations on Coverage**. The following storm water discharges from construction sites are not authorized by this permit:

   a. storm water discharges associated with industrial activities that originate from the site after construction activities have been completed and the site has undergone final stabilization;

   b. discharges that are mixed with sources of non-storm water other than discharges identified in Part III.A (Prohibition on Non-Storm Water Discharges) of this permit and in compliance with paragraph IV.D.5 (Non-Storm Water Discharges) of this permit;

c. storm water discharges associated with industrial activity that are subject to an existing NPDES individual or general permit or which are issued a permit in accordance with Part VI.N (Requiring an Individual Permit or an Alternative General Permit) of this permit. Such discharges may be authorized under this permit after an existing permit expires provided the existing permit did not establish numeric limitations for such discharges;

d. storm water discharges from construction sites that the Agency has determined to be or may reasonably be expected to be contributing to a violation of a water quality standard; and

e. storm water discharges that the Agency, at its discretion, determines are not appropriately authorized or controlled by this general permit.

f. storm water discharges to any receiving water specified under 35 Ill. Adm. Code 302.105(d) (6).

C. **Authorization.**

1. In order for storm water discharges from construction sites to be authorized to discharge under this general permit a discharger must submit a Notice of Intent (NOI) in accordance with the requirements of Part II below, using an NOI form provided by the Agency.

2. Where a new contractor is selected after the submittal of an NOI under Part II below, or where site ownership is transferred, a new Notice of Intent (NOI) must be submitted by the owner in accordance with Part II.

3. Unless notified by the Agency to the contrary, dischargers who submit an NOI in accordance with the requirements of this permit are authorized to discharge storm water from construction sites under the terms and conditions of this permit in 30 days after the date the NOI is received by the Agency.

4. The Agency may deny coverage under this permit and require submittal of an application for an individual NPDES permit based on a review of the NOI or other information.

Part II. NOTICE OF INTENT REQUIREMENTS

A. **Deadlines for Notification.**

1. To receive authorization under this general permit, a discharger must submit a completed Notice of Intent (NOI) in accordance with Part VI.G (Signatory Requirements) and the requirements of this Part in sufficient time to allow a 30 day review period after the receipt of the NOI by the Agency and prior to the start of construction. The completed NOI may be submitted electronically to the following email address: epa.constilr10swppp@illinois.gov

2. Discharges that were covered by the previous version of ILR10 are automatically covered by this permit. Where discharges associated with construction activities were initially covered under the previous version of ILR10 and are continuing, the Storm Water Pollution Prevention Plan must be updated/revised within 12 months of the effective date of this reissued permit, as necessary to ensure compliance with the provisions of the reissued ILR10. Updating of the SWPPP is not required if construction activities are completed and a Notice of Termination is submitted within 12 months of the effective date of this permit.

3. A discharger may submit an NOI in accordance with the requirements of this Part after the start of construction. In such instances, the Agency may bring an enforcement action for any discharges of storm water associated with industrial activity from a construction site that have occurred on or after the start of construction.

B. **Failure to Notify.** Dischargers who fail to notify the Agency of their intent to be covered, and discharge storm water associated with construction site activity to Waters of the State without an NPDES permit are in violation of the Environmental Protection Act and Clean Water Act.

C. **Contents of Notice of Intent.** The Notice of Intent shall be signed in accordance with Part VI.G (Signatory Requirements) of this permit by all of the entities identified in paragraph 2 below and shall include the following information:

1. The mailing address, and location of the construction site for which the notification is submitted. Where a mailing address for the site is not available, the location can be described in terms of the latitude and longitude of the approximate center of the facility to the nearest 15 seconds, or the nearest quarter section (if the section, township and range is provided) that the construction site is located in;

2. The owner's name, address, telephone number, and status as Federal, State, private, public or other entity;

3. The name, address and telephone number of the general contractor(s) that have been identified at the time of the NOI submittal;

4. The name of the receiving water(s), or if the discharge is through a municipal separate storm sewer, the name of the municipal operator of the storm sewer and the ultimate receiving water(s);

5. The number of any NPDES permits for any discharge (including non-storm water discharges) from the site that is currently authorized by an NPDES permit;

6. A description of the project, detailing the complete scope of the project, estimated timetable for major activities and an estimate of the number of acres of the site on which soil will be disturbed;

7. For projects that have complied with State law on historic preservation and endangered species prior to submittal of the NOI, through coordination with the Illinois Historic Preservation Agency and the Illinois Department of Natural Resources or through fulfillment of the terms of interagency agreements with those agencies, the NOI shall indicate that such compliance has occurred.

8. An electronic copy of the storm water pollution prevention plan that has been prepared for the site in accordance with Part IV of this permit. The electronic copy shall be submitted to the Agency at the following email address: epa.constilr10swppp@illinois.gov

9. Revised notice of intents shall be submitted for any substantial modifications to the project such as: address changes, new contractors, area coverage, additional discharges to waters of the state, or other substantial modifications.

D. **Where to Submit.**

Construction activities which discharge storm water that requires a NPDES permit must use an NOI form provided by the Agency. The applicable fee shall also be submitted. NOIs must be signed in accordance with Part VI.G (Signatory Requirements) of this permit. The NOI form may be submitted to the Agency in any of the following methods:

1. File electronically with digital signature at the following website address: http://dataservices.epa.illinois.gov/SWConstructionPermit/bowLogin.aspx

   Registration specific to the permittee is required in order to file electronically.

2. Submit complete NOI and SWPPP electronically to the following email address: epa.constilr10swppp@illinois.gov. Submit the NOI with original signature and fee by certified mail to the Agency at the following address:

   Illinois Environmental Protection Agency
   Division of Water Pollution Control, Mail Code #15
   Attention: Permit Section
   1021 North Grand Avenue East
   Post Office Box 19276
   Springfield, Illinois 62794-9276

E. **Additional Notification.** Construction activities that are operating under approved local sediment and erosion plans, land disturbance permits, grading plans, or storm water management plans, in addition to filing copies of the Notice of Intent in accordance with Part D above, shall also submit signed copies of the Notice of Intent to the local agency approving such plans in accordance with the deadlines in Part A above. See Part IV.D.2.d (Approved State or Local Plans). A copy of the NOI shall be sent to the entity holding an active General NPDES Permit No. ILR40 if the permittee is located in an area covered by an active ILR40 permit.

F. **Notice of Termination.** Where a site has completed final stabilization and all storm water discharges from construction activities that are authorized by this permit are eliminated, the permittee must submit a completed Notice of Termination that is signed in accordance with Part VI.G (Signatory Requirements) of this permit.

1. The Notice of Termination shall include the following information:

   a. The mailing address, and location of the construction site for which the notification is submitted. Where a mailing address for the site is not available, the location can be described in terms of the latitude and longitude of the approximate center of the facility to the nearest 15 seconds, or the nearest quarter section (if the section, township and range is provided) that the construction site is located in;

   b. The owner's name, address, telephone number, and status as Federal, State, private, public or other entity;

   c. The name, address and telephone number of the general contractor(s);

   d. The date when construction was completed and the site was stabilized; and

   e. The following certification signed in accordance with Part VI.G (Signatory Requirements) of this permit:

      "I certify under penalty of law that all storm water discharges associated with construction site activity from the identified facility that are authorized by NPDES general permit ILR10 have otherwise been eliminated. I understand that by submitting this notice of termination, that I am no longer authorized to discharge storm water associated with construction site activity by the general permit, and that discharging pollutants in storm water associated with construction site activity to Waters of the State is unlawful under the Environmental Protection Act and Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this notice of termination does not release an operator from liability for any violations of this permit or the Clean Water Act."

      For the purposes of this certification, elimination of storm water discharges associated with industrial activity means that all disturbed soils at the identified facility have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time, or that all storm water discharges associated with construction activities from the identified site that are authorized by a NPDES general permit have otherwise been eliminated.

2. All Notices of Termination are to be sent to the Agency to the mailing address in Part II.D.1, using the form provided by the Agency, or electronically if the permittee submitted a Notice of Intent by electronic means.

Part III. SPECIAL CONDITIONS, MANAGEMENT PRACTICES, AND OTHER NON-NUMERIC LIMITATIONS

A. **Prohibition on Non-Storm Water Discharges.**

1. Except as provided in Part I paragraph B.2 and paragraphs 2, 3 or 4 below, all discharges covered by this permit shall be comprised entirely of storm water.

2. a. Except as provided in paragraph b below, discharges of materials other than storm water must be in compliance with a NPDES permit (other than this permit) issued for the discharge.

b. The following non-storm water discharges may be authorized by this permit provided the non-storm water component of the discharges is in compliance with Part IV.D.5 (Non-Storm Water Discharges): discharges from fire fighting activities; fire hydrant flushings; waters used to wash vehicles where detergents are not used; waters used to control dust; potable water sources including uncontaminated waterline flushings; landscape irrigation drainages; routine external building washdown which does not use detergents; pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; uncontaminated air conditioning condensate; springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.

3. The following non-storm water discharges are prohibited by this permit: concrete and wastewater from washout of concrete (unless managed by an appropriate control), drywall compound, wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials, fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance, soaps, solvents, or detergents, toxic or hazardous substances from a spill or other release, or any other pollutant that could cause or tend to cause water pollution.

4. Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are allowable if managed by appropriate controls.

B. **Discharges into Receiving Waters With an Approved Total Maximum Daily Load (TMDL):**

Discharges to waters for which there is a TMDL allocation for sediment or a parameter that addresses sediment (such as total suspended solids, turbidity, or siltation) are not eligible for coverage under this permit unless the owner/operator develops and certifies a SWPPP that is consistent with wasteload allocations in the approved TMDL. To be eligible for coverage under this general permit, operators must incorporate into their SWPPP any conditions and/or Best Management Practices applicable to their discharges necessary for consistency with the TMDL within any timeframes established in the TMDL. If a specific numeric waste load allocation has been established that would apply to the project's discharges, the operator must incorporate that allocation into its SWPPP and implement necessary steps to meet that allocation.

Please refer to the Agency website at: http://www.epa.state.il.us/water/tmdl/report-status.html

C. Discharges covered by this permit, alone or in combination with other sources, shall not cause or contribute to a violation of any applicable water quality standard.

Part IV. STORM WATER POLLUTION PREVENTION PLANS

A storm water pollution prevention plan shall be developed for each construction site covered by this permit. Storm water pollution prevention plans shall be prepared in accordance with good engineering practices. The plan shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with construction site activity from the facility. In addition, the plan shall describe and ensure the implementation of best management practices which will be used to reduce the pollutants in storm water discharges associated with construction site activity and to assure compliance with the terms and conditions of this permit. The permittee must implement the provisions of the storm water pollution prevention plan required under this part as a condition of this permit.

A. **Deadlines for Plan Preparation and Compliance.**

The plan shall:

1. Be completed prior to the start of the construction activities to be covered under this permit and submitted electronically to the Agency at the time the Notice of Intent is submitted; and

2. Provide for compliance with the terms and schedules of the plan beginning with the initiation of construction activities.

B. **Signature, Plan Review and Notification.**

1. The plan shall be signed in accordance with Part VI.G (Signatory Requirements), and be retained at the construction site which generates the storm water discharge in accordance with Part VI.E (Duty to Provide Information) of this permit.

2. Prior to commencement of construction, the permittee shall provide the plan to the Agency.

3. The permittee shall make plans available upon request from this Agency or a local agency approving sediment and erosion plans, grading plans, or storm water management plans; or in the case of a storm water discharge associated with industrial activity which discharges through a municipal separate storm sewer system. A list of permitted municipal separate storm sewer systems is available at: http://www.epa.state.il.us/water/permits/storm-water/ms4-status-report.pdf

4. The Agency may notify the permittee at any time that the plan does not meet one or more of the minimum requirements of this Part. Such notification shall identify those provisions of the permit which are not being met by the plan, and identify which provisions of the plan require modifications in order to meet the minimum requirements of this part. Within 7 days from receipt of notification from the Agency, the permittee shall make the required changes to the plan and shall submit to the Agency a written certification that the requested changes have been made. Failure to comply shall terminate authorization under this permit.

5. A copy of the letter of notification of coverage along with the General NPDES Permit for Storm Water Discharges from Construction Site Activities or other indication that storm water discharges from the site are covered under an NPDES permit shall be posted at the site in a prominent place for public viewing (such as alongside a building permit).

6. All storm water pollution prevention plans and all completed inspection forms/reports required under this permit are considered reports that shall be available to the public at any reasonable time upon request. However, the permittee may claim any portion of a storm water pollution prevention plan as confidential in accordance with 40 CFR Part 2.

C. **Keeping Plans Current.** The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to Waters of the State and which has not otherwise been addressed in the plan or if the

storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified under paragraph D.2 below, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with construction site activity. In addition, the plan shall be amended to identify any new contractor and/or subcontractor that will implement a measure of the storm water pollution prevention plan. Amendments to the plan may be reviewed by the Agency in the same manner as Part IV.B above. Any revisions of the documents for the storm water pollution prevention plan shall be kept on site at all times.

D. **Contents of Plan.** The storm water pollution prevention plan shall include the following items:

1. **Site Description.** Each plan shall provide a description of the following:

   a. A description of the nature of the construction activity or demolition work;

   b. A description of the intended sequence of major activities which disturb soils for major portions of the site (e.g. clearing, grubbing, excavation, grading, on-site or off-site stockpiling of soils, on-site or off-site storage of materials);

   c. An estimate of the total area of the site and the total area of the site that is expected to be disturbed by clearing, grubbing, excavation, grading, on-site or off-site stockpiling of soils and storage of materials, or other activities;

   d. An estimate of the runoff coefficient of the site after construction activities are completed and existing data describing the soil or the quality of any discharge from the site;

   e. A site map indicating drainage patterns and approximate slopes anticipated before and after major grading activities, locations where vehicles enter or exit the site and controls to prevent offsite sediment tracking, areas of soil disturbance, the location of major structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, locations of on-site or off-site soil stockpiling or material storage, surface waters (including wetlands), and locations where storm water is discharged to a surface water; and

   f. The name of the receiving water(s) and the ultimate receiving water(s), and areal extent of wetland acreage at the site.

2. **Controls.** Each plan shall include a description of appropriate controls that will be implemented at the construction site and any off-site stockpile or storage area, The Illinois Urban Manual www.aiswcd.org/IUM or other similar documents shall be used for developing the appropriate management practices, controls or revisions of the plan. The plan will clearly describe for each major activity identified in paragraph D.1 above, appropriate controls and the timing during the construction process that the controls will be implemented. For example, perimeter controls for one portion of the site will be installed after the clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. Perimeter controls will be actively maintained and/or repaired until final stabilization of those portions of the site upward of the perimeter control. Temporary perimeter controls will be removed after final stabilization. The description of controls shall address as appropriate the following minimum components:

   a. **Erosion and Sediment Controls.** The permittee shall design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed and maintained to:

      (i) Control storm water volume and velocity within the site to minimize soil erosion;
      (ii) Control storm water discharges, including both peak flowrates and total storm water volume, to minimize erosion at outlets and to minimize downstream channel and streambank erosion;
      (iii) Minimize the amount of soil exposed during construction activity;
      (iv) Minimize the disturbance of steep slopes;
      (v) Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting storm water runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site;
      (vi) Provide and maintain natural buffers around surface waters, direct storm water to vegetated areas to increase sediment removal and maximize storm water infiltration, unless infeasible; and
      (vii) Minimize soil compaction and, unless infeasible, preserve topsoil.

   b. **Stabilization Practices.** The storm water pollution prevention plan shall include a description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans should ensure that existing vegetation is preserved where practicable and that disturbed portions of the site are stabilized. Stabilization practices may include: temporarily seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, staged or staggered development, and other appropriate measures. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated, shall be included in the plan. Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Stabilization of disturbed areas must be initiated within 1 working day of permanent or temporary cessation of earth disturbing activities and shall be completed as soon as possible but not later than 14 days from the initiation of stabilization work in an area. Exceptions to these time frames are specified as provided in paragraphs (i) and (ii) below:

      (i) Where the initiation of stabilization measures is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.
      (ii) On areas where construction activity has temporarily ceased and will resume after 14 days, a temporary stabilization method can be used. Temporary stabilization techniques and materials shall be described in the SWPPP.

   c. **Structural Practices.** A description of structural practices utilized to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. Structural practices should be placed on upland soils to the degree practicable. The installation of these devices may be subject to Section 404 of the CWA.

(i) The following design requirements apply to sediment basins if such structural practices will be installed to reduce sediment concentrations in storm water discharges:

a. When discharging from the sediment basin, utilize outlet structures that withdraw water from the surface in order to minimize the discharge.
b. Prevent erosion of the sediment basin using stabilization controls (e.g., erosion control blankets), at the inlet and outlet using erosion controls and velocity dissipation devices:
c. Sediment basins shall be designed to facilitate maintenance, including sediment removal from the basins, as necessary.

d. **Use of Treatment Chemicals.** Identify the use of all polymer flocculants or treatment chemicals at the site. Dosage of treatment chemicals shall be identified along with any information from any Material Safety Data Sheet. Describe the location of all storage area for chemicals. Include any information from the manufacturer's specifications. Treatment chemicals must be stored in areas where they will not be exposed to precipitation. The SWPPP must describe procedures for use of treatment chemicals and staff responsible for use/application of treatment chemicals must be trained on the established procedures.

e. **Best Management Practices for Impaired Waters**. For any site which discharges directly to an impaired water identified on the Agency's website for 303(d) listing for suspended solids, turbidity, or siltation the storm water pollution prevention plan shall be designed for a storm event equal to or greater than a 25-year 24-hour rainfall event. If required by federal regulations or the Illinois Urban Manual, the storm water pollution prevention plan shall adhere to a more restrictive design criteria. Please refer to the Agency's website at: (http://www.epa.state.il.us/water/tmdl/303d-list.html)

f. **Pollution Prevention**. The permittee shall design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
(ii) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to storm water; and
(iii) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.

g. **Other Controls.**

(i) Waste Disposal. No solid materials, including building materials, shall be discharged to Waters of the State, except as authorized by a Section 404 permit.
(ii) The plan shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.
(iii) For construction sites that receive concrete or asphalt from off-site locations, the plan must identify and include appropriate controls and measures to reduce or eliminate discharges from these activities.
(iv) The plan shall include spill response procedures and provisions for reporting if there are releases in excess of reportable quantities.

h. **Best Management Practices for Post-Construction Storm Water Management**. Describe the measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. Structural measures should be placed on upland soils to the degree attainable. The installation of these devices may be subject to Section 404 of the CWA. This permit only addresses the installation of storm water management measures, and not the ultimate operation and maintenance of such structures after the construction activities have been completed and the site has undergone final stabilization. Permittees are responsible for only the installation and maintenance of storm water management measures prior to final stabilization of the site, and are not responsible for maintenance after storm water discharges associated with industrial activity have been eliminated from the site.

(i) The storm water pollution prevention plan and design and construction plans shall explicitly consider post-construction storm water management. Such practices may include: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite; and sequential systems (which combine several practices). The Permittee must plan for and put in place storm water BMPs to retain the greatest amount of post-development storm water runoff practicable given the site and project constraints by installing one or more of the Best Management Practices (BMPs) as described in the Illinois Urban Manual.

The storm water pollution prevention plan shall include an explanation of the technical basis used to select the practices to control pollution where post-construction flows will exceed predevelopment levels.

(ii) Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g. maintenance of hydrologic conditions, such as the hydroperiod and hydrodynamics present prior to the initiation of construction activities).

(iii) Unless otherwise specified in the Illinois Urban Manual (2012), the storm water pollution prevention plan shall be designed for a storm event equal to or greater than a 25-year 24-hour rainfall event.

i. **Approved State or Local Plans**.

(i) The management practices, controls and other provisions contained in the storm water pollution prevention plan must be at least as protective as the requirements contained in the Illinois Urban Manual, 2012. Construction activities which discharge storm water must include in their storm water pollution prevention plan procedures and requirements specified in applicable sediment and erosion control plans or storm water management plans approved by local officials. Requirements specified in sediment and erosion control plans or site permits or storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI to be authorized to discharge under this permit, incorporated by reference and are enforceable under this permit. The plans shall include all requirements of this permit and include more stringent standards required by any local

approval. This provision does not apply to provisions of master plans, comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit that is issued for the construction site.

(ii) Dischargers seeking alternative permit requirements are not authorized by this permit and shall submit an individual permit application in accordance with 40 CFR 122.26 at the address indicated in Part II.D (Where to Submit) of this permit, along with a description of why requirements in approved local plans or permits should not be applicable as a condition of an NPDES permit.

3. **Maintenance.**

a. The plan shall include a description of procedures to maintain in good and effective operating conditions, all erosion and sediment control measures and other Best Management Practices, including vegetation and other protective measures identified in the Storm Water Pollution Prevention Plan.

b. Where a basin has been installed to control sediment during construction activities, the Permittees shall keep the basin(s) in effective operating condition and remove accumulated sediment as necessary.

4. **Inspections.** Qualified personnel (provided by the permittee) shall inspect disturbed areas of the construction site that have not been finally stabilized, structural control measures, and locations where vehicles enter or exit the site at least once every seven calendar days and within 24 hours of the end of a storm or by the end of the following business or work day that is 0.5 inches or greater. Qualified personnel means a person knowledgeable in the principles and practices of erosion and sediment controls measures, such as a licensed Professional Engineer (P.E.), a Certified Professional in Erosion and Sediment Control (CPESC), a Certified Erosion Sediment and Storm Water Inspector (CESSWI) or other knowledgeable person who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activities.

a. Inspections may be reduced to once per month when construction activities have ceased due to frozen conditions. Weekly inspections will recommence when construction activities are conducted, or if there is 0.5" or greater rain event, or a discharge due to snowmelt occurs.

b. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

c. Based on the results of the inspection, the description of potential pollutant sources identified in the storm water pollution prevention plan in accordance with Part IV.D.1 (Site Description) of this permit and the pollution prevention control measures identified in the plan in accordance with Part IV.D.2 (Controls) of this permit shall be revised as appropriate as soon as practicable after such inspection to minimize the potential for such discharges. Such modifications shall provide for timely implementation of any changes to the plan and pollution prevention control measures within 7 calendar days following the inspection.

d. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with paragraph b above shall be made and retained as part of the storm water pollution prevention plan for at least three years from the date that the permit coverage expires or is terminated. All inspection reports shall be retained at the construction site. The report shall be signed in accordance with Part VI.G (Signatory Requirements) of this permit.

e. The permittee shall notify the appropriate Agency Field Operations Section office by email at: epa.swnoncomp@illinois.gov, telephone or fax within 24 hours of any incidence of noncompliance for any violation of the storm water pollution prevention plan observed during any inspection conducted, or for violations of any condition of this permit. The permittee shall complete and submit within 5 days an "Incidence of Noncompliance" (ION) report for any violation of the storm water pollution prevention plan observed during any inspection conducted, or for violations of any condition of this permit. Submission shall be on forms provided by the Agency and include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. Corrective actions must be undertaken immediately to address the identified non-compliance issue(s).

f. All reports of noncompliance shall be signed by a responsible authority as defined in Part VI.G (Signatory Requirements).

g. After the initial contact has been made with the appropriate Agency Field Operations Section Office, all reports of noncompliance shall be mailed to the Agency at the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

5. **Non-Storm Water Discharges.** Except for flows from fire fighting activities, sources of non-storm water listed in Part III.A.2 of this permit that are combined with storm water discharges associated with industrial activity must be identified in the plan. The plan shall identify and insure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

E. **Additional requirements for storm water discharges from industrial activities other than construction, including dedicated asphalt plants, and dedicated concrete plants.** This permit may only authorize any storm water discharge associated with industrial activity from a construction site that is mixed with a storm water discharge from an industrial source other than construction, where:

1. The industrial source other than construction is located on the same site as the construction activity;

2. Storm water discharges associated with industrial activity from the areas of the site where construction activities are occurring are in compliance with the terms of this permit; and

3. Storm water discharges associated with industrial activity from the areas of the site where industrial activity other than construction are occurring (including storm water discharges from dedicated asphalt plants [other than asphalt emulsion facilities] and dedicated concrete plants) are in compliance with the terms, including applicable NOI or application requirements, of a different NPDES general permit or individual permit authorizing such discharges.

F. **Contractors.**

1. The storm water pollution prevention plan must clearly identify for each measure identified in the plan, the contractor(s) or subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the plan must sign a copy of the certification statement in paragraph 2 below in accordance with Part VI.G (Signatory Requirements) of this permit. All certifications must be included in the storm water pollution prevention plan except for owners that are acting as contractors.

2. **Certification Statement**. All contractors and subcontractors identified in a storm water pollution prevention plan in accordance with paragraph 1 above shall sign a copy of the following certification statement before conducting any professional service at the site identified in the storm water pollution prevention plan:

> "I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR10) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification."

The certification must include the name and title of the person providing the signature in accordance with Part VI.G of this permit: the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

Part V. RETENTION OF RECORDS

A. The permittee shall retain copies of storm water pollution prevention plans and all reports and notices required by this permit, records of all data used to complete the Notice of Intent to be covered by this permit and the Agency Notice of Permit Coverage letter for a period of at least three years from the date that the permit coverage expires or is terminated. This period may be extended by request of the Agency at any time.

B. The permittee shall retain a copy of the storm water pollution prevention plan and any revisions to said plan required by this permit at the construction site from the date of project initiation to the date of final stabilization.

Part VI. STANDARD PERMIT CONDITIONS

A. **Duty to Comply**. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Illinois Environmental Protection Act and the CWA and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. Failure to obtain coverage under this permit or an individual permit for storm water releases associated with construction activities is a violation of the Illinois Environmental Protection Act and the CWA.

B. **Continuation of the Expired General Permit.** This permit expires five years from the date of issuance. An expired general permit continues in force and effect until a new general permit or an individual permit is issued. Only those construction activities authorized to discharge under the expiring general permit are covered by the continued permit.

C. **Need to halt or reduce activity not a defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. **Duty to Mitigate**. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. **Duty to Provide Information**. The permittee shall furnish within a reasonable time to the Agency or local agency approving sediment and erosion control plans, grading plans, or storm water management plans; or in the case of a storm water discharge associated with industrial activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the municipal operator of the system, any information which is requested to determine compliance with this permit. Upon request, the permittee shall also furnish to the Agency or local agency approving sediment and erosion control plans, grading plans, or storm water management plans; or in the case of a storm water discharge associated with industrial activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the municipal operator of the system, copies of all records required to be kept by this permit.

F. **Other Information**. When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the Notice of Intent or in any other report to the Agency, he or she shall promptly submit such facts or information.

G. **Signatory Requirements**. All Notices of Intent, storm water pollution prevention plans, reports, certifications or information either submitted to the Agency or the operator of a large or medium municipal separate storm sewer system, or that this permit requires be maintained by the permittee, shall be signed.

1. All Notices of Intent shall be signed as follows:

   a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (1) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or (2) any person authorized to sign documents that has been assigned or delegated said authority in accordance with corporate procedures;

   b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

   c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer

having responsibility for the overall operations of a principal geographic unit of the agency.

2. All reports required by the permit and other information requested by the Agency shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described above and submitted to the Agency.

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

   c. **Changes to Authorization**. If an authorization under Part I.C (Authorization) is no longer accurate because a different individual or position has responsibility for the overall operation of the construction site, a new authorization satisfying the requirements of Part I.C must be submitted to the Agency prior to or together with any reports, information, or applications to be signed by an authorized representative.

   d. **Certification**. Any person signing documents under this Part shall make the following certification:

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

H. **Penalties for Falsification of Reports**. Section 309(c)(4) of the Clean Water Act provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or by both. Section 44(j)(4) and (5) of the Environmental Protection Act provides that any person who knowingly makes any false statement, representation, or certification in an application form, or form pertaining to a NPDES permit commits a Class A misdemeanor, and in addition to any other penalties provided by law is subject to a fine not to exceed $10,000 for each day of violation.

I. **Penalties for Falsification of Monitoring Systems**. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by fines and imprisonment described in Section 309 of the CWA. The Environmental Protection Act provides that any person who knowingly renders inaccurate any monitoring device or record required in connection with any NPDES permit or with any discharge which is subject to the provisions of subsection (f) of Section 12 of the Act commits a Class A misdemeanor, and in addition to any other penalties provided by law is subject to a fine not to exceed $10,000 for each day of violation.

J. **Oil and Hazardous Substance Liability**. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under section 311 of the CWA.

K. **Property Rights**. The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

L. **Severability**. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

M. **Transfers**. This permit is not transferable to any person except after notice to the Agency. The Agency may require the discharger to apply for and obtain an individual NPDES permit as stated in Part I.C (Authorization).

N. **Requiring an Individual Permit or an Alternative General Permit**.

1. The Agency may require any person authorized by this permit to apply for and/or obtain either an individual NPDES permit or an alternative NPDES general permit. Any interested person may petition the Agency to take action under this paragraph. Where the Agency requires a discharger authorized to discharge under this permit to apply for an individual NPDES permit, the Agency shall notify the discharger in writing that a permit application is required. This notification shall include a brief statement of the reasons for this decision, an application form, a statement setting a deadline for the discharger to file the application, and a statement that on the effective date of the individual NPDES permit or the alternative general permit as it applies to the individual permittee, coverage under this general permit shall automatically terminate. Applications shall be submitted to the Agency indicated in Part II.D (Where to Submit) of this permit. The Agency may grant additional time to submit the application upon request of the applicant. If a discharger fails to submit in a timely manner an individual NPDES permit application as required by the Agency under this paragraph, then the applicability of this permit to the individual NPDES permittee is automatically terminated at the end of the day specified by the Agency for application submittal. The Agency may require an individual NPDES permit based on:

   a. information received which indicates the receiving water may be of particular biological significance pursuant to 35 Ill. Adm. Code 302.105(d)(6);

   b. whether the receiving waters are impaired waters for suspended solids, turbidity or siltation as identified by the Agency's 303(d) listing;

   c. size of construction site, proximity of site to the receiving stream, etc.

   The Agency may also require monitoring of any storm water discharge from any site to determine whether an individual permit is required.

2. Any discharger authorized by this permit may request to be excluded from the coverage of this permit by applying for an individual permit. In such cases, the permittee shall submit an individual application in accordance with the requirements of 40 CFR 122.26(c)(1)(ii), with reasons supporting the request, to the Agency at the address indicated in Part II.D (Where to Submit) of this permit. The request may be granted by issuance of any individual permit or an alternative general permit if the reasons cited by the permittee are adequate to support the request.

3. When an individual NPDES permit is issued to a discharger otherwise subject to this permit, or the discharger is authorized to discharge under an

alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. When an individual NPDES permit is denied to a discharger otherwise subject to this permit or the discharger is denied for coverage under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee remains in effect, unless otherwise specified by the Agency.

O. **State/Environmental Laws**. No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

P. **Proper Operation and Maintenance**. The permittee shall at all times properly operate and maintain all construction activities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

Q. **Inspection and Entry**. The permittee shall allow the IEPA, or an authorized representative upon presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated construction activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

R. **Permit Actions**. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

S. **Bypasses and Upsets.** The provisions of 40 CFR Section 122.41(m) & (n) are applicable and are hereby incorporated by reference.

Part VII. REOPENER CLAUSE

A. If there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with industrial activity covered by this permit, the discharger may be required to obtain an individual permit or an alternative general permit in accordance with Part I.C (Authorization) of this permit or the permit may be modified to include different limitations and/or requirements.

B. Permit modification or revocation will be conducted according to provisions of 35 Ill. Adm. Code, Subtitle C, Chapter I and the provisions of 40 CFR 122.62, 122.63, 122.64 and 124.5 and any other applicable public participation procedures.

C. The Agency will reopen and modify this permit under the following circumstances:

1. the U.S. EPA amends its regulations concerning public participation;

2. a court of competent jurisdiction binding in the State of Illinois or the 7th Circuit Court of Appeals issues an order necessitating a modification of public participation for general permits; or

3. to incorporate federally required modifications to the substantive requirements of this permit.

Part VIII. DEFINITIONS

"Agency" means the Illinois Environmental Protection Agency.

"Best Management Practices" ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control construction site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

"Commencement of Construction or Demolition Activities" The initial disturbance of soils associated with clearing, grading, or excavating activities or other construction or demolition activities.

"Construction Activities" Earth disturbing activities, such as clearing, grading and excavation of land. For purposes of this permit, construction activities also means construction site, construction site activities, or site. Construction activities also include any demolition activities at a site.

"CWA" means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. (96-483 and Pub. L. 97-117, 33 U.S.C. 1251 et seq.).

"Dedicated portable asphalt plant" A portable asphalt plant that is located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR 443.

"Dedicated portable concrete plant" A portable concrete plant that is located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

"Dedicated sand or gravel operation" An operation that produces sand and/or gravel for a single construction project.

"Director" means the Director of the Illinois Environmental Protection Agency or an authorized representative.

"Final Stabilization" means that all soil disturbing activities at the site have been completed, and either of the two following conditions are met:

(i) A uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or

(ii) Equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

For individual lots in residential construction, final stabilization means that either:

(i) The homebuilder has completed final stabilization as specified above, or

(ii) The homebuilder has established temporary stabilization including perimeter controls for an individual lot prior to occupation of the home by the homeowner and informing the homeowner of the need for, and benefits of, final stabilization.

"Large and Medium municipal separate storm sewer system" means all municipal separate storm sewers that are either:

(i) Located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and G of 40 CFR Part 122); or

(ii) Located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in Appendices H and I of 40 CFR Part 122); or

(iii) Owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Director as part of the large or medium municipal separate storm sewer system.

"NOI" means notice of intent to be covered by this permit (see Part II of this permit.)

"Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharges. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

"Runoff coefficient" means the fraction of total rainfall that will appear at the conveyance as runoff.

"Storm Water" means storm water runoff, snow melt runoff, and surface runoff and drainage.

"Storm Water Associated with Industrial Activity" means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program. For the categories of industries identified in subparagraphs (i) through (x) of this subsection, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at 40 CFR 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the categories of industries identified in subparagraph (xi), the term includes only storm water discharges from all areas listed in the previous sentence (except access roads) where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water. For the purposes of this paragraph, material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are Federally or municipally owned or operated that meet the description of the facilities listed in this paragraph (i)- (xi)) include those facilities designated under 40 CFR 122.26(a)(1)(v). The following categories of facilities are considered to be engaging in "industrial activity" for purposes of this subsection:

(i) Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR Subchapter N (except facilities with toxic pollutant effluent standards which are exempted under category (xi) of this paragraph);

(ii) Facilities classified as Standard Industrial Classifications 24 (except 2434), 26 (except 265 and 267), 28, 29, 311, 32, 33, 3441, 373;

(iii) Facilities classified as Standard Industrial Classifications 10 through 14 (mineral industry) including active or inactive mining operations (except for areas of coal mining operations meeting the definition of a reclamation area under 40 CFR 434.11(l)) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with, any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations; inactive mining operations are mining sites that are not being actively mined, but which have an identifiable owner/operator;

(iv) Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA;

(v) Landfills, land application sites, and open dumps that have received any industrial wastes (waste that is received from any of the facilities described under this subsection) including those that are subject to regulation under Subtitle D of RCRA;

(vi) Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but

The following modifications have been made to the final permit from the previously issued General NPDES Permit ILR10:

1. I.B.1: A requirement that existing permittees may have to update/revise their Storm Water Pollution Prevention Plan (SWPPP). See also Section II.A.2 below

2. II.A.2: Provides that permittees must upgrade/revise their SWPPP within 12 months of the effective date of this permit. Projects which will be terminated within the next 12 months are not required to update/revise their SWPPP.

3. II.C.7: The requirement for consultation with the Illinois Historic Preservation Agency and the Illinois Department of Natural Resources was moved from Section I.C.3 to Section II.C.7.

4. II.C.9: Revised Notices of Intent for substantial modifications.

5. II.D: Where to submit Notices of Intent.

6. II.E: NOI shall be copied to local active MS4 permit holders.

7. II.F.1.d: Date of completion and stabilization now included in Notice of Termination (NOT).

8. II.F.2: Provides for electronic submission of NOT.

9. III.A.3: Prohibition of various non-storm water discharges in accordance with 40 CFR 450.

10. III.A.4: Allowance for groundwater dewatering in accordance with 40 CFR 450.

11. IV.B.5: Copy of Approval Letter must be posted at site.

12. IV.D.1.e: Inclusion of information concerning off-site stockpiling of soils or other materials in the site description.

13. IV.D.2.a: Delineation of erosion and sediment controls now specified in accordance with 40 CFR 450.

14. IV.D.2.b: Requirements for initiation of stabilization activities in accordance with 40 CFR 450.

15. IV.D.2.c: Design requirements for sediment basins added to permit.

16. IV.D.2.f: Pollution prevention measures now included in permit in accordance with 40 CFR 450.

17. IV.D.2.g: Provisions for control of other wastes now included in permit.

18. IV.D.2.h: Requirement to explicitly consider post-construction storm water management in the SWPPP.

19. IV.D.3.b. Requirement to keep sediment basins in operating condition.

The following modifications have been made to the final permit from the previously issued General NPDES Permit ILR10:

1. I.B.1: A requirement that existing permittees may have to update/revise their Storm Water Pollution Prevention Plan (SWPPP). See also Section II.A.2 below

2. II.A.2: Provides that permittees must upgrade/revise their SWPPP within 12 months of the effective date of this permit. Projects which will be terminated within the next 12 months are not required to update/revise their SWPPP.

3. II.C.7: The requirement for consultation with the Illinois Historic Preservation Agency and the Illinois Department of Natural Resources was moved from Section I.C.3 to Section II.C.7.

4. II.C.9: Revised Notices of Intent for substantial modifications.

5. II.D: Where to submit Notices of Intent.

6. II.E: NOI shall be copied to local active MS4 permit holders.

7. II.F.1.d: Date of completion and stabilization now included in Notice of Termination (NOT).

8. II.F.2: Provides for electronic submission of NOT.

9. III.A.3: Prohibition of various non-storm water discharges in accordance with 40 CFR 450.

10. III.A.4: Allowance for groundwater dewatering in accordance with 40 CFR 450.

11. IV.B.5: Copy of Approval Letter must be posted at site.

12. IV.D.1.e: Inclusion of information concerning off-site stockpiling of soils or other materials in the site description.

13. IV.D.2.a: Delineation of erosion and sediment controls now specified in accordance with 40 CFR 450.

14. IV.D.2.b: Requirements for initiation of stabilization activities in accordance with 40 CFR 450.

15. IV.D.2.c: Design requirements for sediment basins added to permit.

16. IV.D.2.f: Pollution prevention measures now included in permit in accordance with 40 CFR 450.

17. IV.D.2.g: Provisions for control of other wastes now included in permit.

18. IV.D.2.h: Requirement to explicitly consider post-construction storm water management in the SWPPP.

19. IV.D.3.b. Requirement to keep sediment basins in operating condition.

20. IV.D.4.a: Clarified inspection requirements after construction has temporarily ceased or under frozen conditions.

21. IV.D.4.e: Specified that corrective actions must be undertaken immediately following an incident of non-compliance in accordance with 40 CFR 450.

22. VI.S: Bypass and Upsets provisions were added to the Standard Permit Conditions.

23. VIII: Definition of construction activities was added to permit.

24. VIII: Definition of work day was added to the permit.

25. General: References to the Illinois Environmental Protection Agency's Urban Manual were changed to Illinois Urban Manual (2012).

26. General: The word "facilities" in previous permit was changed to "construction activities" in the draft permit.

27. General: Various edits.

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Contractor shall be responsible for the layout of the caissons, furnishing all labor, equipment, materials and all other incidentals necessary to drill the caissons, remove spoils, install reinforcing steel, furnish and place concrete.

B. The shafts of caissons shall be cased to overcome unsuitable soil conditions and permit removal of water. The work shall be performed in a manner that will confine disturbance of surrounding materials to a minimum. The complete caisson shall receive full lateral support from the surrounding materials.

1.02 RELATED SECTIONS

A. Section 02316 – Excavation.
B. Section 03100 - Concrete Formwork.
C. Section 03200 - Concrete Reinforcement.
D. Section 03300 - Cast-in-Place Concrete.

1.03 MEASUREMENT AND PAYMENT (RESERVED)

1.04 SUBMITTALS

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

B. Product data for commercial splicer proposed for the work.

C. Concrete Submittals: See Section 03300 – Cast-In-Place Concrete.

D. Concrete Reinforcement: See Section 03200 – Concrete Reinforcement.

1.05 REFERENCE TO STANDARDS

A. ACI 336.1 – Specification for the Construction of Drilled Piers.

B. ASTM A252 - Welded and Seamless Steel Pipe Piles.

1.06 QUALIFICATIONS

A. Installer

1. Company specializing in performing the work of this section with a minimum of five (5) years of documented experience.

1.07 QUALITY ASSURANCE

A. Caisson construction shall conform to the requirements of the Specification for the Construction of Drilled Piers (ACI 336.1) published by the American Concrete Institute, Detroit, MI, except as modified by the requirements specified herein.

B. All caisson work shall conform to the requirements of the 2006 International Building Code, or such other codes, regulations, ordinances or laws as may apply thereto. The Contractor is also required to be familiar with and to comply with all OSHA, EPA, and any other federal, state or local requirements which pertain to this work. All tests, materials or additional work called for by said requirements shall be provided at no extra or additional expense to the Owner.

C. Inspections

1. The Contractor shall secure a qualified Geotechnical Engineer, approved by the Engineer, to observe and inspect all drilling operations. For each caisson, the Geotechnical Engineer shall determine if the design bearing condition exists, if the bottom of the shaft is clean and whether proper shaft dimensions exist.
2. A preconstruction meeting involving the inspecting agency (Geotechnical Engineer) and the Caisson Contractor shall be held <u>before</u> the first day of drilling operations. The General Contractor and the Engineer shall also be present. The purpose of such a meeting is to discuss the construction procedures and problems which might occur, and to agree on the minimum equipment which will be necessary for the work.
3. The caisson layout and actual measurements of elevations shall be the responsibility of the Contractor. The Contractor shall provide all engineering and survey services necessary and required for such measuring and layout purposes. Records shall be kept jointly by the Contractor and the Geotechnical Engineer showing the dimensions of each caisson and the elevation of the bottom of each caisson.

PART 2 PRODUCTS

2.01 MATERIALS

A. Shaft Liner

1. ASTM A252, Grade 1 (minimum) of diameter as required to construct caissons.

B. Concrete

1. Concrete for caissons shall have 28-day compressive strength of 4,000 P.S.I. and shall meet the quality requirements specified in Section 03300 - "Cast-in-Place Concrete". Maximum size of aggregate shall be 1-1/2". The mix materials, design mix, test cylinders of the design mix and sources of supply shall be submitted in accordance with Section 01330 – Submittal Procedures and accepted by the Engineer before concrete work begins.

C. Reinforcement

1. See Section 03200 - Concrete Reinforcement.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify site conditions prior to construction.

3.02 PREPARATION

A. Structural fill shall be placed and compacted to the specified density prior to caisson construction.

B. Use placement method which will not cause damage to nearby structures.

3.03 CONSTRUCTION

A. Caissons shall be of the types, diameters and lengths shown on the design drawings. The means and methods of excavation and construction shall be at the discretion of the Contractor.

B. Each caisson shall be excavated to, and constructed to the elevations shown on the design drawings.

C. The shafts of caissons shall be cased or lined to overcome unsuitable soil conditions and permit removal of water. Casings or linings shall be withdrawn as specified below. The work shall be performed in a manner that will confine disturbance of surrounding materials to a minimum. The completed caisson shall receive full lateral support from the surrounding materials.

D. The top portion of the caisson which projects above grade shall be formed to the diameter shown on the design drawings and concrete shall be placed in the forms at the same time the lower part of the caisson is filled with concrete.

E. The center of any caisson, measured at any horizontal plane, will be allowed a tolerance from true plumb of not more than 1% of the depth of such plane. Plumb lines shall be suspended from center points at tops of shafts and any divergence above allowable tolerance shall be corrected.

F. All drilled and excavated materials shall be placed at a location on the site as determined by the Engineer for subsequent removal from site.

G. All water that may be in or drain into the caisson excavation, and any loose material or foreign substance in, or which fall into the caisson excavation, shall be removed before concrete work begins.

H. No concrete work shall start on any caisson until all inspections and tests have been made by the Geotechnical Engineer and authority to place concrete in the caisson is given by the Engineer.

I. Concrete for caissons shall be mixed, placed and cured in accordance with Section 03300 - Cast-in-Place Concrete of these specifications, and shall be placed in a manner that will prevent separation of its constituent materials. Drop chutes or tremies shall be used to prevent concrete from striking walls. Concrete shall be poured continuously from bottom to top of caisson. The intent of this specification is to provide concrete that, after being deposited, shall form a solid homogenous mass free from voids and an excessive amount of water. The top of all caissons shall be brought to proper levels to receive concrete caps and slabs.

J. Protective casing used to prevent cave-ins and to seal off groundwater shall be withdrawn only as the shaft is filled with concrete. A head of concrete adequate to balance outside soil or water pressure (but not less than 5 feet) shall be maintained above the bottom of the casing at all times during withdrawal. Where casing is removed during placement of concrete, the concrete shall have a slump between 4 and 6 inches. The inside of the casing shall be free of dried concrete or soil, and vibration of concrete will not be allowed until after the casing is pulled. These precautions will minimize adhesion of the concrete to the sides of the casing and will prevent arching of the concrete during casing withdrawal.

END OF SECTION 02375

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Furnishing, transporting and placing riprap.

B. Rough and finish grading.

C. Preparation of subgrade.

1.02 RELATED SECTIONS

A. Section 02100 - Site Preparation.
B. Section 02316 - Excavating.
C. Section 02317 - Backfilling and Compacting.

1.03 SUBMITTALS

A. The Contractor shall be responsible for providing material certifications for stone riprap and filter fabric.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with IDOT - Standard Specifications for Road and Bridge Construction adopted January 1, 2012 and applicable sections of the Supplemental and Recurring Special Provisions adopted January 1, 2015.

B. Maintain one copy of document on site.

PART 2 PRODUCTS

2.01 MATERIALS

A. Stone riprap for flared end sections shall be in accordance with IDOT – Standard Specifications, Article 281, Quality A, Gradation 4.

C. Filter Fabric

1. Provide in accordance with Section 02317 – 2.04.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to placement of any riprap, Contractor shall contact Engineer for inspection and testing of excavation subgrade and testing of each compacted layer of fill and backfill material. The Contractor shall provide Proctor information necessary for the Engineer to perform density testing on in-place backfill material.

3.02 PLACEMENT

A. Place fabric as indicated on the drawings.

B. Place bedding material and riprap as indicated on the drawings.

C. Installed Riprap Thickness as shown on the drawings.

END OF SECTION 02380

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. This section covers the work necessary to install and test all utility, process, and storm sewer piping installed outside of buildings and other structures. Building supply, waste and drain piping requirements are included in Division 15 sections.

B. Related Section:

1. Section 01330 - Submittals
2. Section 01600 - Materials and Equipment Shipment, Handling, Storage and Protection
3. Section 02140 - Dewatering
4. Section 02160 - Excavation Support System
5. Section 02305 - Utility Excavation and Backfill
6. Section 02316 - Excavating
7. Section 02317 - Backfill and Compaction
8. Section 15260 – Process Piping

1.02 REFERENCE TO STANDARDS

A. The portions of the work specified in this section shall conform to the following standards, rules, and regulations with modifications and additional requirements as stated in or reasonably inferred from the Contract Documents.

1. Standard Specifications: “Standard Specifications for Construction of Water and Sewer Main in Illinois”, latest edition.
2. 10-States Standards: “Recommended Standards for Water Works” as issued by the Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 2003 Edition.
3. IEPA Technical Policy Statement: “Rules and Regulations for Public Water Supplies” as issued by the Illinois Pollution Control Board (Title 35, Subtitle F, Chapter II, Parts 651-654 of the Illinois Administrative Code).
4. Illinois Department of Transportation (IDOT): Standard Specifications for Road and Bridge Construction, latest edition.
5. Illinois Department of Transportation (IDOT): Supplemental Specifications and recurring Special Provisions, adopted January 1, 2014.
6. Occupational Safety and Health Administration (OSHA): Current OSHA Occupational Safety and Health Standards – Excavations, 29 CFR Part 1926, including any successor regulations.
7. ANSI/AWWA C104/A21.4-03, American National Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water, as published by American Water Works Association.

8. ANSI/AWWA C105/21.5-99, American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems, as published by American Water Works Association.
9. ANSI/AWWA C110/A21.10-03, American National Standard for Ductile-Iron and Gray-Iron Fittings, 3 in. through 48 in. for Water and Other Liquids, as published by American Water Works Association.
10. ANSI/AWWA C111/A21.11-00, American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings, as published by American Water Works Association.
11. ANSI/AWWA C115/A21.15-99, American National Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges, as published by American Water Works Association.
12. ANSI/AWWA C116/A21.16-03, AWWA Standard for Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings for Water Supply Service, as published by American Water Works Association.
13. ANSI/AWWA C150/A21.50-02, AWWA Standard for Thickness Design of Ductile-Iron Pipe, as published by American Water Works Association.
14. ANSI/AWWA C151/A21.51-02, American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water, as published by American Water Works Association.
15. ANSI/AWWA C153/A21.53-00, American National Standard for Ductile-Iron Compact Fittings for Water Service, as published by American Water Works Association.
16. ANSI/AWWA C600-93, AWWA Standard for Installation of Ductile-Iron Water Mains and their Appurtenances, as published by American Water Works Association.
17. ANSI/AWWA C605-94, AWWA Standard for Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water, as published by American Water Works Association.
18. ANSI/AWWA C651-99, AWWA Standard for Disinfecting Water Mains, published by American Water Works Association.
19. ANSI/AWWA C900, AWWA Standard for Polyvinyl Chloride (PVC) Pressure pipe and Fabricated Fittings, 4-Inch through 12-Inch for Water Distribution.
20. ANSI/AWWA C905, AWWA Standard for Polyvinyl Chloride (PVC) Pressure pipe and Fabricated Fittings, 14-Inch through 48-Inch for Water Transmission Distribution.
21. ASME B 16.18-2001 - Cast Copper Alloy Solder Joint Pressure Fittings.
22. ASME B16.22-2001 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
23. ANSI/ASME B31.1 - Code for Pressure Piping, Power Piping.
24. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
25. ASTM A105 - Standard Specification for Forgings, Carbon Steel, for Piping Components.
26. ASTM A106 - Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service.
27. ASTM A139 – Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe.
28. ASTM A193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.

29. ASTM A194 - Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service.
30. ASTM A234 - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures.
31. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
32. ASTM A312/A312M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Pipes.
33. ASTM A403/A403M - Standard Specification for Wrought Austenitic Stainless Steel Piping Fittings.
34. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.
35. ASTM B32-04 - Standard Specification for Solder Metal.
36. ASTM B75-02 - Standard Specification for Seamless Copper Tube.
37. ASTM B88-03 - Standard Specification for Seamless Copper Water Tube.
38. ASTM C76 – Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
39. ASTM C443 – Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
40. ASTM D1330-04 - Standard Specification for Rubber Sheet Gaskets.
41. ASTM D 1784-03 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
42. ASTM D1785-04a - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
43. ASTM D2241-09 Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)
44. ASTM D2321-04 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
45. ASTM D2464-99e1 Standard Specification for Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
46. ASTM D2466-02 Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
47. ASTM D2467-04e1 Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
48. ASTM D2564-04 Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems.
49. ASTM D2665-04a Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings.
50. ASTM D3034 Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
51. ASTM D3139 Standard Specification for Joint for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
52. ASTM D3212 Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
53. ASTM D3261 Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
54. ASTM D3517 Standard Specification for “Fiberglass” (Glass-Fiber Reinforced Thermosetting-Resin) Pressure Pipe
55. ASTM D3754 Standard Specification for “Fiberglass” (Glass-Fiber Reinforced Thermosetting-Resin) Sewer and Industrial Pressure Pipe

56. ASTM D4161 Standard Specification for “Fiberglass” (Glass-Fiber Reinforced Thermosetting-Resin) Pipe Joints Using Flexible Elastomeric Seals
57. ASTM F437-99 Standard Specification for Threaded Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80.
58. ASTM F438-04 Standard Specification for Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40.
59. ASTM F439-02e1 Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80.
60. ASTM F441/F441M-02 Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80.
61. ASTM F477 Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
62. ASTM F493-04 Standard Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings.
63. ASTM F1970-01 Standard Specification for Special Engineered Fittings, Appurtenances or Valves for use in Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Systems.
64. ASTM F2306 Standard Specification for 12 to 60 in. [300 to 1500mm] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.
65. ASTM F2620 Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings
66. ASTM F2648 Standard Specification for 2 to 60 inch [50 to 1500mm] Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications.
67. MSS SP-43 – Wrought Stainless Steel Butt-Welding Fittings.
68. MSS SP-114 - Corrosion Resistant Pipe Fittings Threaded and Socket Welding, Class 150 and 1000.
69. NSF/ANSI Standard 14: Plastic Piping System Components and Related Materials.
70. NSF/ANSI Standard 61: Drinking Water System Components - Health Effects.
71. AASHTO M252: Standard Specifications for Corrugated Polyethylene Drainage Pipe (3”-10”)
72. Ductile Iron Pipe Research Associate (DIPRA) “Polyethylene Encasement Installation Guide,” latest edition.
73. Ductile Iron Pipe Research Associate (DIPRA) “Installation Guide for Ductile Iron Pipe,” latest edition.

1.03 SUBMITTALS

A. Submittals shall be made in accordance with Section 01330 – Submittal Procedures. In addition, the following specific information shall be provided by the Contractor:

1. Submit certification that each manufacturer meets the applicable manufacturer’s qualifications stated in this section.

B. Submit the following specific information for welded steel piping prior to the start of work:

1. Procedure specifications and qualification records of all welding procedures for all pipe and associated structural welding to be performed under this Section, in accordance with Section IX of the ASME Boiler and Pressure Vessel Code except as modified by the code listed in Code Requirements of this Section.
2. Welders qualifications shall be submitted for each individual welder scheduled to execute welding work.

C. Submit a copy of the most current published NSF 61 listing of each pipe type, diameter, and lining, to be furnished for potable water service.

1.04 MANUFACTURER'S QUALIFICATION

A. The pipe manufacturers shall have been in the design, manufacture, and testing of the specified type of pipe, supports and associated equipment for ten (10) years minimum.

1.05 QUALITY ASSURANCE

A. The manufacturer shall have established an on-going program of quality assurance and shall, upon request, provide auditable records to the Engineer of quality control documentation for the specified materials and equipment through its manufacturing process.

1.06 WARRANTY

A. The Contractor shall provide warranty for all items under this section for one year from the date of acceptance by the Owner. During that one year, the Contractor shall at his expense replace any part or parts which malfunction or corrode due to defective manufacture or installation.

1.07 REGULATORY REQUIREMENTS

A. All equipment furnished, and equipment installation, under this section and all referenced sections shall meet requirements of the Federal Occupation Safety and Health Act of 1970 (OSHA), as may be amended to date of order.

B. All products provided under this section for service in contact with potable water shall be tested and certified by Underwriters Laboratory or NSF International (as an ANSI accredited certifier) against NSF 61: Drinking Water System Components - Health Effects.

1.08 CODE REQUIREMENTS

A. Welded steel piping shall meet the requirements of the ANSI Code for Pressure Piping B31.1, Power Piping, hereinafter referred to as the Piping Code.

1.09 DELIVERY, STORAGE AND HANDLING

A. In addition to the requirements in Section 01600 – Materials and Equipment Shipment, Handling, Storage and Protection, the ends of pipe shall be covered during shipping.

B. If possible, store PVC and CPVC pipe inside. When this is not possible, store pipe on level ground which is dry and free from sharp objects.

1. Store different schedules of PVC and CPVC pipe that are stacked together with the pipe with the thickest walls on the bottom.
2. If the PVC and CPVC pipe is on pallets, the pallets should be stacked with the pallet boards touching, rather than pallet boards being placed on the pipe to prevent damage to or bowing of the pipe.
3. If the PVC and CPVC pipe is stored in racks, it shall be continuously supported along its length. If this is not possible, the spacing of the supports shall not exceed three feet (3').
4. The PVC and CPVC pipe shall be protected from the sun and be in an area with proper ventilation to lessen the effects of ultraviolet rays and help prevent heat build-up.

PART 2 PRODUCTS

2.01 GENERAL

A. The materials to be used for each piping system are shown on the Drawings and as stated in this section.

B. Bolts, nuts and washers used in flanged joints shall be stainless steel.

2.02 PIPE IDENTIFICATION

A. Detectable line marking tape with No. 12 insulated copper wire shall be used on all lines. Water lines shall have tape that reads “WARNING: Water Line.” Sewer lines shall have tape that reads “WARNING: Sewer Line.” All tape shall be placed approximately 18” above the line.

B. Pressures lines shall have a No. 12 insulated copper tracer wire run in the ditch, immediately above the pipe.

2.03 PIPING TRANSITION PROVISIONS

A. For connecting two pipes of the same nominal size but with different O.D.’s, a solid-sleeve transition coupling shall be used. Couplings shall be PowerSeal Model 3501, Ford Meter Box Model FC2A or equal, with low alloy steel bolts and nuts where connecting to ductile iron pipe.

2.04 SERVICE SADDLES FOR FERROUS METAL PIPING

A. Pipe service saddles for all ferrous metal piping except stainless steel shall be Mueller, DR2S; Smith-Blair, Series 313 or 366; Dresser, Style 291; or equal. Service saddles shall be capable of withstanding 150 psi internal pressure without leakage or overstressing. The saddle shall be compatible with the pipe on which the saddle is installed. Taps shall have iron pipe threads unless noted otherwise or other threads are required by adjacent piping or appurtenances. Saddles shall have malleable or ductile iron bodies and galvanized steel straps, steel hex nuts with washers, and neoprene seals. Service saddles shall be of double-strap or triple-strap design.

2.05 FIELD INSTALLED FLANGES AND DISMANTLING JOINTS

A. Provide Field Installed Flanges on ductile iron and steel process piping in lieu of threaded or welded flanges ONLY when type and location of flange are specifically approved by Engineer.

B. Field Installed Flanges shall be one of the following:

1. Flanged Coupling Adapter installed with thrust ties across the joint:

   a. Coupling: Series 912 for ductile iron piping and Series 913 for steel piping, as manufactured by Smith-Blair, Inc.; Style 128W for steel pipe and ductile iron pipe, as manufactured by Dresser Industries, Inc.; Model 3521 as manufactured by Power Seal Pipeline Products Corp.; or equal.

   b. Thrust Ties: Thrust ties shall be designed to fully restrain the joint against all forces developed by the test pressures listed for the pipe. Thrust ties shall conform to the Table of Thrust-Tie Dimensions.

2. Restrained Flange Adapter, Series 2100 MEGAFLANGE, as manufactured by EBAA Iron Sales, Inc.

3. Table of Thrust-Tie Dimensions:

THRUST-TIE DIMENSIONS FOR FIELD INSTALLED FLANGES											
NOMINAL PIPE DIAMETER (INCHES)	GUSSET PLATE THICKNESS (INCHES)	CONTROL ROD DIAMETER (INCHES)	CONTROL ROD BOLT CIRCLE (INCHES)	MINIMUM NUMBER OF CONTROL RODS REQUIRED							
				MAXIMUM SURGE OR TEST PRESSURE							
				50	75	100	125	150	175	200	250
4	NA	0.625	7.500	2	2	2	2	2	2	2	2
4	0.375	0.625	10.250	2	2	2	2	2	2	2	2
5	NA	0.750	8.500	2	2	2	2	2	2	2	2
5	0.375	0.625	11.250	2	2	2	2	2	2	2	4
6	NA	0.750	9.500	2	2	2	2	2	2	2	4
6	0.500	0.625	12.250	2	2	2	2	2	4	4	4
8	NA	0.750	11.750	2	2	2	2	4	4	4	4
8	0.500	0.750	15.000	2	2	2	2	4	4	4	4
10	NA	0.875	14.250	2	2	2	2	3	3	4	4
10	0.750	0.875	17.750	2	2	2	2	3	3	4	4
12	NA	0.875	17.000	2	2	3	3	4	4	6	6
12	0.750	1.000	21.000	2	2	2	3	3	3	4	6
14	NA	1.000	18.750	2	2	3	3	4	4	6	6
14	0.750	1.000	23.000	2	2	3	3	4	4	6	6
16	NA	1.000	21.250	2	4	4	4	6	6	6	8
16	0.750	1.125	25.750	2	2	4	4	4	4	6	6
18	NA	1.125	22.750	2	4	4	4	6	6	6	8
18	0.750	1.125	27.250	2	4	4	4	6	6	6	8
20	NA	1.125	25.000	2	4	4	5	6	8	8	10
20	0.750	1.125	29.750	2	4	4	5	6	8	8	10
22	NA	1.250	27.250	2	4	4	5	5	6	8	10
22	1.000	1.250	32.000	2	4	4	5	5	6	8	10
24	NA	1.250	29.500	2	4	4	5	6	8	8	10
24	1.000	1.250	34.500	2	4	4	5	6	8	8	10
30	NA	1.250	36.000	4	6	7	8	10	14	14	14
30	1.250	1.500	41.750	4	4	6	7	7	8	10	14
36	NA	1.500	42.750	3	6	7	8	10	12	12	15
36	1.500	1.750	49.000	3	4	6	7	9	9	9	12

a. Thrust ties shall be control-rods installed in flange bolt circle or with gusset plates outside flange O.D. and anchored to weld-on pipe lugs or flange (welded or threaded).

b. Control-rods shall be installed parallel to pipe centerline and equally spaced around bolt circle.

c. Control-rods shall be carbon steel, hot-dipped galvanized, ASTM A307, Grade A with carbon steel, hot-dipped galvanized, ASTM A563, Grade A, hex head nuts and carbon steel, hot-dipped galvanized, plain washers.

d. Gusset plates shall be hot-dipped galvanized, ASTM A36 carbon steel.

e. Gusset plates shall be attached by a minimum of two flange bolts each.
f. Sizes and quantities based on 60 ksi yield strength and safety factor = 4.

C. Provide Dismantling Joints on ductile iron and steel process piping where indicated on the drawings and where necessary for future disassembly of piping. Dismantling Joints shall be a flanged spool assembly with restraint rods and shall combine a flanged coupling adapter and a flanged spigot into one assembly. Longitudinal adjustment shall be provided by telescoping action of the spigot inside the flanged coupling adapter. The bolting procedure for the flanged coupling adapter and the flanged spigot can be completed after the final installation position is achieved. Dismantling joint and restraint rods shall be rated for the working, test, and maximum pressures of the adjacent piping.

D. Dismantling Joints shall be JCM Model 309; Romac Industries, Model DJ400; Smith-Blair, Inc. Model 975; or equal.

E. Dismantling Joints shall be manufactured of the following materials:

1. Flanges in accordance with AWWA C207 Class D Flange, drilling compatible with ANSI Class 125 and 150 bolt circles.
2. Body and Spigot: ASTM A53, ASTM A512, or carbon steel having a minimum yield of 30,000 psi or Ductile Iron ASTM A536. Spigot shall be Schedule 40 pipe.
3. Follower gland: Ductile Iron ASTM A536.
4. Gasket: NSF 61 Approved. Nitrile (Buna-N) or NBR rubber compounded for water and sewer service in accordance with ASTM D 2000 MBA810Z.
5. Studs: ASTM A325 or A307.
6. Tie Rods: ASTM A193 GR B7.
7. NSF 61 certified epoxy.

2.06 WALL PENETRATIONS

A. All piping penetrations of newly constructed concrete walls shall be ductile iron or steel wall pipes or pipes sleeves with thrust collars, unless otherwise noted on the drawings. See drawings for penetration details.

B. All piping penetrations into existing concrete walls, including existing concrete manholes or vaults, shall be core-drilled. See drawings for penetration details.

C. It shall be the Contractor's sole responsibility to coordinate the pipe sleeve and the annular seal sizes.

D. All surfaces, interior and exterior, shall be painted in accordance with Division 9, Section 09960 – High-Performance Coatings.

E. Pipe Sleeves:

1. Provide steel and stainless steel pipe sleeves where steel or stainless steel piping passes through concrete walls, floors, slabs, and roofs which are to be watertight and where shown on the Drawings. Pipe sleeves shall be of a thickness equal to or greater than the passing pipe.
2. All pipe sleeves shall be provided with thrust collars. Thrust collars shall be fabricated of steel or stainless steel, similar to the pipe sleeve. The thrust collar shall be welded to the pipe sleeve. All welds shall be done in the pipe manufacturer's shop by qualified welder. The thrust collar shall be welded continuously around the pipe on both sides of the collar.
3. Thrust collars shall be rated for the thrust load developed at 250 psi and shall have a minimum safety factory of 2. The Contractor shall submit design calculations or the manufacturer's test report substantiating the pressure rating and safety factor specified.
4. The annular space between pipes and sleeves or existing concrete shall be watertight. The joint shall be sealed by a modular mechanical unit consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and sleeve. The interconnected rubber links shall be assembled with stainless steel bolts and nuts and stainless steel pressure plates under each bolt head and nut to prevent the nut from turning when the bolt is tightened. Tightening of the bolts shall cause the rubber sealing links to expand, resulting in a watertight seal between the pipe and sleeve opening. The installed closure shall provide electrical isolation of the pipe from the sleeve. Closures shall be sized according to manufacturer's instructions for the size of pipes shown on the Drawings. Annular mechanical seals shall be Link Seal by Thunderline Corporation, or equal.

2.07 DUCTILE-IRON PIPE AND FITTINGS

A. Manufacturers - Ductile-Iron Pipe and Fittings shall be manufactured by one of the following:

1. American Cast Iron Pipe Company
2. U. S. Pipe and Foundry Company
3. Griffin Pipe Company
4. Clow Water Systems Company
5. No substitutions will be allowed

B. Buried Piping

1. Material and Wall Thickness

a. Material and Wall Thickness – Ductile iron pipe shall conform to ANSI/AWWA C150/A21.50 and ANSI/AWWA C151/A21.51.

i. Buried pipe 12-inch diameter and smaller shall be AWWA C151 Pressure Class 350.
ii. Buried pipe larger than 12-inch diameter shall be AWWA C151 Pressure Class 350.

2. Joints

a. Push-On – Shall conform to ANSI/AWWA C111/A21.11, American Fastite Joint or Equal.

i. Tyton Joint complete with Tyton gasket and lubricant supplied by pipe manufacturer.
ii. Fastite Joint complete with Fastite gasket and lubricant supplied by pipe manufacturer.

b. Restrained Push- On – Shall conform to ANSI/AWWA C111/A21.11, American Fastite Joint or Equal with American Fast-Grip restraining gaskets, or equal with tools and lubricant included.

i. Tyton Joint complete with Field-lok gasket and lubricant supplied by pipe manufacturer.
ii. Fastite Joint complete with Fast-Grip gasket and lubricant supplied by pipe manufacturer.
iii. Tyton Joint with Sure-Stop Gaskets

c. Mechanical Joint – Shall conform to ANSI/AWWA C111/A21.11. Bolts and nuts shall be Alloy Steel (Corten or US alloy type) and be cathodic to ductile iron and cast iron. Mechanical glands shall provide pipe restraint and conform to the following: The restraining mechanism shall consist of individually actuated wedges that increase their resistance to pullout as pressure or external forces increase. The device shall be capable of full mechanical joint deflection during assembly and the flexibility of the joint shall be maintained after burial. Torque limiting twist-off nuts shall be used to insure proper actuation of the restraining wedges. The joint restraint ring and its wedging components shall be made of ductile iron conforming to ASTM A536. The wedges shall be ductile iron heat treated to a minimum hardness of 370 BHN. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell conforming to ANSI/AWWA C111/A21.11 and ANSI/AWWA C153/A21.53 of the latest revision. The mechanical joint restraint shall have a rated working pressure of 250 psi minimum. The devices shall be listed by Underwriters Laboratories up through the twenty-for inch (24”) size. The restraint shall be the Series 1100 Mega lug Restraint manufactured by EBBA Iron, Inc. or equal.

3. Fittings

a. Unless otherwise shown on drawings, all fittings shall be cast iron or ductile iron with mechanical joints conforming to AWWA C110 or shall be compact fittings meeting AWWA 153. Fittings smaller than 14” diameter shall be for 350 psi maximum working pressure. Fittings 14” and larger shall be for 150 psi maximum working pressure. All nuts and treaded rods shall be stainless steel. All mechanical joint fittings shall have Series 1100 Mega lug Restraint

manufactured by EBBA Iron, Inc. or equal.

4. Lining

   a. Cement Linings: ANSI A21.4 or AWWA C104 unless otherwise indicated, all ductile iron pipe and fittings shall be cement lined and coated within an asphalt seal coat. Pipe used for air service shall not be cement-lined.

5. Exterior Coating

   a. Bituminous coating as specified in AWWA C151.

6. Polyethylene Encasement

   a. All buried ductile iron pipe, including all appurtenances (fittings, valves, etc.) shall have a polyethylene encasement meeting AWWA C105. Encasement shall be installed per the Ductile Iron Pipe Association (DIPRA) installation guide.

C. Boltless Restrained Joints shall conform to applicable sections of AWWA C111, shall be a boltless-type joint that is capable deflection after assembly. Restrained joints shall be one of the following:

1. Flex-Ring bell-ends and factory spigot-ends or Flex-Ring bell-ends and Field Flex Rings for field-cut pipe-ends, as manufactured by American Cast Iron Pipe Company.
2. TR Flex bell-ends and factory spigot-ends or TR Flex bell-ends and TR Flex Gripper Rings for field-cut pipe-ends, as manufactured by United States Pipe and Foundry Company.
3. SNAP-LOK – Tyton bell-ends and factory spigot-ends for 6-inch through 24-inch diameter piping. SNAP-LOK – Fastite bell-ends and factory spigot-ends for 30-inch through 48-inch diameter piping. SNAP-LOK FC – Tyton for 6-inch through 24-inch diameter field-cut pipe.
4. Super-Lock bell ends and factory spigot ends or Super-Lock bell ends and Field Rings for field-cut pipe ends, as manufactured by Clow Water Systems Company

E. Gaskets for flanged joints shall be 1/8-inch thick Styrene-Butadiene (SBR) pure synthetic rubber conforming to AWWA C111, ASTM D-1330 Grade 1, and ASTM D-2000 Type AA with Durometer Hardness of 75 Shore A ±5, unless otherwise specified. Gasket material shall be free from corrosive alkali or acid ingredients and suitable for use in the intended service. Gaskets shall be ring-type for 14-inch and larger pipe diameters and full-face type for smaller sizes with nominal inside diameter, outside diameter, and bolt holes as shown in Appendix A of AWWA C115. Gasket material shall be Allstate Gasket, Inc. - Style 1154, Biltrite Corporation Style 20, or equal. Specially designed gaskets with one or more annular rings in the gasket to improve joint performance and supplied by the pipe manufacturer may be substituted with approval from the Engineer.

F. Gaskets for push-on, restrained push-on, mechanical, restrained mechanical, and boltless restrained joints shall be SBR, styrene butadiene rubber, conforming to AWWA C111. Where contaminated soil is encountered, elastomers that are compatible with and chemically resistant to the soil contaminants shall be provided. Gaskets for restrained push-on joints shall have stainless steel wedging elements manufactured as part of the gasket.

G. Gaskets shall be manufactured or supplied by the following pipe manufacturers:

1. American Cast Iron Pipe Company
2. U. S. Pipe and Foundry Company.
3. Griffin Pipe Company.
4. Clow Water Systems Company.
5. No substitutions will be allowed.

H. Lubricant for piping shall be the pipe manufacturer's standard only, no substitutes will be permitted.

2.08 STAINLESS STEEL PIPE AND FITTINGS

A. Shall be Schedule 40, 316L Stainless Steel as indicated on the drawings. The manufacturing and installation of stainless steel piping and be accordance with ANSI/AWWA Standard 220-98.

B. Fittings

1. Cam and Groove Fittings shall be 316 stainless steel as manufactured by Dixon Valve & Coupling Co., of Chestertown, MD, or equal. Cam and groove Female adapter shall be Dixon “Andrews”/”Boss-Lock” Type F adapter with Male NPT threads. Cam and groove Male adapter with Male NPT threads shall be Dixon “EZ Boss-Lock” Type B Adapter. Cam and groove Male adapter with Hose Shank connection shall be Dixon “Andrews”/”Boss-Lock” Type E Adapter. Cam and groove couplings shall be installed with E.P.D.M. Gaskets.
2. Fittings for use with stainless steel piping shall be 316 stainless Steel with connections as indicated on the drawings.

C. Threaded joints in stainless steel piping, four-inch and smaller, shall conform to ANSI B1.20.1 and be sealed with Teflon tape. Threaded joints are designated as “screwed”, “SCR”, or “NPT” in the Drawings and Piping Schedule.

D. Threaded stainless steel fittings, four-inch and smaller, shall be cast and conform to MSS SP-114. Unless noted otherwise in the Drawings or Piping Schedule, threaded fittings shall be Class 150 304/304L.

E. Welded stainless steel fittings shall be wrought and conform to ASTM A-403 and ASME B 16.9. Unless noted otherwise in the Drawings, fittings shall be Schedule 40S 304/304L.

2.09 HIGH DENSITY POLYETHYLENE (HDPE) PIPE AND FITTINGS

A. Manufacturers - High Density Polyethylene (HDPE) Pipe shall be manufactured by one of the following:

1. ADS
2. Hancor
3. Princso
4. Chevron Phillips Chemical Company
5. ISCO Industries
6. Or accepted equal

B. Gravity Pipe

1. Material – HDPE pipe shall conform to ASTM F2306 and ASTM F2648. Pipe shall be solid wall unless otherwise shown on plans.
2. Joints – Bell and Spigot shall conform to ASTM D3212 with rubber gaskets that conform to ASTM F477.

C. Pressure Pipe

1. Material and Wall Thickness

   a. Pipe sizes 3” and smaller: ASTM D3035, DR 17
   b. Pipe sizes 4” and larger: ASTM F714, DR 17
   c. Pipe O.D. sizes shall be available in both steel pipe sizes (IPS) and ductile iron pipe sizes (DIPs)
   d. The pipe material shall contain no recycled compounds except that generated in the manufacturer’s own plant from resin of the same specification from the same raw material.

2. Joints – Heat butt fused joints per ASTM F2620 and per pipe manufacturer’s recommendations. Jointing shall be carried out by certified operators with prior experience fusing polyethylene pipe with similar equipment.
3. Fittings – Butt fusion fittings per ASTM D3261

2.10 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

A. Manufacturers - PVC Pipe shall be manufactured by one of the following:

1. Diamond Plastics.
2. IPS
3. CertainTeed Corporation
4. JM Eagle
5. Or accepted equal

B. Gravity Pipe

1. Except where shown otherwise on the drawings, solid wall PVC pipe and fittings shall be permitted on this project for sewers up to twenty four inch (24”) in diameter. PVC pipe shall meet either the sewer pipe specification or the pressure pipe specification listed below depending upon the depth of sewer installed.
2. For gravity sewer fifteen feet (15’) deep or less, SDR 35 solid wall PVC sewer pipe shall be permitted. Pipe up to fifteen inches (15”) in diameter shall conform to ASTM Specification D-3034 (latest revision). Pipe with a diameter eighteen inch (18”) or larger shall conform to ASTM Specification F679 (latest revision). Joint shall be the rubber-gasketed slip-on type.
3. For gravity sewer greater that fifteen feet (15’) deep but less than thirty feet (30’) deep, PVC sewer pipe as specified in the above paragraph shall be SDR 26.

C. Pressure Pipe

1. Material and Wall Thickness

   a. Pipe sizes 4” and smaller: ASTM D2241, SDR 17
   b. Pipe sizes 6” to 12”: AWWA C900, DR 14
   c. Pipe sizes 14” and larger: AWWA C905, DR 14.
   d. For directional drilling applications, pipe shall be Certalok C905/RJ pipe by the CertainTeed Corporation or accepted equal

2. Joints: Push-on type with rubber gaskets.

   a. PVC pipe shall have rubber gasketed joints. Rubber gaskets shall meet ASTM Specification F477.
   b. For all PVC pipe, additives and fillers, including but not limited to stabilizers, antioxidants, lubricants, colorants, etc. shall not exceed ten (10) parts by weight per one hundred (100) parts of the resin in the compound. Manufacturers will be required to certify that their pipe compound meets this requirement as well as cell classification.
   c. All pipe shall be furnished with a painted ring or other acceptable marking suitable for determining whether or not the pipe has been properly inserted into the coupling. Each pipe shall be clearly marked with the nominal diameter, manufacturer’s name, class pressure rating and identification code.
   d. Integral Restrained Joint for C905/RJ pipe shall be a restraining system manufactured integrally into the pipe bell and spigot.

      i. Fittings: ANSI A21.11 (AWWA C153), ductile iron standard body mechanical joint type. All fittings shall be the Series 1100 Mega lug Restraint manufactured by EBBA Iron, Inc. No substitutions will be allowed.
      ii. Restraining Devices shall be Series 2800 Bell Restraint Harness by EBAA Iron Inc., or accepted equal.

2.11 COPPER AND COPPER ALLOY PIPE AND FITTINGS

A. Tubing: Copper, seamless, ASTM B88, type and temper as follows:

1. Buried: Type K, annealed soft or hard, drawn, temper.
2. Exposed: Type L, hard, drawn, temper.

B. Fittings: Commercially pure wrought copper, socket joint, ASTM B75, dimensions conforming to ASME B16.22. Cast copper fittings shall conform to ASME B 16.18.

C. Solder: 95-5 wire solder (95 percent tin, 5 percent antimony), ASTM B32, Grade 95 TA. Cored solder is unacceptable.

2.12 REINFORCED CONCRETE PIPE

A. ASTM C76 Class III unless otherwise noted on the Drawings

1. Joints: ASTM C-361, Bell and Spigot compressive type with resilient seals embedded in both ends and joined with rubber gaskets per ASTM C443.
2. Each concrete pipe section shall be tested at the manufacture site with low pressure air or equivalent vacuum test. The test shall be conducted in a manner using a cap, plug and gasket of the type and size to be used in the field to include the tongue and bell sealing surface. End to end testing using foam plates is not acceptable. Reference ASTM C924 Pipe passing the test shall be clearly marked “Air Tested.”

B. Flared End Sections shall be per AASHTO M170.

2.13 STEEL CASING PIPE

A. At the locations shown on the drawings, pipe lines shall be installed in a steel casing pipe. The steel casing pipe shall be bituminous coated and shall be of leakproof construction, capable of withstanding the anticipated loadings. The steel casing pipe shall have minimum yield strength of 35,000 psi and shall meet the requirements of ASTM A139, Grade B. Ring deflection shall not exceed 2% of the nominal diameter. The steel casing pipe shall be delivered to the jobsite with beveled ends to facilitate field wielding. The minimum wall thickness of the steel casing pipe shall be as follows:

Steel Casing Minimum Diameter (Inches)	Wall thickness (Inches)
16” and smaller	0.250
18”	0.250
20”	0.281
22”	0.312
24”	0.344
26”	0.375
28” and 30”	0.469
32”	0.438
34” and 36”	0.469
38”, 40” and 42”	0.500
48”	0.563
54”	0.625

B. Casing pipe diameter shall be such that there is a minimum of 3” clearance between the largest diameter part of the carrying pipe being installed and minimum inside diameter of the casing pipe including welds. To facilitate the installation of the inner pipe, that pipe shall be fitted with at least three casing insulators per pipe length. The casing insulators shall be Model 4810 as manufactured by Power Seal Pipeline Products Corporation of Wichita Falls, Texas, Advance Products & Systems Model SSI, or equal.

C. The ends of the casing pipes shall be sealed with rubber end seals by Advance Products & Systems or accepted equal. End seals shall be installed per manufacturer’s recommendations.

2.14 GLASS-FIBER-REINFORCED POLYMER MORTAR (GFRPM) PIPE

A. Manufacturers - Pipe shall be manufactured by one of the following:

1. Hobas Pipe USA, Houston TX
2. Or accepted equal

B. Material – fiberglass sewer pressure pipe per ASTM D3754, stiffness class SN46, pressure class PN50

C. Joints – push-on type coupling joints per ASTM D4161 with rubber gaskets per ASTM F477. Pipe shall be supplied with couplings factory installed.

D. Closure Couplings – mechanical couplings shall have stainless steel bodies and

fasteners with elastomeric sealing sleeves and as per pipe manufacturer's recommendations. Closure coupling working pressure shall meet or exceed the working pressure of the pipe.

E. Fittings – Flanges, elbows, reducers, tees, wyes, laterals, and other fittings shall be GFRPM capable of withstanding all operating conditions when installed. They may be contact molded or manufactured from mitered sections of pipe jointed by glass-fiber-reinforced overlays.

F. Concrete Encasement – concrete encasement for trust restraint is required at all GFRPM fittings as per the details contained within the Drawings. Concrete and reinforcing shall meet or exceed the requirements of the Division 3 specifications.

2.15 VALVES

A. For site piping valve requirements see specification section 15270 – Valves.

PART 3 EXECUTION

3.01 GENERAL

A. Proper and suitable tools and appliances for the safe and convenient handling and placing of the pipes shall be used. All pieces shall be carefully examined for defects and no piece shall be laid which is known to be defective. If any defective piece should be discovered after having been laid, it shall be removed and replaced with a sound piece, in a satisfactory manner, by the Contractor at his own expense.

B. The pipes shall be thoroughly cleaned before they are placed, shall be kept clean until they are accepted in the completed work, and when laid shall conform accurately to the lines and elevations given by the Engineer, or as specified.

3.02 PIPE PREPARATION AND HANDLING

A. Each pipe and fitting shall be carefully inspected before the buried pipe or fitting is lowered into the trench. Clean ends of pipe thoroughly. Remove foreign matter and dirt from inside of pipe and keep clean during and after laying.

B. Use proper implements, tools, and facilities for the safe and proper protection of the pipe. Carefully handle pipe in such a manner as to avoid any physical damage to the pipe and coatings. Do not drop or dump pipe into trenches under any circumstances.

C. Ream, clean, and remove burrs from piping before making up joints.

D. Cut copper pipe square and remove burrs. Clean both inside of copper fittings and outside of pipe before sweating. Take care to prevent annealing of fittings and hard-drawn tubing when making connections.

E. Bends in soft temper copper pipe shall be long sweep, wherever possible. Bends shall be shaped with bending tools and shall be made without appreciable flattening, buckling, or thinning of the tube wall at any point.

3.03 INSTALLATION OF BURIED PIPING

A. General

1. Buried piping shall be installed in accordance with “Standard Specifications”, “10-States Standards”, “IEPA Technical Policy Statements”, AWWA C600 and AWWA C605 except for requirements regarding measurement and payment and as modified herein.
2. Assembly of buried pipe and fittings shall be in accordance with the manufacturer’s written instructions and recommendations.
3. Field cut pipe shall be cut square, beveled, field-gauged, and rounded in accordance with manufacturers written instructions and recommendations.
4. D.I.P. solid sleeves shall be installed with buried piping where proposed piping connects to existing site piping. Provide a make-up pipe spacer to fill the gap between pipe ends covered by the sleeve. The pipe spacer shall be cut from the same pipe material as adjacent pipe and shall be cut to length such that all adjacent joints remain fully seated.
5. All buried piping shall be uniformly sloped and installed to the line and grade indicated on the drawings. Minimum depth of cover shall be 4’-0” unless noted otherwise.
6. If a grade conflict is determined, the Contractor shall notify the Engineer, who shall then determine what adjustments are required.

B. Ductile-Iron Pipe

1. Care shall be taken not to damage the cement lining when handling the pipe. Cut pipe with milling type cutter, rolling pipe cutter, or abrasive saw cutter. Do not flame cut. Dress cut ends of pipe in accordance with the type of joint to be made. Dress cut ends of push-on joint pipe by beveling, as recommended by the pipe manufacturer. Dress cut ends of pipe for flexible couplings and flanged coupling adapters as recommended by the coupling or adapter manufacturer.
2. Flanged pipe shall be fabricated in the shop, not in the field, and delivered to the jobsite with flanges in place and properly faced. Threaded flanges shall be individually fitted and machine tightened on matching threaded pipe by the manufacturer. A sufficient number of selected flange-to-pipe threaded joints shall be hydrostatically shop tested to ensure joint integrity.
3. Flanged pipe joint assembly shall conform to AWWA C111, Appendix C. Prior to connecting flanged pipe, the faces of the flanges shall be thoroughly cleaned of all oil, grease, and foreign material. The rubber gaskets shall be checked for proper fit and thoroughly cleaned. Care shall be taken to assure proper seating of the flange gasket. Bolts shall be tightened so that the pressure on the gasket is uniform. Torque-limiting wrenches shall be used to ensure uniform bearing insofar as possible. If joints leak when the hydrostatic test is applied, the gaskets shall be removed and reset and bolts retightened.
4. Push-On and Restrained Push-on pipe joint assembly shall conform to

AWWA C111, Appendix B. Join pipe in accordance with the manufacturer's written instructions and recommendations. Provide all special tools and devices, such as special jacks, chokers, and similar items required for proper installation. Lubricant for the pipe gaskets shall be furnished by the pipe manufacturer, and no substitutes will be permitted.

5. Mechanical and Restrained Mechanical joint assembly shall conform to AWWA C111, Appendix A. Join pipe in accordance with the manufacturer's written instructions and recommendations. Provide all special tools and devices, such as special jacks, chokers, and similar items required for proper installation. Lubricant for the pipe gaskets shall be furnished by the pipe manufacturer, and no substitutes will be permitted. Torque-limiting wrenches shall be used to ensure uniform bolt tightening.
6. Restrained Joint: Joint pipe in accordance with the manufacturer's written instructions and recommendations. Provide all special tools and devices, such as special jacks, chokers, and similar items required for proper installation. Lubricant for the pipe gaskets shall be furnished by the pipe manufacturer, and no substitutes will be permitted.
7. Grooved Joint: Pipe ends shall be clean and free from indentations and projections, in the area from pipe end to groove. All grooved components shall be of one manufacturer. The gasket style and elastomeric material shall be verified as suitable for the intended service as specified. Install per manufacturer's recommended practices.

C. PVC Pipe

1. Buried plastic pipe shall be installed in trench bottoms which are smooth and regular in either undisturbed soil or a layer of compacted backfill. The trench bottom should be smooth, free of rocks and debris, continuous, and provide uniform support. If ledge rock, hardpan or large boulders are encountered, the trench bottom should be padded with bedding of compacted granular material to a thickness of at least four inches.
2. Plastic pipe subject to freezing should be installed below the frost level which is 3-feet 6-inches of cover. The minimum cover for lines not subject to freezing but subject to heavy overhead traffic is 24-inches.
3. A smooth trench bottom is necessary to support the pipe over its entire length on firm stable material. Pipe must lie evenly on this surface throughout the entire length of its barrel. Blocking should not be used to change pipe grade or to intermittently support pipe over low sections in the trench.
4. Buried plastic pipe shall be laid by snaking the pipe from one side of the trench to the other. Offset shall be as recommended by the manufacturer for the maximum temperature variation between time of solvent welding and during operation.
5. Install plastic pipe in accordance with ASTM D 2321 "Underground Installation of Thermoplastic pipe for sewers and other gravity-flow applications."

D. Excavation - Refer to Section 02305 – Utility Excavation and Backfill of this Contract.

E. Bedding and Backfilling - Refer to Section 02305 – Utility Excavation and Backfill and

Section 02317 – Backfilling and Compacting of this Contract for pipelines greater than five (5) feet beyond the limits of any structure Refer to Section 15260 – Process Piping for pipelines below and within five (5) feet of any structure.

F. Thrust block all crosses, tees, bends, plugs, fire hydrants and valves against undisturbed earth as detailed in the drawings. Backfill thrust blocks a minimum of 24 hours after placement. Thrust blocks or misplaced concrete shall not contact the bell face or fasteners of any pipe, fitting, or valve.

3.04 TESTING

A. General: Conduct pressure and leakage tests on all newly installed pipelines or segments of pipelines. Furnish all necessary equipment and material and make all permanent or temporary connections or plugs to the pipe, as required to perform testing on pipe segments. Properly restrain all segments to be tested. The Engineer will monitor the tests. Test pressures and type of test shall be as specified and as shown on the Drawings.

B. Testing New Pipe Which Connects to Existing Pipe: New pipelines which are to be connected to existing pipelines shall be tested by isolating the new pipe with special valves or blind flanges as necessary. Costs of valves and blind flanges used for this testing shall be incidental to new pipe line being tested.

C. Buried Piping

1. Pressure Tests

a. All buried piping shall be subject to pressure tests as specified herein. After the pipe had been laid and backfilled, the pipe shall be subjected to hydrostatic pressure tests in accordance with Section 41-2.12A and 41-2.12B of the “Standard Specifications for Water and Sewer Main construction in Illinois”, latest edition. The test pressure shall be a minimum of 1.5 times the maximum operating pressure of the pipe system.

b. The duration of each pressure test shall be for a period of not less than two hours and not more than six hours. The basic provisions of AWWA C600 shall be applicable.

c. Each section of pipe to be tested shall be slowly filled with water and the specified test pressure shall be applied by means of a pump connected to the pipe in a satisfactory manner. The pump pipe connection and all necessary apparatus uncluding gauges and meters shall be furnished by the Contractor. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, taps shall be made, if necessary, at points of highest elevation and afterwards tightly plugged. Any cracked or defective pipes, fittings, valves, or hydrants discovered in consequence of this pressure test shall be removed and replaced by the Contractor at the Contractor’s expense with sound material and the test shall be repeated until satisfactory to the Engineer.

2. Leakage Tests

a. Concurrently with the pressure test, a leakage test shall be conducted to determine the quantity of water lost by leakage under the specified test pressure. Applicable provisions of AWWA C600 shall apply. Duration of each leakage test shall be a minimum of two hours. Allowable leakage is defined in AWWA C600.

3. Joint Tests

a. On pipe sizes 48" and larger, joint testing may be performed in lieu of pressure tests and leakage tests.
b. The Contractor shall submit the joint testing procedure and testing equipment to the Engineer for review.
c. Required minimum test pressure shall be 25 psi.
d. The duration of each joint test shall be 1 minute.
e. The allowable pressure drop during the test duration shall be 1 psi.
f. Any joints that fail the test shall be removed and replaced by the Contractor at the Contractor's expense in order to create a sound joint and the test shall be repeated until satisfactory to the Engineer.

D. Sanitary Sewer Testing - shall be per Standard Specifications for Water & Sewer Construction in Illinois, latest edition, provisions and as specified herein.

1. The Contractor shall be required to test all the sanitary sewers and drain lines installed on this project and all sections will be required to pass testing as outlined.
2. Leakage tests shall be preformed after the lines have been cleaned and the trench backfilled.
3. All gravity sanitary sewers and drain lines shall be tested by exfiltration of water or exfiltration of air. The appropriate method of leakage testing shall be determined by the Engineer based on field conditions. Along the section of sewer to be tested, the Contractor shall determine the groundwater level at each end manhole and at all intermediate manholes. The groundwater level outside each manhole shall be measured outside the manhole by excavation down to the sewer to be tested, or shall be measured in the manhole by the use of clear tubing and piping which extends through the manhole wall at or below the top of the sewer pipe to be tested. The hole through the manhole shall be sealed following successful completion of all leakage testing.
4. All manholes shall be included in the water exfiltration and infiltration test methods. If the exfiltration of air method is used, manholes shall be separately tested by water infiltration or exfiltration test. If the infiltration method is used, the ground around the manhole shall be soaked and water standing up to the top of the manhole. Manholes shall be bottle tight with no leakage.
5. The Contractor shall furnish the water to be used during the test when the exfiltration method of testing is used. If the City water system is used, all water shall be metered and the Contractor shall pay the City according to their current rates. All sewers shall be required to meet allowable leakage criteria in accordance with City of Edwardsville requirements. If any section fails to meet the tests, the section shall be repaired or replaced at the Contractor's expense and retested until it meets the leakage limits. Pressure

grout or concrete encasement will not be acceptable methods of repair of joints.

6. The Contractor shall be required to conduct deflection testing on each type of flexible sewer pipe or drain (ABS and PVC composite and PVC sewer pipe). Deflection testing shall be performed on all flexible sewer which is installed. Sections of sewer shall be tested no sooner than 30 days after the sewer has been installed. Where feasible testing shall be initiated at the downstream sections of the sewer and be followed by the upstream sections. Testing shall be performed by pulling through the sewer by hand a rigid ball or mandrel having an outside diameter equal to 95% of the base inside diameter of the pipe as established in the ASTM Standard D3034. Base inside diameter shall be determined for truss pipe in a similar manner to that used for PVC pipe. Other instruments for measuring deflection may be used if they are approved by the Engineer.
7. Deflection of flexible pipe shall not exceed 5% of the base inside diameter.
8. Where deflection is found to be in excess of 5% of the original pipe diameter, the Contractor shall excavate to the point of excess deflection and carefully compact around the point where excess deflection was found. The line shall then be retested for deflection. However, should after the initial testing the deflected pipe fail to return to the original size (inside diameter) the line shall be replaced.

E. Test Records: Records shall be made of each piping system installation during the test and recorded on the form provided in the contract documents (Document 00685 – Pipe Line Pressure Testing Record). These records shall include but not limited to the following:

1. Date of test.
2. Description and identification of piping tested.
3. Test fluid.
4. Test pressure.
5. Remarks, to include such items as:

   a. Leaks (type, location).
   b. Repairs made on leaks

6. Certification by Contractor and signed acknowledgement by Engineer.

3.05 FINAL CLEANING

A. Following assembly and testing and prior to final acceptance, all pipelines installed under this section, except plant process air lines and instrument air lines, shall be flushed with water and all accumulated construction debris and other foreign matter removed. Cone strainers shall be inserted in the connections to attached equipment and left there until cleaning has been accomplished to the satisfaction of the Engineer. Accumulated debris shall be removed through drains 2-inch and larger or by removing spools and valves.

3.06 CORROSION PROTECTION FOR CARBON STEEL PIPE

A. All exterior piping shall be painted in accordance with the coatings schedule and

Division 9, Section 09960 – High-Performance Coatings whether specifically listed or not.

END OF SECTION 02500

PART 1 GENERAL

1.01 DESCRIPTION OF THE WORK

A. Section Includes:

1. Ductile-Iron pipe and fittings, gate valves and boxes, water meters and accessories, water service and accessories and fire hydrants for potable water main. All other site piping referenced in Section 02500.
2. Flushing and disinfection of water main.

1.02 RELATED SECTIONS

A. Section 02305 – Utility Excavation and Backfill

B. Section 02500 – Site Piping

1.03 REFERENCE TO STANDARDS

A. The portions of the work specified in this section shall conform to the following standards, rules, and regulations with modifications and additional requirements as stated in or reasonably inferred from the Contract Documents.

1. "Standard Specifications for Construction of Water and Sewer Main in Illinois", latest edition.
2. Rules and Regulations for Public Water Supplies as issued by the Illinois Pollution Control Board.
3. AWWA C104: ANSI/AWWA C104/A21.4, American National Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water, as published by American Water Works Association.
4. AWWA C105: ANSI/AWWA C105/21.5, American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems, as published by American Water Works Association.
5. AWWA C110: ANSI/AWWA C110/A21.10, American National Standard for Ductile-Iron and Gray-Iron Fittings, 3 in. through 48 in. for Water and Other Liquids, as published by American Water Works Association.
6. AWWA C111: ANSI/AWWA C111/A21.11, AWWA Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings, as published by American Water Works Association.
7. AWWA C115: ANSI/AWWA C115/A21.15, American National Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges, as published by American Water Works Association.
8. AWWA C151: ANSI/AWWA C151/A21.51, American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water, as published by American Water Works Association.
9. AWWA C153: ANSI/AWWA C153/A21.53, American National Standard for Ductile-Iron Compact Fittings, 3 in. through 24 in. and 54 in. through 64 in. for Water Service, as published by American Water Works

Association.

10. AWWA C502: ANSI/AWWA C502, AWWA Standard for Dry-Barrel Fire Hydrants, as published by American Water Works Association.
11. AWWA C509: ANSI/AWWA C509, AWWA Standard for Resilient-Seated Gate Valves for Water Supply Service, as published by American Water Works Association.
12. AWWA C600: ANSI/AWWA C600, AWWA Standard for Installation of Ductile-Iron Water Mains and their Appurtenances, as published by American Water Works Association.
13. AWWA C651: ANSI/AWWA C651, AWWA Standard for Disinfecting Water Mains, published by American Water Works Association.

1.04 MEASUREMENT AND PAYMENT - RESERVED

1.05 SUBMITTALS

A. Submit shop drawings and complete product data that shall include description of materials, construction, function, and operation for each product and material component and assembly specified or implied herein (including the manufacturer's installation instructions) in accordance with Section 01330 – Submittal Procedures for each of the following:

1. Each size, class, material, and joint-type of pipe being provided.
2. Each valve size and end-type being provided.
3. Valve boxes.
4. Each size, pattern, and joint-type of fittings being provided.
5. Each type and size of fire hydrant being provided.

B. Submit with the product data, copies of current Certified Product Listing published by Underwriters Laboratory or NSF International for Drinking Water System Components (ANSI/NSF Standard 61) for all products provided for service in contact with potable water.

1.06 REGULATORY REQUIREMENTS

A. All products provided under this section for service in contact with potable water shall be tested and certified by Underwriters Laboratory or NSF International (as an ANSI accredited certifier) against NSF 61: Drinking Water System Components - Health Effects.

PART 2 PRODUCTS

2.01 WATER MAIN, ALL DIAMETERS

A. Under these items, provide water main products as shown on the Drawings in accordance with the following portions of the Standard Specifications and according to the following requirements that modify the Standard Specifications:

1. DIVISION II EXCAVATION AND CLEAN UP
   a. Section 20 - Excavation and Backfill for Pipes
   b. Section 21 – Restoration of Surfaces
2. DIVISION IV WATER DISTRIBUTION
   a. Section 41 - Pipe Installation for Water mains (Sections 41-1 thru 41-2.05)

B. The following requirements modify or are in addition to the Standard Specifications.

C. Pipe Materials:

1. Water main on this project shall be ductile iron pipe that meets the full requirements and intent of the Contract Documents and is manufactured in the United States of America by one of the following:
   a. American Cast Iron Pipe Company of Birmingham, Alabama.
   b. Clow Water Systems Company of Coshocton, Ohio.
   c. Griffin Pipe Products Company of Downers Grove, Illinois.
   d. United States Pipe and Foundry Company of Birmingham, Alabama.

2. Ductile iron pipe (D.I.P.) shall be:
   a. In accordance with AWWA C151.
   b. Pressure Class 350.
   c. Lined with standard-thickness cement-mortar lining with seal coat in accordance with AWWA C104.
   d. Coated on all exterior surfaces with an asphaltic coating.

D. Pipe Joints:

1. Unless indicated otherwise on the Drawings, Water main on this project shall have mechanical joints or push-on type (Fastite or Tyton) joints with rubber gaskets according to the following:
   a. Joints shall be in accordance with ANSI/AWWA C111/A21.11.
   b. Mechanical joint glands shall be ductile iron and manufactured by one of the manufacturers for ductile iron pipe, listed herein.
   c. Gasket and joint lubricant furnished by the pipe manufacturer.

E. Mechanical Joint Restraint Gland:

1. Mechanical-joint restraint shall be incorporated into the design of the follower gland.
   a. The restraining mechanism shall consist of individually actuated wedges that increase their resistance to pull-out as pressure or external forces increase. The device shall be capable of full mechanical joint deflection during assembly and the flexibility of the joint shall be maintained after burial. Torque limiting twist-off nuts shall be used to insure proper actuation of the restraining wedges.

b. The joint restraint ring and its wedging components shall be made of ductile iron conforming to ASTM A536. The wedges shall be ductile iron heat treated to a minimum hardness of 370 BHN.
c. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell conforming to ANSI/AWWA C111/A21.11 and ANSI/AWWA C153/A21.53 of the latest revision.
d. The mechanical joint restraint gland shall have a rated working pressure of 250 psi minimum.
e. The devices shall be listed by Underwriters Laboratories up through the twenty-four inch size and Approved by Factory Mutual up through the twelve inch size.
f. The restraint shall be the Series 1700 Mega lug Harness restraint manufactured by EBAA Iron, Inc. or an accepted equal.

2.02 GATE VALVE AND BOX, (ALL DIAMETERS)

A. Under these items, provide gate valves and boxes as shown on the Drawings and in accordance with the following portion of the Standard Specifications:

1. DIVISION IV WATER DISTRIBUTION
   a. Section 42 - Gate Valves for Water Mains.
   b. Section 44 - Valve Vaults and Boxes for Water Mains and Water Services.

B. The following requirements modify or are in addition to the Standard Specifications.

B. Gate valves shall conform to the following:

1. Resilient seat/wedge, NRS type rated for 250 p.s.i.g. cold water working pressure.
2. In full accordance with ANSI/AWWA C509 for 4-inch through 16-inch sizes and in accordance with all applicable provisions of ANSI/AWWA C509 for 18-inch through 24-inch sizes.
3. Fitted with ductile-iron valve body, bonnet, and gate.
4. Marked with the words “D.I.” or “Ductile Iron” cast on the valve or stamped on a permanently attached corrosion resistant metal tag.
5. Provided with wedge gate that is encapsulated with rubber, symmetrical, and seals equally well with flow in either direction.
6. Provided with O-ring stem seals.
7. Certified in accordance with ANSI/NSF Standard 61 by either Underwriters Laboratory or NSF International.
8. Operated by standard 2-inch, square, wrench-nut for buried service.
9. Manufactured to **open right** (clockwise stem rotation).
10. Provided with a fusion bonded epoxy coating complying with ANSI/AWWA C550 on all internal and external surfaces of the valve body and bonnet.
11. Furnished with mechanical-joint ends and be installed with mechanical joint restraint glands as specified for ductile iron fittings. Valves installed in “Restrained Joint Pipe” may be furnished with ends compatible with

and restrained by the type of “Restrained Joint Pipe” installed. Valves shown on the Drawings to be attached to a flanged hydrant shoe, tapping valve, tapping saddle, or flanged branch of a tee or cross shall have one flanged end compatible with the mating flange.

12. Gate valves shall be one of the following:
    a. Clow Valve Company Resilient Wedge Valve.
    b. Mueller Company Resilient Wedge Gate Valve.
    c. Or accepted equal.

C. Valve boxes shall conform to the following:

1. Two-piece, cast iron, screw-type adjustable boxes with cover marked “WATER”.
2. 5-1/4" inside diameter.
3. Be one of the following:
    a. Series 564 manufactured by Mueller Company.
    b. Tyler 6850 Series manufactured by Tyler Pipe/Utilities Division.
    c. Or accepted equal.

2.03 DUCTILE IRON FITTINGS

A. Under this item, provide ductile iron fittings as shown on the Drawings and in accordance with the following portion of the Standard Specifications:

1. DIVISION IV WATER DISTRIBUTION
    a. Section 40 - Pipe for Water Mains and Service Connections; Paragraph 40-2.05A Cast Iron or Ductile Iron Fittings.
    b. Section 41 - Pipe Installation for Water Mains; Paragraph 41-2.10 Thrust Blocking.

B. The following requirements modify or are in addition to the Standard Specifications.

C. Fittings shall include bends, tees, crosses, sleeves, reducers, wyes, and any other fittings shown on the drawings.

D. Provide Pressure Class 350 ductile-iron fittings in accordance with the full requirements and intent of the Contract Documents and manufactured in the United States of America from one of the following manufacturers.

1. American Cast Iron Pipe Company of Birmingham, Alabama.
2. Clow Water Systems Company of Coshocton, Ohio.
3. Griffin Pipe Products Company of Downers Grove, Illinois.
4. Tyler Pipe/Utilities Division of Tyler Texas.
5. Union Foundry Company of Anniston, Alabama.
6. United States Pipe and Foundry Company of Birmingham, Alabama.

E. Fittings shall be ductile iron, standard thickness cement-mortar lined with seal coat in accordance with AWWA C104. Fittings for buried installation shall have an asphaltic coating applied to the exterior in accordance with AWWA C151. Fittings shall be NSF-61 certified for use with potable water.

F. Flanged, Push-on, and Mechanical Joint fittings shall conform to AWWA C110.

G. Unless indicated otherwise on the Drawings, Ductile Iron Compact Fittings on this project shall have restrained joints with rubber gaskets in accordance with ANSI/AWWA C153/A21.53 and shall be boltless, restrained joints or mechanical joints with restraint glands according to the following:

1. Boltless, restrained-joint fittings shall conform to all applicable sections of AWWA C153. Boltless, restrained-joint fittings shall be one of the following products:
   a. Flex-Ring, as manufactured by American Cast Iron Pipe Company.
   b. Super-lock, as manufactured by Clow Water Systems Company.
   c. TR Flex, as manufactured by United States Pipe and Foundry Company.
2. Mechanical joints with restraint glands shall be mechanical joint fittings as specified in this section with mechanical joint restraint glands as specified in this section.

H. Fittings shall have all bell ends unless shown otherwise.

I. All fittings which deflect the flow 11-1/4º or greater shall have restrained joints.

2.04 SWING CHECK VALVE - RESERVED

2.05 ALTITUDE VALVE - RESERVED

2.06 FIRE HYDRANT, 3-WAY

A. Under this item, provide fire hydrants as shown on the Drawings and in accordance with the following portion of the Standard Specifications:

1. DIVISION IV WATER DISTRIBUTION
   a. Section 45 - Fire Hydrants.

B. The following requirements modify or are in addition to the Standard Specifications.

1. Hydrants shall be designed, manufactured, and tested in accordance with AWWA C502.
2. Hydrants shall be “Traffic” type with a replaceable “breakable” unit immediately above the ground line for minimizing repairs due to traffic damage.
3. Hydrants shall be of the compression type, constructed such that the main valve closes with the water pressure to assure no loss of water in the event of damage to the upper portion of the hydrant.
4. The main valve shall have a minimum diameter of 5¼ inches to assure optimum flow.

5. Hydrants shall be of the dry top design with O-ring seals to insure that the operating threads will be protected from water entry. The dry top design shall include a factory lubricated operating mechanism which allows a supplemental lubricant to be added in the field without the removal of the top section.
6. Hydrants shall have a “Weather Shield” or “Weather Cap” to protect the clearance area between the top casting and the operating nut from moisture and possible frost damage.
7. The operating nut and nozzle cap nuts are to be pentagon in shape and measure 1½ inches from point to opposite flat at the base of the nut. Caps shall be provided with rubber gaskets and chains.
8. Hydrants shall have two hose nozzles each 2½ inch diameter with 8 threads/inch, 8-292 gauge and one 4 ½” pumper nozzle with National Standard Threads.
9. Hydrant nozzle section shall be capable of rotation through 360 degrees with respect to the standpipe.
10. The allowable distance between the centerline of the lowest nozzle and the ground line shall be not less than 16 inches and not greater than 22 inches.
11. Hydrants shall have permanent markings cast into the upper barrel assembly, identifying the manufacturer, name and size of main valve opening, and year of manufacture.
12. Hydrants shall have an identification mark indicating direction of opening and shall be “open right”.
13. Hydrants shall have an automatic drain that is opened by the main valve rod. Drain valve shall open as the main valve is closed and close as the main valve is opened. The port and seat of the main valve is to be bronze. The hydrant shall have two drain valves and outlets.
14. Exterior of hydrant top section shall be painted a minimum of one coat of primer and one finish coat of enamel that is yellow in color.
15. The shoe of the hydrant shall be provided with a standard mechanical joint connection 6 inches in size. The internal surface of the shoe and lower valve assembly shall be coated with a factory applied epoxy coating with a minimum dry film thickness of 4 mils.
16. The bronze valve seat shall be threaded into a bronze drain ring or shoe bushing to prevent electrolysis between these components. The drain channel shall be all bronze or be lined with naval brass.
17. Hydrants shall be designed to permit the use of extension sections and allow all parts to be removable from ground level without requiring excavation of the hydrant.
18. Installation shall be in accordance with Standard Drawing No. 11 of the Standard Specifications. Drain field shall be a minimum ¼ cubic yard of granular material meeting IDOT specifications for CA16 gradation, Class D quality, crushed gravel or crushed stone. Hydrant testing shall be in accordance with AWWA C600 and AWWA Manual M-17.
19. Hydrants furnished under this section shall be accompanied by a certification, signed by an officer of the manufacturing company, that the hydrants meet all aspects and standards contained within this specification.
20. Hydrants shall have a standard test pressure of 150 psig working water pressure and 300 psig test pressure, and be certified as such by the

manufacturer.

21. Drain valve shall not utilize springs, toggles, levers, or other small working parts. Drain valve facing shall be made of Buna N or Nylon. Leather will not be acceptable.

C. Determine the depth of bury necessary prior to ordering the hydrant. Because of variations in ground elevation, the depth-of-bury for hydrants can be different from the minimum depth of cover for the water main. As an alternative to longer hydrants, the Contractor may utilize offset pipe as manufactured by EBAA Iron, Inc., or equal. Such offset pipe shall be ductile iron with mechanical joints and mechanical joint restraint glands.

D. Hydrants shall be Mueller Super Centurian or Clow Medallion.

2.07 TAPPING VALVE, SLEEVE AND BOX

A. Under this item, provide tapping valve and sleeve at location shown on the Drawings and in accordance with the following portion of the standard specifications:

1. Division IV Water Distribution.
   a. Section 46 – Pressure Connection.

B. Tapping valves shall be Mueller 2360, Clow F-5093 or accepted equal, conforming to AWWA C509. Retainer glands shall be McWayne (Clow) F-1058 or accepted equal and shall be installed at the joint between the valve and the proposed water main.

C. Tapping valves shall be flange by mechanical joint, resilient seat, non-rising stem gate valves.

D. Tapping valves shall open clock-wise (open right) and furnished with 2” X 2” operating nut for buried service

E. Tapping valves shall have unrestricted opening for cutting head insertion.

F. Tapping sleeves shall be stainless steel with a ductile iron flange and a test plug. Tapping sleeves shall fit securely around pipes of the material and internal diameter. Tapping sleeves shall be one of the following: Mueller, Smith Blair or accepted equal.

G. Valve boxes shall be provided with tapping valve and be in accordance with paragraph 2.02D of this section.

2.08 WATER SERVICES AND ACCESSORIES

A. Under these items, provide water service saddles, corporation stops, tubing and yokes, as shown on the Drawings and in accordance with the following portion of the Standard Specifications.

1. Division IV Water Distribution.

a. Section 40 – Pipe for Water Mains and Service Connections.

B. Brass service saddles shall include a single stainless steel strap designed for PVC watermain pipe, brass saddle, rubber O ring, and taper threads. Brass service saddles shall be one of the following; Mueller, Ford, Smith-Blair or accepted equal.

C. Brass corporation stops shall be taper thread by CTS compression and include a full-port ball valve. Corporation stops shall be Mueller 300 P-25008 or Ford equivalent.

D. Copper tubing shall be Type K soft copper tubing conforming to ASTM B88. Copper tubing shall be NSF certified for potable water use.

E. Copper Yokes, ¾" and 1" shall be a one piece design. Yokes shall include a pad-lockable angle meter ball valve. Test ports or checks are not required. Yokes shall be equipped with brass meter saddle nuts for meter connection. Yokes shall be equipped with horizontal inlet and outlet with CTS compression fittings for service line connection. The yoke height (rise) and meter size will be shown on drawings. Copper yokes shall be; Mueller B-2404 with P-14227 end connections, or Ford equivalent.

2.09 WATER METERS, PITS AND LIDS

A. Under these items, provide water meters, pits, and lids, as shown on the Drawings and in accordance with the following portion of the Standard Specifications.

1. Division IV Water Distribution.
   a. Section 44 – Valve Vaults and Boxes for Water Mains and Water Services.

B. Water Meters 5/8" x 3/4" – Water Meters shall conform to the current edition of AWWA C700. Water meters shall have brass bodies with plastic or cast iron breaking bottoms for frost protection. Meters shall have threaded connections. Meters shall read in cubic feet and shall be equipped with flow finders. Meters shall be equipped with electronic registers prewired to radio transmitters for installation in meter pit lids. Water Meters shall be furnished with a nominal 5 year warranty (Badger standard warranty terms). Water Meters shall be; Badger Recordall 25 with RTR registers and Orion Transmitters for pit installation.

C. Meter Pits – Meter Pits and adjusting rings shall be fabricated from A-2000 PVC pipe of the specified diameter.

D. Meter Frames & Lids – Meter Pit Frames and Lids shall be ductile iron. The lids shall be marked "WATER METER" and shall be predrilled to accept Orion Radio Transmitters. Meter Covers shall be; Tyler or accepted equal.

PART 3 EXECUTION

3.01 WATER MAIN, ALL DIAMETERS

A. Under these items, install water main as shown on the Drawings and in accordance with AWWA C600, the following portion of the Standard Specifications, and the following requirements that may modify the Standard Specifications and AWWA C600:

1. DIVISION II EXCAVATION AND CLEAN UP
   a. Section 20 - Excavation and Clean Up.
   b. Section 21 – Restoration of Surfaces.
2. DIVISION IV WATER DISTRIBUTION
   a. Section 41 - Pipe Installation for Watermains (Sections 41-1 thru 41-2.05).

B. The following requirements modify or are in addition to the Standard Specifications.

1. Assembly of buried pipe and fittings shall be in accordance with the manufacturer's written instructions and recommendations.
2. Field cut pipe shall be cut square, beveled, field-gauged, and rounded in accordance with manufacturers written instructions and recommendations.
3. All buried piping shall be uniformly sloped and installed to the line and grade indicated on the drawings. Minimum depth of cover shall be 4'-0", unless noted otherwise on the drawings.
4. If a grade conflict is determined, the Contractor shall notify the Engineer, who shall then determine what adjustments are required.

3.02 GATE VALVE AND BOX, (ALL DIAMETERS)

A. Under these items, install gate valves and boxes as shown on the Drawings and in accordance with the following portion of the Standard Specifications:

1. DIVISION IV WATER DISTRIBUTION
   a. Section 42 - Gate Valves for Water Mains.
   b. Section 44 - Valve Vaults and Boxes for Water Mains and Water Services.

3.03 DUCTILE IRON FITTINGS

A. Under this item, install ductile iron fittings as shown on the Drawings and in accordance with the following portion of the Standard Specifications:

1. DIVISION IV WATER DISTRIBUTION
   a. Section 40 - Pipe for Water Mains and Service Connections; Paragraph 40-2.05A Cast Iron or Ductile Iron Fittings.

3.04 CHECK VALVE-RESERVED

3.05 ALTITUDE VALVE-RESERVED

3.06 FIRE HYDRANT, 3-WAY

A. Under this item, install fire hydrants as shown on the Drawings and in accordance with the following portion of the Standard Specifications:

1. DIVISION IV WATER DISTRIBUTION
   a. Section 45 - Fire Hydrants.

3.07 WATER MAIN TESTING AND DISINFECTION

A. Under this item, perform flushing, testing and disinfection of all of the proposed water main on this project in accordance with AWWA Standard C600 and C651 and the following requirements.

B. Complete all flushing, testing and disinfection prior to placing the water main in service.

1. During flushing, make every effort to remove all air from the water main.
2. Provide any temporary taps, pipe, hose, valves, plugs, etc. as necessary to perform the flushing, disinfection and tests.

C. The sequence of this work shall be as follows:

1. Fill water main with water and flush as needed to remove air.
2. Perform pressure test and leakage test until satisfactory results are obtained.
3. Flush water mains and inject chlorine solution for disinfection. Chlorine solution shall be allowed to stand for a minimum of 24 hours before flushing prior to bacterial tests.
4. Flush chlorine from water main and allow to stand 24 hours prior to sampling.
5. Coordinate with City of Mattoon personnel for performance of bacteriological tests. If the initial test is unsatisfactory, repeat items 3, 4 and 5 until satisfactory results are obtained.

D. The pressure test and leakage test shall be performed concurrently. During the tests, the pressure shall be maintained between 95 and 105 psi. Both tests shall be successfully completed in the presence of the Engineer. See the above referenced standards for more details on test requirements.

E. Water main shall be disinfected by injecting chlorine solution at one end of each proposed water main section as indicated on the plans. Water flow in the main and injection rate shall be measured and proportioned to produce at least 50 ppm chlorine concentration in the entire section of main. Refer to the above referenced standards for more details on test requirements.

F. Contractor shall coordinate with City of Mattoon personnel to take two water samples for each proposed water main. Should the initial treatment result in an unsatisfactory bacterial test, the original chlorination procedure shall be repeated by the Contractor until satisfactory results are obtained.

3.08 CONNECTION OF PROPOSED WATER MAIN TO EXISTING WATER MAIN

A. Under this item, connect the proposed water main to the existing water main as shown on the Drawings and in accordance with the following portion of the Standard Specifications:

1. DIVISION IV WATER DISTRIBUTION
   a. Section 41 - Pipe Installation for Water mains; Paragraph 41-2.10 - Connections to Existing Mains. Paragraph 41-3 - Measurement.

B. The following requirements modify or are in addition to the Standard Specifications.

C. Connection points shall be valved and shall be the source of water for flushing, disinfection and testing. The proposed main shall be kept isolated from the existing main until the proposed main has been tested and passed for both leakage and bacteriological contamination.

D. The Contractor shall be responsible for determining the type and outside diameter of existing water main pipe in order to obtain the proper fittings.

E. Hot tap connection shall consist of installing a tee (tapping sleeve) and gate valve with the existing main pressurized. Hot tapping shall result in a hole in the existing pipe which has a diameter at least 90% of the inside diameter of the pipe being connected.

F. Connections to existing mains shall have no visible leakage. Contractor shall leave excavation open at connection to existing main and under pressure for Engineer to inspect for leakage.

G. Where short lengths of main must be returned to service immediately after installation, all pipe and fittings shall be swabbed with chlorine solution prior to installation.

END OF SECTION 02510

PART 1 GENERAL

1.01 DESCRIPTION OF THE WORK

A. Contractor shall provide:

1. Modular precast concrete manhole sections with tongue-and-groove joints, covers, anchorage and accessories for manholes as indicated on the drawings.
2. All labor, equipment and materials required for a complete installation.

1.02 RELATED WORK

A. Section 02160 – Excavation Support System
B. Section 02316 – Excavation
C. Section 02317 – Backfill and Compaction
D. Section 02500 – Site Piping

1.03 REFERENCES

A. ASTM International (ASTM)

1. ASTM A48 - Gray Iron Castings.
2. ASTM C478 - Precast Reinforced Concrete Manhole Sections.
3. ASTM C923 - Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes.

B. Standard Specifications for Water and Sewer Construction in Illinois, latest edition.

1.04 SUBMITTALS

A. Submit under provisions of Section 01330 - Submittal Procedures.

B. Shop Drawings: Indicate manholes locations, elevations, sizes and elevations of penetrations.

C. Product Data: Provide manhole covers, component construction, features, configuration and dimensions.

1.05 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section approved by IDOT for this type of work.

PART 2 PRODUCTS

2.01 MATERIALS - MANHOLES

A. Granular Bedding: granular bedding shall be IDOT CA7 or IDOT CA6 compacted to 97% Std. Proctor.

B. Manhole Sections: Reinforced precast concrete in accordance with ASTM C478.

C. Corbel: A reinforced precast concrete corbel (cone-section) shall be required for each manhole unless otherwise shown on the plans.

D. Joints: joints between precast sections shall be sealed with preformed flexible gaskets, rubber gaskets, or butyl rope to ensure a watertight joint. Flexible gaskets shall conform to the requirements of ASTM C990. Rubber gaskets shall conform to the requirements of ASTM C443

E. Pipe Connections: for sanitary sewer or process piping shall be A-LOK Premium gaskets by A-LOK Products, Inc. Connections for storm sewers shall be non-shrink grout on each side of the manhole wall.

F. Adjustment Rings: concrete adjustment rings shall have a minimum thickness of two (2) inches. No more than two (2) adjustment rings for a total height of eight (8) inches shall be allowed.

G. External Sealing Band: wrap external joint with 9-inch wide sealing band conforming with ASTM C877.

2.02 COMPONENTS - MANHOLES

A. Lid and Frame: ASTM A48, Class 35B cast iron construction, machined flat bearing surface, removable lid, closed lid design. Frame and lid shall be Neenah, R-1712, Type B self-sealing lid or accepted equal unless noted otherwise and the construction plans.

B. Manhole Steps: 3/4 inch diameter formed integral with manhole sections. Steps shall be copolymer polypropylene encapsulating a ½” steel reinforcing rod, as manufactured by M.A. Industries.

2.03 CONFIGURATION - MANHOLES

A. Shaft Construction: Concentric with eccentric cone (corbel) top section.

B. Shape: Cylindrical

C. Clear Inside Dimensions: As indicated on the drawings.

D. Design Depth: As indicated.

E. Clear Lid Opening: 24 inches.

F. Pipe Entry: Provide openings as indicated.

G. Steps: 12 inches wide, 16 inches on center vertically, set into manhole wall.

H. Bottom shall be integral with lowest barrel section.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify items provided by other sections of work are properly sized and located.

B. Verify that built-in items are in proper location, and ready for roughing into work.

C. Verify excavation for manholes is correct.

3.02 PREPARATION

A. Coordinate placement of inlet and outlet pipes.

3.03 PLACING MANHOLE SECTIONS

A. Place 6” granular bed. Bed shall be leveled to ensure subsequent sections are level and plumb.

B. Place base pad level.

C. Place manhole sections plumb and level.

D. Where manholes are to be connected to existing sewers or constructed over existing sewers, the Contractor shall submit a method of procedure to the Engineer detailing the method of construction and how the existing sewer lines shall be kept in service while manhole installation is conducted.

3.04 SCHEDULES

A. Manholes: Precast concrete sections, steps, inside diameter as indicated on the drawings to depth indicated, with closed lid.

3.05 Testing

A. All sanitary manholes are to be leakage tested in accordance with ASTM C1244-93 or ASTM C969-94 and in accordance with the Standard Specifications for Water and Sewer Construction in Illinois, latest edition.

END OF SECTION 02607

PART 1 GENERAL

1.01 WORK INCLUDES

A. Cleaning and priming aggregate base courses for bituminous concrete binder course.

B. Bituminous concrete binder and surface course paving at the locations indicated on drawings.

C. Quality Control / Quality Assurance sampling and testing.

1.02 RELATED WORK

A. Specified elsewhere:

1. Section 01330 – Submittal Procedures
2. Section 02316 – Excavating
3. Section 02317 – Backfilling & Compaction
4. Section 02340 – Soil Stabilization
5. Section 02370 – Erosion Control & SWPPP
6. Section 02899 – Traffic Control

1.03 REGULATORY REQUIREMENTS

A. Conform to the current and applicable portions of Section 406 of the Illinois Department of Transportation (IDOT): Standard Specifications for Road and Bridge Construction, latest edition, including all Supplemental Specifications and Recurring Special Provisions.

1.05 QUALITY ASSURANCE

A. Mix designs shall be for bituminous concrete mixes approved and used by IDOT within the last year.

B. Mixing Plant: Conform to IDOT's prequalification requirements for producing IDOT specified mix designs.

C. Obtain materials from same source throughout paving operations.

1.06 SUBMITTALS

A. Submit IDOT approved mix designs of each class of mix and IDOT approved material sources for review at least four weeks prior to beginning of work.

1.07 JOB CONDITIONS

A. Provide access to job for all contractors and subcontractors by using drives to fullest extent possible and, when specified, by constructing temporary roadways on portions of base course.

B. Delay bituminous paving until after primary construction work is complete; unless concrete trucks, material delivery trucks, and other heavy construction vehicles can be detoured around roadway.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Do not place bituminous mixtures when ambient air or base temperature is less than 40 degrees F or surface is wet or frozen.

PART 2 PRODUCTS

2.01 BITUMINOUS CONCRETE BINDER AND SURFACE COURSE

A. Materials: Conform to the Illinois Department of Transportation's Standard Specification. Mixes shall conform to the following:

1. Bituminous Concrete Binder Course:

a. PG 64-22
b. Design Air Voids – 4.0% @ Ndesign = 70
c. Mixture Composition (Gradation Mixture) – IL-19.0

2. Bituminous Concrete Surface Course:

a. PG 64-22
b. Design Air Voids - 4.0% @ Ndesign = 70
c. Mixture Composition (Gradation Mixture) - IL-9.5 or IL-12.5

B. RAP Materials: Conform to the Illinois Department of Transportation's Special Provision, "Reclaimed Asphalt Pavement (RAP)" and as specified herein. Up to 15% RAP will be allowed in the binder course. Up to 10% RAP will be allowed in the surface course. RAS **will not** be allowed in either the surface course or the binder course.

C. Prime Coat: Medium curing cut-back asphalt or asphalt emulsion penetrating prime coat consisting of either MC-30, SS-1h, Asphalt Emulsion Prime (AEP), or equivalent.

D. Tack Coat: Emulsified asphalt; AASHTO M140 or AASHTO M208, SS-1h, CSS-1, or CSS-1h, may be diluted with up to 1 part water to 1 part asphalt.

PART 3 EXECUTION

3.01 INSPECTION

A. Inspect areas and conditions where bituminous concrete paving is to be installed.

1. Proof roll subgrade with loaded tandem vehicle to verify that subgrade is dry and compacted and ready to support paving operations.
2. Notify Engineer of conditions detrimental to proper and timely completion of work.
3. Request resolution of conditions.

B. Protection:

1. Provide protection for all adjacent work and areas.

3.02 PREPARATION – BITUMINOUS PRIME MATERIAL

A. Apply bituminous prime coat to aggregate base course in accordance with IDOT Standard Specifications.

B. Apply bituminous prime to contact surfaces of curbs, gutters and pavement edges.

C. Use clean sand to blot excess primer.

D. Apply bituminous prime to binder course prior to placement of the surface course as directed by the Engineer.

3.03 FRAME ADJUSTMENTS

A. Set frames for manholes and other units, within areas to be paved, to final grade as part of this work.

1. Include existing frames or new frames furnished in other sections of these specifications.

B. Surround frames set to grade with ring of compacted bituminous base prior to paving.

1. Place bituminous mixture up to 1 inch below top of frame, slope to grade and compact with hand tamp.

C. Adjust frames to proper grade for paving.

1. Provide temporary closures over openings until completion of rolling operations.
2. Remove closures at completion of work.

3. Set cover frames to grade, flush with surface of adjacent pavement.

3.04 BITUMINOUS CONCRETE BINDER AND SURFACE COURSE

A. Construct in accordance with IDOT Standard Specifications.

1. Work includes complete construction of courses on prepared base course indicated on drawings, profiles and typical sections for proposed paved parking areas.

3.05 CONSTRUCTION TESTING

A. Contractor shall complete all Quality Control / Quality Assurance testing in accordance with IDOT's Standard Specifications.

B. Owner shall provide and pay for an independent testing company to complete the Quality Assurance tests outlined to be completed in IDOT's Standard Specification.

END OF SECTION 02740

PART 1 GENERAL

1.01 WORK INCLUDES

A. Concrete pavements.
B. Concrete sidewalks.
C. Concrete curb and gutters.

1.02 RELATED WORK

A. Specified elsewhere:

1. Section 01330 – Submittal Procedures
2. Section 02316 – Excavating
3. Section 02317 – Backfilling & Compaction
4. Section 02340 - Soil Stabilization
5. Section 02370 – Erosion Control & SWPPP

1.03 REGULATORY REQUIREMENTS

A. Conform to the current and applicable portions of Section 420, 423, 424 and 606 of the Illinois Department of Transportation (IDOT): Standard Specifications for Road and Bridge Construction, latest edition, including all Supplemental Specifications and Recurring Special Provisions.

B. Illinois Department of Transportation (IDOT) – Manual of Test Procedures of Materials

1.04 QUALITY ASSURANCE

A. Submittals shall be in accordance with procedures specified in Section 01330.

B. Conform to the Illinois Department of Transportation's Recurring Special Provision Check Sheet #31, "Quality Control / Quality Assurance of Concrete Mixtures".

1.05 JOB CONDITIONS

A. Traffic Control:

1. Maintain access for vehicular and pedestrian traffic for other construction activities.

PART 2 PRODUCTS

2.01 FORM MATERIALS, REINFORCEMENT AND CONCRETE

A. Materials: In conformance with IDOT Standard Specifications

2.02 EXPANSION JOINTS

A. Materials: In conformance with IDOT Standard Specifications, except do not use bituminous poured joint materials; seal all joint with joint sealer specified herein.

2.03 CONCRETE MIXES (PAVING)

A. Concrete: Conform to Section 1020 of the IDOT Standard Specifications for the given type of work to be performed, unless otherwise approved by the Engineer.

B. Do not use chloride or other chemicals to prevent freezing.

C. Provide 6% Air Entrainment.

2.04 JOINT SEALER

A. Seal all joints to establish and maintain watertight continuous joints. Install per IDOT Specifications and manufacturer's recommendations. Acceptable products (or approved equal):

1. Dow 888 by Dow Corning
2. 301 NS by Pecora
3. Spectrum 800 or 900 by Tremco

PART 3 EXECUTION

3.01 INSPECTION

A. Inspect areas and conditions where concrete paving is to be installed.

1. Proof roll subgrade with loaded tandem vehicle to verify that subgrade is dry, compacted, and stable.
2. Notify Engineer of conditions detrimental to proper and timely completion of work.
3. Request resolution of conditions.

3.02 FACILITIES

A. Locate manholes, valve boxes and similar items; adjust to proposed concrete surface elevation.

3.03 CONSTRUCTION METHODS

A. In accordance with IDOT's Standard Specifications.

B. Contraction and Construction Joints: Construct contraction and construction joints straight with face perpendicular to concrete surface. Construct transverse joints perpendicular to centerline, unless otherwise detailed.

1. Contraction Joints: Provide joints at spacing of 12'-0" on centers, maximum each way unless otherwise shown on plan. Construct control joints for depth equal to at least 1/4 of the concrete thickness, as follows:

   a. Form tooled joints in fresh concrete by grooving top with recommended tool and finishing edge with jointer.
   b. Sawed Contraction Joints:

      i. Use saws, blades, skid plates, and accessories by Soff-Cut International, Inc. or approved equal.
      ii. Start cutting sawed joints as soon as concrete has hardened sufficiently to prevent raveling or dislodging of aggregates. This will typically be from 1 hour in hot weather to 4 hours in cold weather after completing finishing of slab in that joint location.
      iii. Provide at least two "Soff-Cut" saws on site with blades capable of achieving the required depth of saw cut.
      iv. Extend sawed joint to the slab boundaries and abutments, including columns, drains, and other penetrations in the path of a defined joint. Implement methods and timing of the saw cut beyond the limits of the Soff-Cut saw reach to provide a consistent depth of cut with minimal raveling of joint edges.
      v. Contraction joints shall be tied joints with No. 6 x 30" tie bars located at 30" centers as detailed in the Drawings.

2. Construction Joints: Place construction joints at end of placements and at locations where placement operations are stopped for period of more than 1/2 hour. Construct joints in accordance with details shown.

C. Isolation and Fixed Object Joints: Construct joint at locations and in accordance with details shown.

D. Transverse Expansion Joints: Locate expansion joints at maximum of 180' on centers, maximum each way unless otherwise shown on the

Construction Drawings. Provide premolded joint filler for expansion joints abutting concrete curbs, castings, catch basins, manholes, inlets, structures, sidewalks, and other fixed objects.

E. Pavement Joint Materials: Place joint fillers, back-up material, and sealants at locations shown and in accordance with manufacturer's instructions.

1. Soft Preformed Joint Fillers: Extend preformed joint fillers full-width and depth of joint, and not less than 1/2-inch or more than 1-inch below finished surface. Furnish preformed joint fillers in 1-piece lengths for full width being placed, wherever possible. Where more than 1 length is required, lace or clip preformed joint filler sections together in a single plane.

3.04 CONSTRUCTION TESTING

A. Contractor shall complete all Quality Control / Quality Assurance testing in accordance with IDOT's Standard Specifications.

B. Owner provide and pay for an independent testing company to complete the Quality Assurance tests outlined to be completed by the Department in IDOT's Standard Specification.

END OF SECTION 02751

PART 1 GENERAL

1.01 DESCRIPTION OF THE WORK

A. The work covered by this section consists of furnishing all labor, materials, accessories, tools, equipment, transportation, services, and performing all operations required to construct the chain link fence and gate work, in strict accordance with this specification and the plans.

B. This work shall also include the furnishing and installation of the slide gate motorized operator, including all labor, materials, accessories, tools, equipment, transportation and services as required to install the gate operator in accordance with this specification and the plans.

1.02 RELATED WORK

A. Section 02316 - Excavation
B. Section 02317 - Backfill and Compaction
C. Section 03300 – Cast-In-Place Concrete
D. Division 16 - Electrical

1.03 QUALITY ASSURANCE

A. The fence materials will be by a manufacturer regularly engaged in the business of supplying fence and fence accessories.

B. The slide gate motorized operator shall be furnished by a manufacturer with a minimum of 5 years experience in the manufacture of motorized gate operators.

C. The installation of the fence, slide gate and gate motorized operator will be by a Contractor experienced in the installation of commercial fence, slide gate and gate motorized operator of the type specified.

1.04 REFERENCE TO STANDARDS

A. ASTM F567.

1.05 SUBMITTALS

A. Before commencing work, submit complete shop drawings and illustrations for work in this section for Engineer's review.

B. Include a complete bill of materials and have all materials designated on the shop drawings.

1.06 WARRANTY

A. The Contractor shall warrant the fence, slide gate and motorized gate operator to be

free of material or installation defects for one year from the date of acceptance by the Owner.

PART 2 PRODUCTS

2.01 CHAIN LINK FABRIC

A. Chain link fabric shall be 2-inch mesh woven from No. 9 gauge aluminum-coated steel or aluminum-zinc alloy-coated steel conforming to ASTM A491 or A783. The fabric shall have a height as specified on plan, with top and bottom selvage twisted. Aluminum-coated steel fabric shall be given a clear organic coating after fabrication. Aluminum-zinc alloy coating on the steel fabric shall be not less than 0.47 oz. per square foot of uncoated wire surface. A supplier's certification shall be furnished certifying that the fabric was produced and tested in accordance with the applicable ASTM specification and has been found to meet these specifications.

B. The chain link wire fabric shall be securely fastened to all terminal posts by 1/4" x 3/4" tension bars with heavy 11-gauge pressed steel bands spaced approximately 14 inches apart, to line post with 6-gauge wire clips at 14-inch spacing and to the top rail with 9-gauge tie wires at 24 inches.

2.02 BOTTOM TENSION WIRE

A. The bottom tension wire shall be aluminum-coated steel conforming to ASTM A824, Type I. The tension wire shall be stretched tight with galvanized turnbuckles spaced at intervals of not more than 1,000 feet.

2.03 FENCE FRAMEWORK

A. Metal framework and posts (top rail, horizontal braces, line, corner, end, pull and gate posts) shall be the shapes, dimensions and weight shown on the plans.

2.04 FENCE FITTINGS

A. Fence fittings, tension and brace bands and bars, tie wires and clips shall conform to ASTM F626.

2.05 PEDESTRIAN GATES

A. Pedestrian gate frames shall be 1.66" O.D. of the same material as the fence frame work and equipped with 3/8-inch diameter adjustable truss rods. Gate fabric shall match fence.

B. Bottom hinge of all swing gates to be of ball and socket design of malleable iron, hot dip galvanized designed to carry the weight of the gate on the gate post footing. The upper hinge to be wraparound adjustable type.

C. All swing gates shall be equipped with a positive type latching device suitable for locking with padlock.

2.06 SLIDE GATE

A. Gate shall be cantilever sliding type, complete with latches, stops, keepers, rollers and roller tracks. Gate frames and posts shall consist of galvanized steel pipe. The fabric shall be of the same type material as used in the fence. The gate shall be to the dimensions as shown on the plans.

B. Automatic cantilever slide gate shall be constructed so as to extend across the opening as specified on the plans. The height of the gates shall be as shown on the plans. Gate shall be “Fortress” gates, as manufactured by Tymetal Corporation, or approved equal. The sag and deflection of the slide gates shall not exceed the values presented in ASTM F 1184, Type II, Class 2.

C. The gate shall be fabricated from aluminum alloy extrusions. The gate frame shall be reinforced or post-tensioned with galvanized tubular steel running through the full length of the top and bottom primary members. The primary members shall be oversized rectangular members, top member nominally 3” by 5”, bottom member nominally 2” by 5”. Vertical members at the ends of the frame and at 2' centers, end to end, shall be square, not less than 1” by 1”. Spacing of vertical members shall be no greater than half the height of the gate frame. Diagonal bracing shall be installed to further stabilize the gate frame. Gate frames shall be modular sections.

D. The gate frame shall have a separate semi-enclosed top track of extruded aluminum alloy, which becomes an integral part of, and forms a composite structure with the top of the gate frame. This gate frame shall be supported by two self-aligning, 4-wheel, sealed lubricant, ball bearing truck assemblies riding in the semi-enclosed track. The bottom of the support posts shall be equipped with two pairs of rubber guide wheels.

E. The automatic slide gates shall be equipped with a standard latch assembly consisting of post mount catcher and a frame-mounted yoke. A mating eyelet on the catcher yoke and the frame yoke intended for a padlock to secure the gate shall be included.

F. The rear of the gate shall be supported in the open position.

2.07 ACCESSORIES

A. Provide all accessories required for execution and installation of all work, including but not limited to, expansion bolts, anchors, fittings, bracing, bolts, nuts, washers, tie rods, turnbuckles, hardware and similar items, whether specifically mentioned herein or not.

2.08 MOTORIZED GATE OPERATOR

A. The Contractor shall furnish and install electric chain drive gate operator, Liftmaster SL-575, 1 HP, 480V, 3-Phase, as manufactured by Chamberlain Group, 845 Larch Avenue, Elmhurst, Illinois 60126 (Tel: 800.528.5880), as detailed on the plans and specified herein, or equivalent.

B. The electric gate operator shall be suitable for ground mounting, and shall include an operator concrete foundation per manufacturer's recommendations. Electric gate operators shall be suitable for outdoor use and enclosed in a weatherproof housing. Heating equipment shall be provided if recommended by the manufacturer. Operators shall be equipped with a heavy duty reversing contact, magnetic brake, adjustable clutch, emergency disconnect, full driven limit switches, completely prewired and factory tested. Operator shall be equipped with pressure sensitive controller to reverse the gate operation if an obstruction is encountered. The operator shall be provided with an early alert audible signal broadcasting an audible alert while the gate is opening or closing.

C. The operators shall be operable with detector loops, card readers, and radio controllers as required and detailed on the plans. All equipment shall be as recommended by the manufacturer and shall be suitable for outside use.

2.09 DETECTOR LOOP AND DETECTORS

A. Detector loop size, location, sawing method, sealant type and number of loops shall be as shown on the plans and as recommended by the manufacturer. The detector shall have adjustable sensitivity and be housed in the operator housing.

2.10 GROUNDING

A. The fence shall be grounded as detailed on the plans. Ground rods shall be ¾" diameter by 10 feet long, copperclad ground rods. Connection of ground wire to ground rod shall be via exothermic weld, Cadweld, or equivalent.

2.11 UL-235 COMPLIANCE

A. Gate installation shall comply with all requirements of UL 235, including, but not limited to:

1. All openings of the slide gate are guarded or screened from the bottom of the gate to a minimum of 4 feet above ground to prevent a 2-1/4" diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position.
2. All exposed pinch points are eliminated or guarded and guarding is supplied for all exposed rollers.
3. A warning sign (see detail, on plans) must be affixed to both sides of the slide gate.

B. Gate operator installation shall comply with all requirements of UL 235, including, but not limited to:

1. Primary gate operator entrapment protection shall consist of an inherent obstruction sensing system, self-contained within the operator. This system shall sense and initiate the reverse of the gate within 2 seconds of contact with a solid object.
2. Secondary gate operator entrapment protection shall consist of contact sensors, either hard wired or wireless. If hard wired, the wiring shall be arranged and installed so the communication between the sensor and the gate operator is not subject to mechanical damage. Contact sensors shall be installed as follows:

    a. One or more contact sensors shall be located at the leading edge, trailing edge and post mounted both inside and outside of the slide gate.

PART 3 EXECUTION

3.01 FENCE AND GATE INSTALLATION

A. Fence installation shall conform to ASTM F567 - Installation of Chain Link Fence, except that terminal post bracing shall be required for all installations. Fence and gate installations shall meet all of the applicable requirements of the standard details shown in the plans or as directed by the Engineer.

B. All posts for the fence installation shall be set in concrete at the required dimension and depth and at the spacing shown on the plans. All concrete shall be thoroughly consolidated around the posts by tamping or vibrating and shall have a smooth finish slightly higher than the ground and sloped to drain away from the posts. All posts shall be set plumb and to the required grade and alignment. No materials shall be installed on the posts, nor shall the posts be disturbed in any manner within 7 days after the individual post footing is completed. If encountered, in lieu of drilling through rock, the rock may be excavated to the required footing depth. No extra compensation shall be made for rock excavation.

C. The top rail shall be continuous and shall pass through the post tops. The coupling used to join the top rail lengths shall allow for expansion.

D. Horizontal brace rails, with diagonal truss rods and turnbuckles, shall be installed at all terminal posts.

E. The wire fabric shall be firmly attached to the posts and braced in the manner shown on the plans. All wire shall be stretched taut and shall be installed to the required elevations. The fence shall generally follow the contour of the ground, with the bottom of the fence fabric no less than 1 inch (25 mm) or more than 4 inches (100 mm) from the ground surface. Grading shall be performed where necessary to provide a neat appearance.

F. At locations of small natural swales or drainage ditches and where it is not practical to have the fence conform to the general contour of the ground surface, longer posts may be used and multiple strands of barbed wire stretched thereon to span the opening below the fence. The vertical clearance between strands of barbed wire

shall be 6 inches (150 mm) or less.

G. The gate and installation shall conform to ASTM F 1184 standards for aluminum cantilever slide gates, Type II, Class 2.

3.02 ELECTRIC GATE OPERATOR INSTALLATION

A. Electric gate operator for cantilever slide gate shall be installed as detailed on the plans and as required by gate operator manufacturer. The operator shall be installed on a concrete foundation as detailed on the plans or as required by the gate manufacturer. The contractor shall coordinate all electrical conduit requirements in operator foundation with the gate manufacturer, the Electrical Contractor and the Security System Installer.

3.03 CONTRACTOR’S RESPONSIBILITY FOR UTILITY LOCATING

A. It shall be the Contractor's responsibility to determine the actual location of all utilities, including service connections to underground utilities. Prior to construction, the Contractor shall contact JULIE. Prior to construction, the Contractor shall notify all utility companies of his operational plans. The Contractor shall make arrangements for detailed information and assistance in locating utilities. In the event an unexpected utility interference is encountered during construction, the Contractor shall immediately notify the utility company, the Owner and the Engineer. Any such mains and/or services disturbed by the Contractor's operations shall be restored immediately at his expense to the satisfaction of the Owner and the Engineer.

END OF SECTION 02830

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Layout, installation, maintenance and removal of traffic control devices to warn traffic of road closures, detour traffic around the construction site and prevent traffic from entering the construction zone.

1.02 RELATED SECTIONS

A. Division 1 – General Requirements

1.03 REFERENCE TO STANDARDS

A. Conform to applicable portions of Articles 107 and 701 of IDOT's Standard Specifications for Road and Bridge Construction adopted Jan. 1, 2012, and the Supplemental Specifications and Recurring Special Provisions adopted Jan. 1, 2015.

B. Conform to the applicable IDOT Highway Standards. Standards have been attached for reference at the end of this specification.

C. Conform to the Manual on Uniform Traffic Control Devices.

1.04 REGULATORY REQUIREMENTS

A. Contractor shall be responsible to repair damage to all federal, state, city and township roadways caused by their equipment or by subcontractors or suppliers performing work under the contract. It is advisable that Contractor document the condition of all the roadways prior to starting work.

PART 2 PRODUCTS

2.01 TRAFFIC CONTROL DEVICES

A. Traffic Control Devices: As specified in IDOT Highway Standards and as provided in the Drawings.

B. Materials may be new or used, suitable for purpose. Comply with specified codes.

2.02 LANE CLOSURES AND OFF-ROAD OPERATIONS (IF APPLICABLE)

A. Lane Closures: traffic control for the work immediately adjacent to North 6th Street that requires a lane closure shall be as per the Highway Standards provided.

B. Off-Road Operations: traffic control for the work adjacent to North 6th Street within 15' of the edge of pavement shall be as per the Highway Standards provided.

PART 3 EXECUTION

3.01 LAYOUT

A. Obtain appropriate lane closure, street closure, street use, and street repair permits from the City of Mattoon – Public Works Director.

B. Verify and document existing conditions.

C. Evaluate placement of traffic control devices in addition to the devices shown on the plans.

D. Consider flow of traffic and maintain access to the adjacent properties.

E. Provide Owner and the following entities with five (5) working days' notice of road closure or lane prior to initiating traffic control:

1. Mattoon Fire Department: 217-235-0931
2. Coles County Sheriff's Department: 217-348-7332
3. Mattoon Police Department: 217-235-5451
4. Mattoon Public Works Director: 217-235-5460
5. Mattoon CUSD #2: 217-238-8850

3.02 INSTALLATION

A. Implement traffic control devices to promote flow of traffic.

B. Ensure traffic control devices are visible at night.

3.03 MAINTENANCE

A. Correct traffic control devices that fail or are shifted by traffic.

B. Adjust traffic control devices to respond to changes in traffic patterns and flow.

C. Replace traffic control lighting that has failed.

3.04 REMOVAL

A. Upon final completion of the project, remove all traffic control devices.

B. Remove dirt and debris from roadway open to traffic daily.

END OF SECTION 02899

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section includes all material, labor and equipment for placement of topsoil on areas to receive seeding.

1.02 RELATED SECTIONS

A. Section 02100 – Site Preparation
B. Section 02316 – Excavating
C. Section 02317 – Backfilling and Compacting
D. Section 02936 – Seeding

1.03 REFERENCE TO STANDARDS

A. American Association of State Highway and Transportation Official (AASHTO)

1. AASHTO T88
2. AASHTO T194

B. The pH shall be determined on that portion of the sample passing the No. 10 sieve in accordance with the ASTM Standard D-4972.

1.04 SUBMITTALS

A. Submit under the provisions of Special Conditions - Section 01300

B. Shop Drawings: (Reserved)

C. Product Data: (Reserved)

D. Samples: Representative samples of off-site material proposed for use as topsoil - including test results on clay, sand, organic contents and pH shall be submitted to the Engineer for review and/or testing prior to placement of the material.

PART 2 PRODUCTS

2.01 TOPSOIL MATERIALS

A. Topsoil shall be defined as follows:

1. Topsoil shall be free from large roots, sticks, weeds, brush or stones larger than 1 inch in diameter or other litter and waste products. It shall be a loamy mixture having at least 90 percent passing the No. 10 sieve. It shall be free from extraneous materials, shall comply with the following requirements:
2. Topsoil shall contain not less than 1 percent nor more than 10 percent organic matter as determined by the test for organic matter in accordance with AASHTO T 194.
3. Topsoil shall contain not less than 12 percent nor more than 50 percent clay as determined in accordance with AASHTO T 88.
4. The sand content shall not exceed 55 percent as determined in accordance with AASHTO T 88.
5. The pH of the sample shall not be lower than 5.0 nor higher than 8.0. The pH shall be determined with an acceptable pH meter, or that portion of the sample passing the No. 10 Sieve, in accordance with the ASTM Standard D-4972.
6. Topsoil shall be capable of sustaining vigorous plant growth.

PART 3 EXECUTION

3.01 EXAMINATION (RESERVED)

3.02 STRIPPING

A. Stripping of any remaining vegetation and topsoil is required. Topsoil shall be removed from all building and pavement areas a minimum of 5 feet, in all directions, beyond the limits of construction. Any area used as a source of fill should also be stripped of topsoil. Stripping depth shall be a minimum of 6". Additional stripping depth may be required to adequately remove vegetation and heavily organic soils. The Contractor shall stockpile topsoil to be used when the site construction is complete. Contractor shall indicate to the Engineer the areas of topsoil stockpile(s) for approval prior to commencing work.

3.03 PREPARATION

A. All foreign materials, plants, roots, stones, sticks and debris shall be removed. Foreign material shall not be buried.

B. Under this item, grading will be necessary only at those areas where placement of topsoil will inhibit drainage. At those areas, sufficient material shall be removed to allow topsoil placement without inhibiting the drainage. Placement of the topsoil shall not begin until the Engineer approves the lines, grades and condition of the subgrade.

3.04 TOPSOIL PLACEMENT

A. Spread topsoil to depth of four (4) inches over areas to be seeded or where directed by the Engineer. Place during dry weather and on dry, unfrozen subgrade.

B. Topsoil shall be graded to the contours and spot elevations as shown on the Plans. Grades should be adjusted to ensure positive drainage away from buildings and other structures.

C. The finished surface shall be free of clods, rocks and shall conform to the lines and grades shown on the plans.

D. Topsoil intended for placement shall not be in a frozen or muddy condition, as determined by the Engineer.

END OF SECTION 02920

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Seedbed Preparation
B. Fertilizing, Pre-seed, Post-seed
C. Seeding with various mixes
D. Mulching
E. Watering
F. Mowing
G. Warranty

1.02 RELATED SECTIONS

A. Section 02370 – Erosion Control
B. Section 02920 – Topsoil

1.03 QUALITY ASSURANCE

A. All work described in this Section is to be done by a firm specializing in such work with documented 5 years experience of similar work. The personnel of the firm shall be experienced in the work specified and shall work under the direction of a skilled foreman.

B. Contractor personnel engaged in herbicide application shall have an Illinois Applicator's License.

C. Substitutions of material or work requirements may be proposed by the Contractor but will not necessarily be accepted.

1.04 SUBMITTALS

A. The following items shall be submitted and approved prior to operations:

1. Schedule of seeding
2. Source of seed
3. Proposed seed mixes
3. Fertilizer mixes and application rates
4. Herbicides concentrations and application rates

B. The following items shall be submitted during operations:

1. Tags from seed bags certifying source, composition and quantity.
2. Tags from fertilizer bags certifying composition.
3. Load tickets from straw mulch and/or hydro-mulch deliveries.

1.05 PROTECTION

A. Contractor is responsible to protect and avoid all existing underground utilities during construction operations. Repair of any utilities damaged by installation shall be the responsibility of the Contractor.

B. Contractor is responsible to protect all existing conditions including buildings, fences, pavements, trees, and other plant material from damage during project installation and maintenance. Any damages occurring shall be the responsibility of the Contractor to replace, repair or compensate Owner for damages.

1.06 WARRANTY

A. Contractor shall warranty turf for one complete growing season following the initial establishment. If seed does not germinate and develop into healthy turf, Contractor shall reseed following these seeding specifications, overseed or otherwise provide remedial work necessary for successful turf development as directed by the Owner's Representative.

B. Contractor shall warranty the native plant mixes for one complete growing season following initial establishment. At the end of the first growing season forty (40) percent of the different species in the mixes shall be identified/present in the seeded areas. The native seed mixes shall not be dominated by non-native plant species. There shall be no areas larger than 100 square feet that do not have the seeded species present.

PART 2 PRODUCTS

2.01 MATERIALS

A. Starter Fertilizer nutrients shall be commercial nitrogen, phosphorus and potassium mixed in a 1:1:1 ratio of active ingredients and applied at a rate which will yield the number of actual nutrient pounds per acre as required.

B. Maintenance Fertilizer nutrients shall be commercial slow-release nitrogen, phosphorus and potassium mixed in a 2:1:1 ratio of active ingredients and applied at a rate which will yield the number of actual nutrient pounds per acre as required.

C. Seed Mixes shall be those shown on plans. Contractor may propose alternate varieties with equal or better qualities. Substitutions will be allowed only at the discretion of the Owner's Representative.

D. Straw shall be fresh clean straw free from weed seeds and foreign material.

E. Hydro-mulch shall be cellulose manufactured specifically for said purpose. Mulch shall be free from foreign material and sized appropriately to be applied at specified rates.

F. Water for hydro-mulch shall be clean water, free from chemicals and materials which would adversely affect germination and growth of seeds.

G. Seed Mixes

1. Mowed turf areas: IDOT Seed Mix 1 Lawn Mixture
2. Sloped turf areas: IDOT Seed Mix 3A Southern Illinois Slope Mixture
3. Temporary Seeding: IDOT Seed Mix 7 Temporary Turf Cover Mixture

2.02 DELIVERY AND STORAGE

A. Grass seed shall be delivered either individually or in premixed sacks, each bearing a tag with the following information clearly printed: date and location of packaging, seed mix, percentage of pure live seed, year of production and weight.

B. Fertilizer may be delivered separately or premixed in sacks in which case each sack shall bear a tag with the following information clearly printed: name and address of manufacturer, brand, weight, chemical composition and guarantee of analysis.

C. If the fertilizer, seed or mulch is stored on the site, it shall be raised above the ground and thoroughly covered with polyethylene to minimize moisture absorption.

D. Seed which has become wet, moldy, musty or otherwise damaged during storage will not be acceptable and will be replaced at the Contractor's expense.

2.03 CONDITION OF SITE

A. Site shall have a minimum 4" of topsoil placed over all areas to be seeded with permanent seed mix.

B. Topsoil shall be finish graded to the lines and grades shown on plans or approved by the Owner's Representative and all areas shall drain.

C. Areas with existing vegetation shall be mown to a height of no greater than three (3) inches. The mowed vegetation shall be cut and removed or mulched and dispersed. Any remaining cut material shall not be at a thickness that will result in the death of the vegetation underneath it or inhibition of growth of seeds planted.

PART 3 EXECUTION

3.01 TEMPORARY SEEDING

A. Time of Operations

1. Contractor shall commence operations only after giving a minimum 24 hours notice to the Owner's Representative.

B. Seeding

1. Seeding shall be done into freshly prepared seed bed. If the seed bed has been compacted, crusted-over or otherwise affected, seedbed shall be prepared again prior to seeding.
2. Seed mixes shall be drilled, broadcasted, or hydraulically applied.

C. Mulch

1. Contractor may use either hydro mulch or straw over seeded areas where topsoil is exposed with no existing vegetation present.

a. Hydromulching shall entail:

i. Area shall be hydro-mulched at the rate of 750 pounds of cellulose mulch per acre. Mulch shall be mixed with water and applied at the rate of 1000 gallons per acre.
ii. Seed may be mixed with the hydro-mulch at the Contractor's option.
iii. Building, streets, sidewalks and other surfaces shall be protected during hydromulching operations. Any hydromulch blown beyond the seeded area shall be thoroughly cleaned-up.

b. Straw mulching shall entail:

i. Area shall be uniformly covered with straw at the rate of 1-1/2 tons per acre.
ii. Straw shall be punched into the soil with an uncambered dull disk approximately 20 inches in diameter set at 3-inch intervals. Stabilizer weights shall provide for straw to be pushed into the ground at least 2 inches.
iii. In areas inaccessible to mechanical punching, water shall be applied to the spread straw at a rate and duration to bind the straw.
iv. Straw blown beyond the seeded areas shall be raked and removed from the site.

3.04 PERMANENT SEEDING

A. Time of Operations

1. Contractor shall commence operations only after giving a minimum 24 hours notice to Owner's Representative.
2. Seedbed preparation and seeding shall be done only when soil is relatively dry to avoid clodding and compaction of soil.
3. Seeding Dates: Spring seeding shall be from April 1 through June 15 and August 1 to November 1.

B. Seedbed Preparation

1. All areas designated for seeding shall be tilled to a minimum depth of 4 inches and rolled.
2. Surface shall be free of all construction debris, rocks, roots, vegetative debris and litter.
3. Soils particles shall be no larger than one inch in dimension.
4. Owner's Representative will approve seed bed prior to seeding. Seed beds will not be approved where weeds or vegetative growth remains.

C. Pre-seed Fertilizing

1. Within 24 hours of seedbed preparation, area shall be fertilized with 270 lb. of actual nutrient per acre using a fertilizer mix of 1-1-1.
2. Fertilizer may be broadcast separately or mixed with hydro-mulch.

D. Seeding

1. Seeding shall be done into freshly prepared seed bed. If the seed bed has been compacted, crusted-over or otherwise affected, seedbed shall be prepared again prior to seeding.
2. Turf seed mixes shall be drilled into the surface of the soil in two passes at right angles to each other. Seed shall be 1/2 inch below the surface or as recommended for specific seed mix.

E. Mulch

1. Contractor may use either hydro mulch or straw over seeded areas where topsoil is exposed with no existing vegetation present.

    a. Hydromulching shall entail:

        i. Area shall be hydro-mulched at the rate of 750 pounds of cellulose mulch per acre. Mulch shall be mixed with water and applied at the rate of 1000 gallons per acre.
        ii. Seed shall not be mixed with the hydro-mulch for permanent seeding applications.
        iii. Building, streets, sidewalks and other surfaces shall be protected during hydromulching operations. Any hydromulch blown beyond the seeded area shall be thoroughly cleaned-up.

b. Straw mulching shall entail:

i. Area shall be uniformly covered with straw at the rate of 1-1/2 tons per acre.
ii. Straw shall be punched into the soil with an uncambered dull disk approximately 20 inches in diameter set at 3-inch intervals. Stabilizer weights shall provide for straw to be pushed into the ground at least 2 inches.
iii. In areas inaccessible to mechanical punching, water shall be applied to the spread straw at a rate and duration to bind the straw.
iv. Straw blown beyond the seeded areas shall be raked and removed from the site.

c. Erosion Control Blanket:

i. Blanket is required on all slopes 4:1 (H:V) or steeper.
ii. Blanket should be overlapped and stapled as shown on the plans and as per the manufacturer's recommendations
iii. Blanket shall be trenched-in along the top of the slope as shown on the plans.

F. Post-seeding Fertilizing

1. Thirty (30) days following the first mowing, the area shall be re-fertilized at the rate of 200 lbs. per acre of actual nutrient using a fertilizer mix of 2-1-1.

3.05 ESTABLISHMENT – ALL SEEDED AREAS

A. Contractor shall maintain all seeded areas until acceptance of project or successful establishment of turf, whichever is longer. In no case will the period of maintenance be less than 3 months.

B. During the establishment period, Contractor shall provide the following:

1. Watering:

a. Contractor is not required to water seeded areas but may elect to do so to optimize germination and successful establishment of turf. Seeded areas generally shall be watered to achieve a rate of 5 gallons per square yard every 2 days until established. Rainfall may relieve the need for watering at certain times.
b. Watering shall be done in a manner to achieve infiltration of water and avoid run-off and soil erosion.
c. Contractor shall supply hoses, portable sprinkling devices and other needed equipment to provide supplemental watering when needed.

2. Mowing:

a. Contractor shall mow the developing turf when it reaches a height of 8 inches Growth shall be cut to a height of 4 inches. (If Contractor delays result in excess growth prior to mowing, Contractor may be required to rake and remove cuttings from the site.)

b. Contractor shall cut the turf with reel-type or rotary-type mowers, hand mowers, edgers, etc. with sharp blades set level. Mowing shall be done of the entire area, including turf around the driveways, sidewalks, mulched areas, etc. Finished areas shall smooth and uniform in height, with no gouges into soil or other irregularities indicating poorly-adjusted equipment or improper mowing techniques.

c. Mowing shall be done when the grass is relatively dry and ground is firm.

3. Treatment of Insects, Disease, Fungus

a. Should problems with the turf develop such as insect infestation, disease or fungus, Contractor shall immediately notify the Owner's Representative and discuss remedies available.

b. Contractor shall proceed expeditiously with selected treatment of affected areas and continue treatment until the problem is resolved. Contractor shall have Illinois Applicators License for treatment products as needed.

3.06 CLEAN UP

A. Any excess material shall be removed from the site. All improvements shall be cleaned as necessary to remove any effects of construction. Any damage to existing features shall be repaired to the satisfaction of the Owner's Representative.

END OF SECTION 02936

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Geotextile filter fabric installation
2. Landscape rock placement

1.02 RELATED SECTIONS

A. Specified elsewhere:

1. Section 01330 – Submittal Procedures

1.03 QUALITY ASSURANCE

A. The work under this section shall be done by a Contractor regularly engaged in installing similar products for similar applications.

1.04 SUBMITTALS

A. Submit under provisions of Section 01330 – Submittal Procedures.

B. The Contractor shall provide the Engineer with a five (5) pound sample of the landscape rock for review and acceptance.

C. The Contractor shall provide the Engineer with an 8½-inch by 11-inch sample of the geotextile filter fabric for review and acceptance.

1.05 PROTECTION

A. Contractor is responsible to protect and avoid all existing underground and above ground utilities during construction operations. Repair of any utilities damaged by installation is the responsibility of the Contractor.

B. Contractor is responsible to protect all existing conditions including structures, pavements, and equipment from damage during project installation and maintenance. Any damages occurring are the responsibility of the Contractor to replace, repair or compensate Owner for damages.

1.06 WARRANTY

A. Contractor shall warranty for one (1) year all material and work in this project from the date of substantial completion in which the work was completed and acceptance.

1.07 REFERENCE DOCUMENTS

A. The Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, adopted January 1, 2012 and all subsequent amendments, referred herein as IDOT Standard Specifications.

PART 2 PRODUCTS

2.01 PRODUCTS AND MATERIALS

A. Rock: Smooth, rounded river rock 1½-inch (±¼-Inch) diameter, light to medium tan color.

B. Geotextile filter fabric: 6 oz. per Article 1080.03 of the IDOT Standard Specifications

C. Staples for geotextile filter fabric: 11 gauge, "U" shaped with approximately 2-inches at the top and 8-inch legs or approved equal.

PART 3 EXECUTION

3.01 PREPARATION

A. Protection:

1. Mark the location of all utilities at the site.
2. Provide safeguards to protect structures, sidewalks and other improvements from possible damage during construction.

3.02 INSTALLATION

A. Ground Preparation:

1. Core-out areas or backfill areas for rock as shown on plans.
2. Excavate or backfill to precise lines and right angle edges.
3. Excavate against all sidewalks the full depth of the specified rock depth to prevent rock from washing over the sidewalk surface.
4. Bottom and sides of rock areas are to be undisturbed earth or compacted per site specs.
5. Areas should drain away from sidewalks and structures.

B. Geotextile Placement:

1. Place fabric across the bottom and extend up the vertical edges a minimum of 2-inches or per manufacturer's recommendations if greater.
2. Layout fabric with a minimum of joining seams. Where joining seams are necessary, overlap fabric a minimum of 6-inches.
3. Place fabric along the bottom of the border and extending up the vertical

edges to within 2-inches of finish grade. Fold fabric back into the area to receive rock.

4. Pin edges and joining seams at a maximum of 2-feet intervals or closer to prevent fabric movement during the rock placement.

C. Rock Placement:

1. Place rock in the prepared areas as shown on the drawings.
2. Rake to a uniform thickness and smooth surface.
3. Consolidate the rock using a plate compactor to the satisfaction of the Owner and Engineer.

3.03 CLEAN-UP

A. Leave site clean and free of debris. Repair any damage to the satisfaction of the Owner and Engineer.

END OF SECTION 02950

MATTOON, ILLINOIS
RILEY CREEK CSO SATELLITE TREATMENT FACILITY – CONTRACT 1

DIVISION 3 – CONCRETE

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PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section includes furnishing of all labor, materials and all other incidental work to place controlled low strength material in pipe excavations, under structures, and at locations as shown on the drawings and in accordance with these specifications.

B. Related Sections:

1. Section 02317 - Backfilling and Compacting.

C. Reference to Standards:

1. American Safety for Testing and Materials (ASTM).
2. Illinois Department of Transportation (IDOT): Standard Specifications for Road and Bridge Construction adopted January 1, 2012 and applicable sections of the Supplemental Specifications and Recurring Special Provisions adopted January 1, 2015, hereinafter referred to as IDOT Standard Specifications.

1.03 DEFINITIONS

A. (RESERVED)

1.04 SUBMITTALS

A. Design Data: Submit mix design data to the Engineer for review in accordance with Division 1 - Section 01330 – Submittal Procedures.

B. Material Certifications: For each item listed, provide information indicated.

1. Fine Aggregate

a. Producer name
b. Quarry Location.
c. Contact Person and Phone Number.
d. IDOT Certification Sheets with Material Quality Results.
e. Specific Gravity
f. Moisture Content.

2. Cement

a. Mill Test Report.
b. Producer Name and Location.

3. Water

a. Specify Potable Water Source.

C. CLSM Mix Properties: Provide the following information:

1. Mix Design

a. Cement (Lbs./C.Y.)
b. Fine Aggregate (Lbs./C.Y.)
c. Water (Lbs./C.Y.)
d. Admixtures.

2. Slump/Flow Specified.
3. Air Content Specified.

D. Mix Plant Certification: Provide IDOT certification of plant inspection (within past 12 months) and provide contact person name, address, and phone number at plant.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
2. IDOT Certified.

C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

D. Perform all work in accordance with referenced IDOT Standard Specifications.

E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5 and Section 7, "Lightweight Concrete."
2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

PART 2 PRODUCTS

1.01 MATERIALS

A. Controlled Low Strength Material (CLSM)

1. CLSM shall consist of a mixture of portland cement, fly ash, fine aggregate, and water proportioned to provide a backfill material that is self-compacting and capable of being excavated with hand tools if necessary in the future.
2. All materials shall meet the requirements of Section 03300 - Cast-In-Place Concrete.
3. Proportioning of a one cubic yard mixture of CLSM shall be as follows:

   a. Mix 1

      i. Portland Cement, Type 1: 50 lbs.
      ii. Fly Ash – Type C or F: 125 lbs.
      iii. Fine Aggregate (Saturated Surface Dry): 2900 lbs.
      iv. Water: 50-65 gallons

   b. Contractor shall use Mix 1 on this project.
   c. These proportions will yield approximately one cubic yard of CLSM of the consistency desired. The flexibility shall be observed by the Engineer and the water content or air content shall be adjusted within the specified limits to produce desired results.

4. Contractor may submit an alternate mix design and may propose alternate fine aggregate materials, fine aggregate gradations, or material proportions. The mix design shall meet the following minimum criteria.

   a. Minimum Mix Design Criteria

      i. Flow: ≥ 7 inch
      ii. Air Content: 0 – 25%
      iii. Dynamic Cone Penetrometer at 3 days: ≤ 1½”/blow
      iv. Compressive Strength at 28 days and 180 days: ≥ 30psi to < 150psi

   b. The mix design shall include the following information:

      i. Source of all materials.
      ii. Gradation of fine aggregate.
      iii. Absolute volumes, specific gravities, unit weights, and any other values used in the mix design process.
      iv. Type and proposed dosage of admixtures.
      v. Target flow and air content.
      vi. Test data indicating compressive strength at 28 and 180 days.

PART 3 EXECUTION

3.01 INSPECTION

A. Inspect areas and conditions where CLSM work will be performed. Notify Engineer in writing of conditions detrimental to proper and timely completion of work. Request resolution of conditions.

3.02 MIXING OF CLSM

A. The mix shall be produced in accordance with Article 1020 of the IDOT Standard Specifications.

B. Sufficient mixing capacity shall be provided to permit the placement of CLSM without interruption.

C. The mixer drum shall be emptied prior to the initial batch being prepared to ensure that no additional cement fines are incorporated into the mix.

3.03 PLACEMENT OF CLSM

A. The mix shall not be placed on frozen ground, in standing water, or during wet weather conditions. Mixing and placing shall begin only if the air temperature is 35 °F (2 °C) minimum and rising. At time of placement, the material temperature shall be 40 °F (5 °C) minimum. Mixing and placing shall stop when the air temperature is 40 °F (5 °C) and falling.

B. The mix shall be placed directly from the chute into the space to be filled. Other placement methods may be approved by the Engineer if the mix design is appropriate.

C. When backfilling against structures, the mix shall be placed in layers to prevent damage by lateral pressures. Thickness of each layer shall be proposed by the Contractor for review by Engineer prior to placement. Side slopes shall be stepped or serrated to prevent wedging action of the backfill against the structure. Each layer shall be allowed to harden prior to placing the next layer.

D. The mix shall not be exposed to freezing temperatures or wet weather conditions during the first 24 hours after placement.

END OF SECTION 03001

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes concrete formwork, shoring and accessories as shown on the drawings and as herein specified, for the following:

1. Footings.
2. Foundation walls.
3. Slabs-on-grade.
4. Elevated slabs.
5. Building walls.
6. Concrete sidewalks.
7. Entrance slabs.
8. Miscellaneous items.

B. Related Sections:

1. Section 03200 – Concrete Reinforcement
2. Section 03300 – Cast-In-Place Concrete
3. Division 5 – Metals
4. Division 15 – Mechanical
5. Division 16 – Electrical

C. Reference to Standards:

1. ACI 301 – Specifications for Structural Concrete for Buildings.
2. ACI 347 – Recommended Practice for Concrete Formwork.

1.03 DEFINITIONS

A. (RESERVED)

1.04 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Construction Joint Layout: Indicate proposed construction joints required to construct the structures if not shown or different than that shown on plans.

1. Location of construction joints is subject to approval of the Engineer.

C. Samples: For all waterstops to be used, vapor retarder.

D. Qualification Data: For installer and manufacturer of forms.

E. Submit product data under provisions of Section 01330 – Submittal Procedures.

1.05 QUALITY ASSURANCE

A. Construct and erect concrete formwork in accordance with ACI 301 and 347.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver form materials in manufacturer's packaging with installation instructions.

B. Store off ground in ventilated and protected area to prevent deterioration from moisture or damage.

C. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

1.07 SYSTEM DESCRIPTION

A. Design, engineer and construct formwork, shoring and bracing to meet design requirements so that resultant concrete conforms to required shapes, lines and dimensions.

PART 2 PRODUCTS

2.01 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.
2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

a. Structural 1, B-B or better; mill oiled and edge sealed.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.

D. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to resist plastic concrete loads without detrimental deformation.

E. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

F. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.

2.02 FORM RELEASE AGENT

A. Form-release agent shall be a commercially formulated agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

B. Formulate form-release agent with rust inhibitor for steel form-facing materials.

C. Available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Symons Manufacturing Co., Deerfield, IL - Magic Kote
2. Lambert Corporation – Form Release WB
3. Concrete Service Materials Co., Philadelphia, PA - Form-Coat
4. Euclid Chemical Co. – Form Shield WB
5. Or Engineer approved equal.

2.03 FORM TIES

A. Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

B. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.

C. Ties shall be removed after forms are removed and holes shall then be filled with mortar that matches adjacent surface.

D. Provide stainless steel form ties for exterior surfaces exposed to view.

E. Available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Dayton - Sure Grip snap-in form tie
2. Heckmann - Snapties
3. Richmond - Snap-Tys
4. Or Engineer approved equal

2.04 WATERSTOPS

A. Flexible PVC Waterstops: CE CRD-C 572, with factory-installed metal eyelets, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Greenstreak.
b. BoMetals, Inc.
c. Or Engineer approved equal.

2. Profile:

a. Ribbed without center bulb.
b. Ribbed with center bulb

3. Dimensions:

a. 6 inches by 3/8 inch thick; nontapered.
b. 9 inches by 3/8 inch thick, nontapered.

4. See plans for applicable location for each waterstop.
5. Labyrinth type waterstop made of PVC or neoprene or bentonite strips shall not be permitted as a substitute for waterstop materials specified herein or as detailed on the plans.

B. Self-Expanding Butyl Strip Waterstops: (Reserved)

C. Hydrophilic Waterstop: Natural rubber or chloroprene rubber modified to impart hydrophilic properties with delay coating to inhibit initial expansion due to moisture present in fresh concrete. Shape shall be appropriate for specified application.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Greenstreak; Hydrotite.
b. Adeka; Ultraseal
c. Or Engineer approved equal.

2.05 METAL FORMS

A. Centering shall be as manufactured by U.S. Steel Deck; Wheeling Corrugating Co.; Vulcraft or Engineer approved equal. Metal forms shall be minimum 9/16" deep, 26 gauge galvanized. Metal forms shall be installed in strict accordance with manufacturer's directions and specifications.

B. Metal forms shall be capable of safely supporting dead and live loads as shown on drawings.

2.06 ANCHORS AND DOVETAIL ANCHOR SLOTS

A. (RESERVED)

PART 3 EXECUTION

3.01 INSPECTION

A. Verify lines, levels and measurements before proceeding with formwork.

3.02 PREPARATION

A. Earth forms, except for footings, not permitted.

B. Minimize form joints. Symmetrically align joints.

C. Arrange and assemble formwork to permit stripping so that concrete is not damaged during its removal.

3.03 ERECTION

A. Provide bracing to ensure stability of formwork. Strengthen formwork liable to be overstressed by construction loads.

B. Provide temporary ports in formwork to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain. Close ports with tight fitting panels, flush with inside face of forms, neatly fitted so that joints will not be apparent in exposed concrete surfaces.

C. Provide chamfer strips on external corners of beams, joists and columns.

D. Construct formwork to maintain tolerances in accordance with ACI 301(R 2005).

E. Steel centering shall be placed with corrugation edges up and with corrugations perpendicular to supports. Sheets shall be placed end to end along one side of building. Adjacent rows are to be placed in like manner, side lapping one corrugation with previously placed row. End laps shall always occur over supporting joists, beams or purlins and should be centered over support. Minimum end lap is 2" for welded attachment. Bottom sheet shall not extend beyond edge at support flange. Sheets shall be attached to supports by plug welding through curved washers to supporting top chords. Centering attached by welding shall have following minimum welding requirements:

1. End Laps - each lap is to be fastened using a weld washer at each side lap plus one intermediate weld (3 welds per sheet).
2. Intermediate Supports - weld sheet at side laps at each intermediate support plus one intermediate weld (3 welds per sheet).
3. Spacing between deck attachments to top chord shall not exceed 36".

3.04 APPLICATION OF FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's instructions. Apply prior to placing reinforcing steel, anchoring devices and embedded items.

B. Do not apply form release agent where concrete surfaces are scheduled to receive special finishes, which may be affected by agent. Soak contact surfaces of untreated forms with clean water. Keep surfaces wet prior to placing concrete.

3.05 INSERTS, EMBEDDED PARTS AND OPENINGS

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

B. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors and other inserts.

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

3.06 FORM REMOVAL

A. Do not remove forms and shoring until concrete has sufficient strength to support its own weight and construction and design loads which may be imposed upon it. Remove load-supporting forms when concrete has attained 75% of required 28-day compressive strength.

B. Do not damage concrete surfaces during form removal.

3.07 CLEANING

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

B. Ensure that water and debris drain to exterior through clean-out ports.

C. During cold weather, remove ice and snow from forms. Do not use deicing salts. Do not use water to clean out completed forms, unless formwork and construction proceed within heated enclosure. Use compressed air to remove foreign matter.

END OF SECTION 03100

PART1 GENERAL

1.01 SECTION INCLUDES

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

1.02 RELATED SECTIONS

A. Section 03100 – Concrete Formwork.

B. Section 03300 – Cast-in-Place Concrete.

C. Section 04810 – Unit Masonry Assemblies.

1.03 REFERENCE TO STANDARDS

A. ACI 301 - Structural Concrete for Buildings, latest edition.

B. ACI 315 - Details and Detailing of Concrete Reinforcement, latest edition.

C. ACI 318 - Building Code Requirements for Reinforced Concrete, latest edition.

D. ACI 350 – Code Requirements for Environmental Engineering Concrete Structures

E. ACI SP-66 - Detailing Manual.

F. ANSI/ASTM A82 - Cold Drawn Steel Wire for Concrete Reinforcement.

G. ANSI/ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.

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

I. ASTM A775 - Epoxy-Coated Reinforcing Steel Bars.

J. ASTM A884 – Standard Specification for Epoxy Coated Steel Wire and Welded Wire Reinforcement

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

L. CRSI - Concrete Reinforcing Steel Institute - Manual of Practice.

M. CRSI MSP-1-86 - Manual of Standard Practice.

1.04 SUBMITTALS

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

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

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with CRSI 63, 65 and Manual of Practice, ACI 301, ACI 315, ACI 318, ACI 350 and ANSI/ASTM A185.

B. Maintain one copy of each document on site.

C. Submit certified copies of mill test report of reinforcement materials analysis, indicating physical and chemical analysis.

1.06 QUALIFICATIONS

A. Welder's Certificates: Submit under provisions Division 1 - General Requirements, Manufacturer's Certificates, certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.07 COORDINATION

A. Coordinate work under provisions of Division 1 – General Requirements.

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

PART 2 PRODUCTS

2.01 REINFORCEMENT

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

B. Welded Steel Wire Fabric: ASTM A185 Plain Type; unfinished.

C. Epoxy Coating on Reinforcing Steel: ASTM A775 - Epoxy-Coated Reinforcing Steel Bars.

D. Epoxy Coating of Welded Wire Reinforcing: ASTM A884.

2.02 ACCESSORY MATERIALS

A. Tie Wire: Minimum 16 gage annealed type.

B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions, including load bearing pad on bottom to prevent vapor barrier puncture.

C. Special Chairs, Bolsters, Bar Supports, and Spacers Adjacent to Weather Exposed Concrete Surfaces: Plastic coated steel type; size and shape as required.

2.03 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI Manual of Practice, ACI 315, ACI 318, ACI 350 and ANSI/ASTM A185.

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

PART 3 EXECUTION

3.01 PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position. Reinforcement shall be tied at a minimum of 50 percent of the bar intersections. Tack welding of reinforcing for maintaining position and welding of splices shall not be permitted. Reinforcement shall not be flame cut or heated to bend.

B. Do not displace or damage vapor barrier.

C. Accommodate placement of formed openings.

D. Conform to ACI 318 for concrete cover over reinforcement, unless noted otherwise on drawings.

E. Wall reinforcement shall not be placed in the work until one side of the wall forms has been erected, aligned and braced. As the wall reinforcement is placed, it shall be secured to the wall form with the proper clearance between the steel and forms.

F. Slab reinforcement shall be supported by manufactured steel bolsters only. Concrete brick may be permitted only in slab on grade or footing construction.

G. Where walls or other items are shown as built integrally with other sections, but are placed as separate pours, keys and dowels shall be provided. Dowels shall be same size and at same spacing as reinforcing.

H. Provide 4 x 4 - W 4.0 x W 4.0 electrically welded wire fabric, ASTM A185 reinforcing in all concrete slabs on ground unless shown otherwise.

I. Provide corner bars of same size and spacing as main reinforcement at all intersections and corners, unless noted otherwise.

J. Where openings occur in walls or slabs, and unless otherwise noted on the plans, provide two (2) #5 bars at all sides and extending at least 2 feet beyond corners and two (2) #5 bars at least 4 feet long diagonally across each re-entrant corner.

K. The Contractor shall give sufficient notice to the Engineer for inspection of the reinforcing prior to the placement of the concrete.

L. The reinforcing for the concrete placement shall be completed before ordering concrete.

3.02 FIELD QUALITY CONTROL

A. Field inspection will be performed under provisions of Division 1 – General Requirements.

END OF SECTION 03200

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section Includes:

1. All cast-in-place concrete including, but not limited to floors, slabs on grade, foundation walls, supported slabs, beams and columns.
2. Control, expansion and contraction joint devices associated with concrete work.
3. Equipment pads and manhole slabs.

B. Related Sections:

1. Section 01330 – Submittal Procedures
2. Section 02317 – Backfilling and Compacting
3. Section 03100 – Concrete Formwork
4. Section 03200 – Concrete Reinforcement
5. Section 03390 – Concrete Curing
6. Section 055000 – Metal Fabrications
7. Section 07920 – Joint Sealants
8. Division 15 – Mechanical
9. Section 16111 – Conduit and Raceway: Electrical items for casting into concrete

C. Reference to Standards:

1. ACI 117-10 – Specification for Tolerances for Concrete Construction and Materials.
2. ACI 301-10 – Specifications for Structural Concrete.
3. ACI 305.1-06 – Specification for Hot Weather Concreting.
4. ACI 306.1-90 – Standard Specification for Cold Weather Concreting.
5. ASTM C31 – Standard Practice for Making and Curing Concrete Test Specimens in the Field.
6. ASTM C33 – Standard Specification for Concrete Aggregates.
7. ASTM C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
8. ASTM C40 – Standard Test Method for Organic Impurities in Fine Aggregates for Concrete.
9. ASTM C42 – Standard Test Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
10. ASTM C94 – Standard Specification for Ready Mixed Concrete.

11. ASTM C143 – Standard Test Method for Slump of Hydraulic Cement Concrete.
12. ASTM C150 – Standard Specification for Portland Cement.
13. ASTM C157 – Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete.
14. ASTM C172 – Standard Practice of Sampling Freshly Mixed Concrete.
15. ASTM C219 – Standard Terminology Relating to Hydraulic Cement.
16. ASTM C231 – Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
17. ASTM C260 – Standard Specification for Air Entraining Admixtures for Concrete.
18. ASTM C494 – Standard Specification for Chemical Admixtures for Concrete.
19. ASTM C618 – Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
20. ASTM C845 – Standard Specification for Expansive Hydraulic Cement
21. ASTM C881 – Standard Specification for Epoxy Resin Base Bonding Systems for Concrete.
22. ASTM C989 – Standard Specification for Slag Cement for Use in Concrete and Mortars.
23. ASTM C1017 – Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
24. ASTM C1059 – Standard Specification for Latex Agents for Bonding Fresh To Hardened Concrete.
25. ASTM C1064 – Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
26. ASTM C1077 – Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation.
27. ASTM C1116 – Standard Specification for Fiber Reinforced Concrete.
28. ASTM C1240 – Standard Specification for Silica Fume Used in Cementitious Mixtures.
29. ASTM D1751 – Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
30. ASTM D2240 – Standard Test Method for Rubber Property – Durometer Hardness.
31. ASTM E329 – Standard Specification for Agencies Engaged in Construction Inspection, Special Inspection, or Testing Materials Used in Construction.
32. ASTM E1155 – Standard Test Method for Determining F_F Floor Flatness and F_L Floor Levelness Numbers.

1.03 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with project specifications.

1.04 SUBMITTALS

A. Submit under the provisions of Division 1 - Section 01330 – Submittal Procedures.

B. Product Data: Submit data on joint devices, attachment accessories, admixtures, form release agents and bonding agent.

C. Material Certifications: For each item listed, submit information indicated.

1. Coarse and Fine Aggregate

   a. Producer Name.
   b. Quarry Location.
   c. Contact Person and Phone Number.
   d. Material Test Reports: From a qualified testing agency, indicating compliance with requirements.

2. Cement

   a. Mill Test Report.
   b. Producer Name and Location.

3. Water

   a. Specify Potable Water Source.

D. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, use of additional admixtures, Project conditions, weather, test results, or other circumstances warrant adjustments. Design Mixtures shall be reviewed according to the provisions of ACI 301.

1. Indicate amounts of mixing water to be withheld for later addition at Project site.
2. Test Mix B submit cement mortar in accordance with ASTM C806 and submit results. Testing lab shall be approved by cement manufacturers.
3. Trial batches of concrete Mix B shall be tested in accordance with ASTM C878. Testing lab shall be approved by cement manufactures.

E. Concrete Mix Properties:

1. Mix Design

   a. Cementitious Materials (Lbs./C.Y.)
   b. Fine Aggregate (Lbs./C.Y.)
   c. Coarse Aggregate (Lbs./C.Y.)
   d. Water (Lbs./C.Y.)
   e. Admixtures.

2. Slump.
3. Air Content.

F. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

G. Minutes of pre-placement conference.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301

1. Maintain one copy of document on site.

B. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

C. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94 requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
2. Engineer reserves the right to reject Manufacturer at any time and to require Contractor to obtain different supplier.

D. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

E. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

F. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

G. Pre-placement Conference: Conduct conference a minimum of 15 days prior to placement of concrete at project site.

1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete manufacturer.
d. Concrete subcontractor.
e. Special concrete finish subcontractor

2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, shoring and reshoring procedures, vapor-retarder

installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, concrete repair procedures, and concrete protection.

1.06 PROJECT RECORD DOCUMENTS

A. Contractor shall accurately record actual locations of embedded utilities and components which are concealed from view.

1.07 COORDINATION

A. Coordinate Work under provisions of Division 1 – General Requirements.

PART 2 PRODUCTS

2.01 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type II. Supplement with the following:

a. Expansive Cement: ASTM C845, Type K for use in Mix B only.
b. Fly Ash: ASTM C 618, Class F.
c. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Silica Fume: ASTM C 1240, amorphous silica.

C. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.

1. Maximum size of coarse aggregate shall be in accordance with guidelines listed below:

Max. Aggregate Size	Type of Structure
1/2 inch	Concrete Toppings and Concrete Repair
3/4 inch	Mud Slabs, Stairs and Steps, Columns, Beams, Elevated Slabs, Flowable Fill
1 inch	Grade Beams, Equipment Pads, Slabs on Grade, Interior and Exterior Tank Walls, All Other Structures
1-1/2 inch	Caissons, Piles and Piers, Footings

D. Fine Aggregate: ASTM C 33, Free of materials with deleterious reactivity to alkali in cement.

E. Water: ASTM C 94 and potable.

2.02 ADMIXTURES

A. When required or permitted, admixtures shall conform to requirements specified below. Use of one or more admixtures in concrete shall be approved by Engineer prior to its use at job site.

B. Air-Entraining Admixture: ASTM C 260.

C. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494, Type A.
2. Retarding Admixture: ASTM C 494, Type B.
3. Accelerating Admixture: ASTM C 494, Type C.
4. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
5. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
6. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
7. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.
8. Shrinkage Reducing Admixture: ASTM C 494, Type S; Maximum Length Change, tested in accordance with ASTM C 157, of 0.030%.

D. Field Service: When requested, the Contractor shall arrange to have a qualified concrete technician employed by manufacturer be available to assist in proportioning concrete materials for optimum use, to advise on proper use of admixture and adjustment of concrete mix proportions to meet job site and climatic conditions.

2.03 FLOOR AND SLAB TREATMENTS

A. (Reserved)

2.04 LIQUID FLOOR TREATMENTS

A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.

1. Products: Subject to compliance with Project Specifications, provide one of the products specified.

a. ChemMasters; Chemisil Plus.
b. ChemTec Int'l; ChemTec One.
c. Conspec by Dayton Superior; Intraseal.
d. Curecrete Distribution Inc.; Ashford Formula.
e. Dayton Superior Corporation; Day-Chem Sure Hard (J-17).
f. Edoco by Dayton Superior; Titan Hard.
g. Euclid Chemical Company (The), an RPM company; Euco Diamond Hard.
h. Kaufman Products, Inc.; SureHard.
i. L&M Construction Chemicals, Inc.; Seal Hard.

j. Meadows, W. R., Inc.; LIQUI-HARD.
k. Metalcrete Industries; Floorsaver.
l. Nox-Crete Products Group; Duro-Nox.
m. Symons by Dayton Superior; Buff Hard.
n. US SPEC, Division of US Mix Products Company; US SPEC Industraseal.
o. Vexcon Chemicals, Inc.; Vexcon StarSeal PS Clear.
p. Or Engineer approved equal.

2.05 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, 1/2 inch thick (unless shown otherwise).

B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 per ASTM D 2240.

C. Latex Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:

1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

E. Sealant and Primer: As specified in Section 07920 – Joint Sealants.

2.06 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 4000 psi at 28 days when tested according to ASTM C 109.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.

3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109.

2.07 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 25 percent.
2. Combined Fly Ash and Pozzolan: 25 percent.
3. Ground Granulated Blast-Furnace Slag: 50 percent.
4. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
5. Silica Fume: 10 percent.
6. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
7. Combined Fly Ash or Pozzolans, Ground Granulated Blast-Furnace Slag, and Silica Fume: 50 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.30 percent by weight of cement.

D. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.08 CONCRETE MIXTURES FOR BUILDING AND TANK ELEMENTS

A. Mix Design A: Proportion normal-weight concrete mixture for all parts of Work as follows:

1. Minimum Compressive Strength: 2500 psi at 7 days, 4500 psi at 28 days
2. Maximum Water-Cementitious Materials Ratio: 0.42

3. Cementitious material: Type II required, fly ash optional
4. Slump: 4 inches; 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture
5. Air Content:

Max. Aggregate Size	Air Content (percent)
1/2 inch	7 ± 1.5
3/4 inch	6 ± 1.5
1 inch	6 ± 1.5
1-1/2 inch	5.5 ± 1.5

a. Interior floor slabs located indoors not subjected to exposure conditions shall not contain entrained air.

B. Mix Design B: Proportion normal-weight concrete mixture for First Flush Tank base slab as follows:

1. Minimum Compressive Strength: 2500 psi at 7 days, 4500 psi at 28 days
2. Maximum Water-Cementitious Materials Ratio: 0.45
3. Cementitious materials: Type II and Type K required; fly ash optional
4. Slump: 4 inches; 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture
5. Air Content:

Max. Aggregate Size	Air Content (percent)
1/2 inch	7 ± 1.5
3/4 inch	6 ± 1.5
1 inch	6 ± 1.5
1-1/2 inch	5.5 ± 1.5

a. Interior floor slabs located indoors not subjected to exposure conditions shall not contain entrained air.

2.09 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94 and ASTM C 1116.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
2. In addition to batch ticket information required by ASTM C 94, the following shall be provided:

a. Concrete Design Strength.
b. Type and amount of cement.
c. Class and amount of coal fly ash, or raw or calcined natural pozzolans, if present.
d. Class and amount of ground granulated blast furnace slag, if present.
e. Type and amount of silica fume, if present.
f. Type and amount of admixtures.

g. Type and amount of fiber reinforcement, if present.
h. Maximum size of aggregate.
i. Amount of water added at job site shall be noted on ticket. No water is to be added at job site unless acceptable to Engineer.

3. One copy of delivery ticket shall be furnished to Engineer at time truck arrives at job site.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify site conditions under provisions of Division 1 - General Requirements.

B. Verify requirements for concrete cover over reinforcement have been met.

C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed and positioned securely.

D. Verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

3.02 PREPARATION

A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.

B. In locations where new concrete is dowelled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink or epoxy grout, unless noted otherwise.

C. Contractor shall inform Engineer 24 hours in advance of any concrete pours, indicating location and size of pour by submitting completed pre-pour checklist.

3.03 CONCRETE PLACEMENT

A. Concrete shall be conveyed and placed in conformance with ACI 301. Contractor shall instruct laborers on proper vibration techniques required for each situation.

B. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

C. Delivery of mixed concrete shall be regulated so that there will not be an interruption of more than 20 minutes duration in placement of concrete. Engineer may waive these requirements if slump and temperature requirements are met without adding water.

D. At beginning of concrete placement, a spare vibrator shall be on job site in addition to vibrators to be used during placement.

E. If electrical power for equipment used in the concrete placement is provided by a portable electric generator, an additional back-up portable electric generator or an alternate reliable electrical source shall be available prior to and during the concrete placement.

F. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints in accordance with Contract Documents. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints. Concrete placed in vertical forms shall be placed in lifts of not more than 2 feet which shall be kept practically level.
2. Chutes shall extend as nearly as practicable to point of deposit. Concrete shall not be dropped more than 6 feet. For walls or column placements in excess of 6 feet vertical height, tremie shall be used in placing concrete. If reinforcing steel or formwork is such that tremie cannot be used, method of placement shall be approved by Engineer.
3. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
4. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

G. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

H. Pumping Concrete: Comply with ACI 301 and as follows.

1. Selection of pipe diameter for pumping shall be such that smallest inside diameter is no less than 4 inches or 3 times nominal maximum size coarse aggregate, whichever is greater.
2. Pumping lines shall be lubricated with minimum of 1 cubic yard of grout prior to pumping regular mix through lines.
3. Contractor shall show sufficient evidence prior to use of pump that mix is pumpable. This shall be accomplished by submittal, in accordance with Specification Section 01330, of a certification from supplier that mix has

performed satisfactorily on previous jobs of similar nature or by performing full scale field test for pumpability with line height and other variables being identical (or nearly so) to that of actual placing conditions.

I. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

J. Hot-Weather Placement: Comply with ACI 305.1 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.04 FINISHING FORMED SURFACES

A. Defects in new concrete such as rock pockets and tie holes shall be repaired when forms are removed. Grout used for repair shall contain a bonding admixture conforming to ASTM C1059, Type II. Use admixture according to manufacturer's written instructions. This shall be done for all surface finishes of formed concrete surfaces.

1. Snap-off form ties shall be removed to a point 1" beneath surface of concrete and resulting depression shall be carefully pointed with grout.
2. Removable form tie holes shall be plugged with X-Plug by Greenstreak, or Engineer approved equal, and packed with grout.

B. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched.

1. Apply to concrete surfaces to be covered by earth fill.

C. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to exposed concrete surfaces and submerged surfaces.

D. Scrubbed Finish: Apply the following to smooth-formed finished as-cast concrete surfaces indicated on plans:

1. Wet down the entire area and fill all air pockets, voids and other depressions with grout to produce a smooth dense surface free from pits and other irregularities. Thoroughly scrub into the wetted surface a mortar mixture consisting of 1 part well graded sand passing the No. 30 sieve, 1 part portland cement and a sufficient quantity of a bonding admixture (described previously) to produce a workable mixture. Scrubbing shall be accomplished by use of a rubber or wood float following by finishing with a cork float or a light brush. The resulting surface shall be true and uniform, with no discernible thickness of mortar on the surface.
2. Finish shall extend a minimum of one foot below final grade.

E. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

F. Edges and corners of structures, which are exposed in the completed structures, shall be chamfered 3/4 inch, unless noted otherwise.

3.05 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 301 recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.

1. Apply scratch finish to surfaces to be covered with fill material and surfaces to receive concrete toppings.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish and to be covered with built-up or membrane roofing.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view and to clarifier floor grout.

E. Broom Finish: In lieu of final troweling, apply a broom finish to exterior concrete slabs, sidewalks, platforms, steps, ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Engineer before application.

F. Edges and corners of structures, which are exposed in the completed structures, shall be chamfered 3/4 inch, unless noted otherwise. Edges of walks and slabs on grade shall be finished with an edging tool.

G. Walks and slabs on grade shall have contraction joints scored in the concrete to control cracking. The spacing of the scored joints shall be equal to the width of the walk or slab unless otherwise specified or noted on the plans.

3.06 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

C. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel finish concrete surfaces.

3.07 SCHEDULE - JOINT FILLERS

A. Sealants: As specified in 07920 – Joint Sealants.

3.08 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when directed by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water and/or bonding agent for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.

2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Engineer.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4 inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
5. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Engineer's approval.

3.09 PLANT QUALITY CONTROL

A. Sufficient testing shall be done by the supplier to assure the quality and consistency of the mix produced. The field tests are not to be used as a gauge of this quality.

3.10 FIELD QUALITY CONTROL

A. Provide under provisions of Division 1 - General Requirements.

B. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.

    a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143; one test at point of delivery for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
5. Compression Test Specimens: ASTM C 31.

    a. Cast and laboratory cure one set of four standard cylinder specimens for each composite sample.
    b. Where the Contractor intends to remove load supporting forms (when conditions permit), cast and field cure one set of four standard cylinder specimens for each composite sample. Field curing shall continue up to within four hours prior to laboratory testing. The Contractor shall be responsible for the safe field storage of the concrete cylinders during the field curing process.

6. Compressive-Strength Tests: ASTM C 39; test one laboratory-cured specimen at 7 days and two specimens at 28 days. The fourth cylinder shall be held for testing as a check cylinder.

    a. A 28 day compressive-strength test shall be the average compressive strength of two specimens obtained from same composite sample.

7. Test results shall be submitted in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain:

    a. Project identification name and number
    b. Name of concrete testing and inspecting agency
    c. Date of concrete placement
    d. Date of compressive strength test
    e. Location of concrete batch in Work
    f. Design compressive strength at 28 days

g. Mix design designation
h. Slump of concrete
i. Temperature of concrete at placement
j. Percent air entrained
k. Number of specimens tested
l. Compressive breaking strength
m. Type of break for both 7- and 28-day tests

8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
9. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer.

   a. If compressive strength requirements are not met, steps shall be taken to increase average of subsequent strength test results. Engineer shall have right to order a change in proportions of mix for remaining work. Engineer shall also have right to require conditions of temperature and moisture necessary to secure required strength.
   b. If any strength test of laboratory-cured cylinders falls below specified compressive strength by more than 500 psi or if tests of field-cured cylinders indicate deficiencies in protection or curing, steps shall be taken to assure that the load-carrying capacity of structure is not jeopardized.
   c. If likelihood of low-strength concrete is confirmed and computations indicate that load-carrying capacity may have been significantly reduced, tests of cores drilled from area in question may be required in accordance with ASTM C 42. In such cases, three cores shall be taken for each strength test more than 500 psi below specified compressive strength. If concrete in structure will be dry under service condition, cores shall be air dried (temperature 60° to 80° F., relative humidity less than 60%) for 7 days before test and shall be tested dry. If concrete in structure will be more than superficially wet under service conditions, cores shall be immersed in water for at least 40 hours and be tested wet.
   d. Concrete in an area represented by core tests shall be considered structurally adequate if average of three cores is equal to at least 85% of specified compressive strength and if no single core is less than 75% of specified compressive strength. To check testing accuracy, locations represented by erratic core strengths may be retested.
   e. If criteria of paragraph (d) are not met, and if structural adequacy remains in doubt, the Engineer may order load tests as outlined in ACI 318 for questionable portion of structure or require other appropriate action.
   f. All costs associated with performing analytical investigations, core testing and load testing shall be paid for by Contractor.

10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
12. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

C. Measure floor and slab flatness and levelness according to ASTM E 1155 within 48 hours of finishing.

3.11 WATERTIGHTNESS

A. Upon completion of containment tank(s) and/or channels the following test shall be applied to determine watertightness:

1. Fill the tanks(s) and/or channels with water to the maximum level and let it stand for at least 24 hours.
2. Measure the drop in liquid level over the next 72 hours to determine the liquid volume loss for comparison with the allowable leakage. Evaporative losses shall be measured or calculated and deducted from the measured loss to determine the net liquid loss (leakage). The net liquid loss for a period of 24 hours shall not exceed 0.05 of 1 percent of the tank capacity.
3. Extension of test duration. If the leakage exceeds the maximum allowable, the leakage test shall be extended to a total of five days. If at the end of five days the average daily leakage does not exceed the maximum allowable, the test shall be considered satisfactory. If the net liquid loss exceeds the maximum allowable, leakage shall be considered excessive and the tank(s) and/or channels shall be repaired and retested until leakage falls within the appropriate limit.
4. Damp spots. Damp spots on the exterior wall surface or measurable leakage of water at the wall base shall not be permitted. Damp spots are defined as spots where moisture can be picked up on a dry hand. The source of water movement through the wall shall be located and permanently sealed in an acceptable manner. Leakage through the wall-base joint or footing shall likewise be corrected. Damp spots on the footing are generally to be expected and are permissible.

END OF SECTION 03300

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes initial and final curing, sealing of vertical foundation wall surfaces and exterior concrete flat work and curing, sealing and dust proofing of interior concrete floor slab surfaces.

B. Related Sections:

1. Section 01330 – Submittal Procedures
2. Section 03300 - Cast-In-Place Concrete

C. Reference to standards

1. AASHTO M182 – Standard Specification for Burlap Cloth Made from Jute or Kenaf and Cotton Mats.
2. ACI 301-10 – Specifications for Structural Concrete.
3. ACI 305.1-06 – Specification for Hot Weather Concreting.
4. ACI 306.1-90 – Standard Specification for Cold Weather Concreting.
5. ACI 308.1-11 – Standard Specification for Curing Concrete.
6. ASTM C171 – Standard Specification for Sheet Materials for Curing Concrete.
7. ASTM C309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
8. ASTM C1315 – Standard Specification for Liquid Membrane Forming Compounds Having Special Properties for Curing and Sealing Concrete.
9. ASTM D2103 – Standard Specification for Polyethylene Film and Sheeting.

1.03 DEFINITIONS

A. (RESERVED)

1.04 SUBMITTALS

A. Submit under the provisions of Division 1 - Section 01330 – Submittal Procedures.

B. Product Data: Provide data on curing compounds, including compatibilities and limitations.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301, ACI 305.1, ACI 306.1 and ACI 308.1.

1. Maintain one copy of each document on site.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle products under provisions of Division 1 - General Requirements.

B. Deliver curing materials in manufacturer's packaging including application instructions.

PART 2 PRODUCTS

2.01 EVAPORATION RETARDER:

A. Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Products: Subject to compliance with requirements, provide one of the products specified:

1. Axim Italcementi Group, Inc.; CATEXOL CimFilm.
2. BASF Construction Chemicals - Building Systems; Confilm.
3. ChemMasters; SprayFilm.
4. Conspec by Dayton Superior; Aquafilm.
5. Dayton Superior Corporation; Sure Film (J-74).
6. Edoco by Dayton Superior; BurkeFilm.
7. Euclid Chemical Company (The), an RPM company; Eucobar.
8. Kaufman Products, Inc.; Vapor-Aid.
9. Lambert Corporation; LAMBCO Skin.
10. L&M Construction Chemicals, Inc.; E-CON.
11. Meadows, W. R., Inc.; EVAPRE.
12. Metalcrete Industries; Waterhold.
13. Nox-Crete Products Group; MONOFILM.
14. Sika Corporation; SikaFilm.
15. SpecChem, LLC; Spec Film.
16. Symons by Dayton Superior; Finishing Aid.
17. TK Products, Division of Sierra Corporation; TK-2120 TRI-FILM.
18. Unitex; PRO-FILM.
19. Vexcon Chemicals, Inc.; Certi-Vex Envio Set.
20. Or Engineer approved equal.

2.02 ABSORPTIVE COVER:

A. AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

2.03 MOISTURE-RETAINING COVER:

A. ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

2.04 WATER:

A. ASTM C 94 and potable.

B. Engineer approved equal.

2.05 CLEAR, SOLVENT-BORNE, MEMBRANE-FORMING CURING AND SEALING COMPOUND:

A. ASTM C 1315, Type 1, Class A.

B. Products: Subject to compliance with requirements, provide one of the products specified.

1. BASF Construction Chemicals - Building Systems; Kure-N-Seal 25 LV.
2. ChemMasters; Spray-Cure & Seal Plus.
3. Conspec by Dayton Superior; Sealcure 1315.
4. Dayton Superior Corporation; Day-Chem Cure and Seal (J-22UV).
5. Edoco by Dayton Superior; Cureseal 1315.
6. Euclid Chemical Company (The), an RPM company; Super Diamond Clear; LusterSeal 300.
7. Kaufman Products, Inc.; Sure Cure 25.
8. Lambert Corporation; UV Super Seal.
9. L&M Construction Chemicals, Inc.; Lumiseal Plus.
10. Meadows, W. R., Inc.; CS-309/30.
11. Metalcrete Industries; Seal N Kure 30.
12. Right Pointe; Right Sheen 30.
13. Vexcon Chemicals, Inc.; Certi-Vex AC 1315.
14. Or Engineer approved equal.

C. COATING SCHEDULE

1. Exterior & Interior Concrete Foundation Walls: One coat application
2. Exterior Concrete Flatwork: One coat application
3. Interior Concrete Floor Slabs: Two coat application

PART 3 EXECUTION

3.01 INSPECTION

A. Verify substrate conditions under provisions of Division 1 - General Requirements.

B. Verify that substrate surfaces are ready to be cured.

3.02 CURING AND PROTECTION

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305.1 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb./sq. ft./hour before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

   a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
   b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
   c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.

3. Curing and Sealing Compound: Apply uniformly to surfaces indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a

second coat where indicated. Maintain continuity of coating and repair damage during curing period.

F. Cold Weather Concreting and Curing: Placing and protection of concrete shall be in conformance with ACI 306.1 and shall meet approval of Engineer prior to its use.

1. Contractor shall maintain temperature records of concrete. When concrete is placed, the time, date, weather conditions, outside air temperature and temperature of concrete shall be recorded. Temperatures shall be recorded at several locations (or as directed by Engineer) within enclosures and on concrete surfaces, edges and corners to obtain the range of temperatures. The maximum and minimum temperatures in each 24-hour period shall be recorded using measuring devices embedded in concrete surface or by placing thermometer against surface under temporary cover of thick insulation until a constant temperature is registered.

G. Hot Weather Concreting and Curing: Placing and protection of concrete shall be in conformance with ACI 305.1 and shall meet approval of Engineer prior to its use.

1. Contractor shall conform to ACI 305.1 when following conditions exist:

a. Any combination of high air temperature, low relative humidity and high wind velocity.
b. Any combination of rising air temperature and falling relative humidity.

2. Under hot weather conditions, Contractor shall be responsible for making arrangements for installation of windbreaks, shading, fog spraying, sprinkling, ponding or wet covering of light color. Arrangements shall be made in advance of placement and such protective measures shall be taken as quickly as concrete hardening and finishing operations will allow.

3.03 PROTECTION OF FINISHED WORK

A. Protect finished work under provisions Division 1 - General Requirements.

B. Do not permit traffic over unprotected floor surface.

3.04 FINAL ACCEPTANCE OF COMPLETE WORK

A. The work shall be complete in every detail and the finished work approved by the Architect / Engineer and Owner before final acceptance.

END OF SECTION 03390

PART 1 GENERAL

1.01 SECTION INCLUDES

A. The work under this section shall include product design, manufacture, transportation, erection and associated operations required to furnish and install the precast concrete hollow core panels as shown on the plans and specified herein.

B. RELATED WORK SPECIFIED ELSEWHERE

1. Section 03300 – Cast-In-Place Concrete.
2. Section 05500 – Metal Fabrications.
3. Section 07920 – Joint Sealants.
4. Division 15 – Mechanical.

1.02 QUALITY ASSURANCE

A. Manufacturing procedures shall be in general compliance with the Prestressed Concrete Institute Publication MNL-116.

B. Precast concrete units shall be fabricated at a PCI certified plant such as Spancrete, Inc., or equal.

C. Codes and Standards:

1. Precast Concrete Institute Publication MNL-116.
2. ACI 318-08 Building Code Requirements.

1.03 SUBMITTALS

A. Prior to proceeding with the fabrication and erection of the precast concrete units, the Contractor shall submit for approval of the Engineer complete shop drawings, setting plans and layout. The Contractor shall coordinate the shop drawing preparation with the mechanical and electrical sub-contractors for openings in the deck.

Shop drawings shall cover each type of precast prestressed concrete unit to be used and shall show the exact profile of each unit, steel reinforcement, embedded plates, insulation, and other pertinent details, including standard manufacturer's loading chart data for the specific span, as well as resisting moment, and manufacturer's specifications.

Setting plans shall be complete in every detail, including special conditions around the openings and anchorage details, and shall include manufacturer's printed erection instructions and sequence of operations.

1.04 DELIVERY, STORAGE AND HANDLING

A. After curing, units shall be stored, stacked and transported in a manner to prevent the development of cracks or other deformities. On site storage shall be such as to prevent cracking or deformation in the units. Units shall not be stored in mud.

1.05 WARRANTIES

A. These units are subject to the one-year warranty of the General Conditions.

PART 2 PRODUCTS

2.01 PRODUCTS

A. Precast Concrete Units (PC Roof Planks)

1. All precast concrete units for the deck shall be the product of a company regularly engaged in the manufacture of same, and shall be standard shape, machine made, prestressed concrete units produced under a rigid factory-inspected process approved by the Engineer. The finished product shall be free of honeycomb or voids, with straight, true edges and surfaces. Handling and conveying before curing shall be reduced to a minimum by the use of machinery designed to prevent bending or shock liable to produce incipient cracks or other deformities. Manufacturing procedures shall be in general compliance with the Prestressed Concrete Institute Publication MNL-116.
2. Precast prestressed concrete structural units shall conform to the requirements of ACI-318-08 code, except as otherwise specified or shown on the drawings.
3. Hollow core type slabs shall consist of precast prestressed slab units of monolithic concrete between structural supports, and reinforced to suit specified loading. Slabs shall be capable of supporting the minimum superimposed live load and dead load specified on the plans. Slabs shall be reinforced to resist stresses induced when slabs are continuous over supports. Provisions shall be made for any additional loads imposed on slabs to provide for openings or support the work of other trades which will affect the roof installation. In addition, the slabs shall be adequately reinforced to resist all handling stresses.
4. The ends of the precast sections shall be factory closed with the concrete used to make the unit, with ends square and smooth finish.

2.02 MATERIALS

A. Concrete

1. Cement

a. Cement shall be Portland cement equivalent of ASTM C150. <u>DO NOT</u> use admixtures containing calcium chloride.

2. Fine Aggregate

a. Fine aggregate shall conform to the requirements of ASTM C33.

3. Coarse Aggregate

a. Coarse aggregate shall conform to ASTM C33 or C330. The maximum size of the aggregate shall not be larger than ⅓ of the narrowest dimension between sides of the forms of the member for which the concrete is to be used nor larger than ¾ of the minimum clear spacing between reinforcing steel and sides of the forms except that where the concrete is placed by means of high frequency vibration the maximum size of the aggregate shall not be larger than ½ the narrowest dimension between sides of the forms.

4. Lightweight Aggregate

a. Lightweight aggregate shall conform to ASTM C330. The maximum sizes and other provisions of the above paragraph will apply.

5. Water

a. Water shall be clean, fresh and free from injurious amounts of mineral or organic substances.

B. Steel Reinforcement

1. Steel reinforcement for precast prestressed concrete units shall be as follows:

a. Prestressing Steel: Prestressing steel shall be uncoated seven wire stress relieved strand in accordance with ASTM A416, minimum ultimate tensile strength of 270,000 psi.
b. Bar Steel: Bar steel reinforcement shall conform to the requirements of ASTM A-615, Grade 60.
c. Wire Fabric: Wire fabric for reinforcement shall conform to the requirements of American Society for Testing Materials Standard Specification, Serial Designation A-185.

C. Bearing Strips

1. Bearing strips shall be ⅛-inch tempered hardboard, masonite, or equal; or ⅛-inch high density plastic, Korolath, or equal.

D. Grout

1. Grout used to fill cores where anchors are to be drilled-in or embedded shall be Type G1 non-shrink grout as specified in 2.02(A) of Section 03600 – Grout.

2.03 MANUFACTURE

A. Voids

1. Round or oval voids running lengthwise formed by deflatable tubing or augers.
2. Where indicated on the drawings at handrail post attachment, voids shall be eliminated.

B. Strand Placement

1. As required by design but not less than 1.125-inches from bottom of deck beam.

C. Length

1. Furnish in even whole inch increments.

D. UL Label

1. Provide Underwriter's Laboratories, Inc. Fire Resistance Classification Marking for one hour unrestrained rating.

E. Finishes

1. Underside: Resulting from casting against approved forms using good industry practice in cleaning of forms, design of concrete mix, placing and curing. Small surface holes caused by air bubbles, normal color variations, normal form joint marks, and minor chips and spalls will be tolerated, but no major or unsightly imperfections, honeycomb, or other defects will be permitted.
2. Top: A suitable finish shall be provided on top surfaces to receive roofing, and insulation.

PART 3 EXECUTION

3.01 TESTS

A. Precast prestressed concrete structural units shall be manufactured of concrete having a minimum compressive strength of 3,500 psi at time of initial prestress and 5,000 psi at 28-days when tested in conformance with the requirements of the American Society of Testing Materials Standard Method of Test C 39. Reports of tests on concrete taken from each mix used in the manufacture by an approved testing agency shall be submitted.

3.02 CURING

A. Curing of all precast concrete units shall be accomplished in a manner acceptable to the Engineer and in accordance with the following provisions.

1. The minimum amount of curing of precast concrete units shall consist in keeping the concrete damp for at least 7-days. For each decrement of 5 degrees below 70 degrees F. in the average curing temperature these curing periods shall be increased by 4-days.
2. Curing by high-pressure steam, steam vapor, or other accepted processes may be employed to accelerate the hardening of the cement and to reduce the time of curing; provided, however, the compressive strength of the concrete is at least equal to that obtained with the curing specified in 1 above and that the strength of time of initial prestress and the 28-day strength meets the requirements hereinafter specified.

3.03 MARKING

A. All precast prestressed concrete units shall be marked to identify the top side of the unit, the length, size and type of reinforcement and shall be identified for placement on the setting drawings.

3.04 INSTALLATION

A. Precast prestressed units shall be installed according to detailed setting drawings furnished by the manufacturer and approved by the Engineer. Placing shall be by experienced workmen in a manner to prevent excessive bending about either axis. Units shall be set to line with sides plumb. Structurally damaged units will not be acceptable.

B. The hollow core units shall be anchored as indicated and called for on the plans, and except as otherwise shown on drawings or specified shall be installed in accordance with the manufacturer's printed instructions.

C. Openings or holes in slab units for attachment of suspended hangers or other items to the slab units shall be made only in strict accordance with the manufacturer's printed recommendations and instructions.

D. The slab shall be grouted by a mixture of not less than one part cement to three parts fine sand, care being taken to see that all joints are filled. Any grout that may have seeped through to the ceiling below shall be removed before it hardens. The ceiling joints shall be caulked using a non-shrinking, non-staining thermo-plastic putty meeting the Federal Specification TT-C-598C.

3.05 REPAIR OF DEFECTS

A. Major or unsightly imperfections, honeycombs, or other defects shall be patched with grout prior to applying coating. Patching grout shall be Verticoat by Euclid Chemical Company, or equal.

B. Damaged units which cannot be repaired or repairs that are not acceptable to the Owner shall be replaced with acceptable units.

END OF SECTION 03415

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section Includes non-shrink grout, epoxy grout, vessel grout, waterproofing grout, fast setting grout, and mass application grout.

B. Related Sections:

1. Section 01330 – Submittal Procedures
2. Section 03100 – Concrete Formwork
3. Section 03200 – Concrete Reinforcement
4. Section 03300 – Cast-In-Place Concrete
5. Section 03390 – Concrete Curing

C. Reference to Standards:

1. ACI 301-10 – Specifications for Structural Concrete.
2. ASTM C31 – Standard Practice for Making and Curing Concrete Test Specimens in the Field.
3. ASTM C33 – Standard Specification for Concrete Aggregates.
4. ASTM C94 – Standard Specification for Ready Mixed Concrete.
5. ASTM C109 – Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.
6. ASTM C143 – Standard Test Method for Slump of Hydraulic Cement Concrete.
7. ASTM C150 – Standard Specification for Portland Cement.
8. ASTM C157 – Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete.
9. ASTM C172 – Standard Practice of Sampling Freshly Mixed Concrete.
10. ASTM C231 – Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
11. ASTM C260 – Standard Specification for Air Entraining Admixtures for Concrete.
12. ASTM C307 – Standard Test Method for Tensile Strength of Chemical Resistant Mortar, Grouts, and Monolithic Surfacings.
13. ASTM C494 – Standard Specification for Chemical Admixtures for Concrete.
14. ASTM 579 – Standard Test Methods for Compressive Strengths of Chemical Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.

15. ASTM 580 – Standard Test Methods for Flexural Strengths and Modulus of Elasticity of Chemical Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.
16. ASTM C884 – Standard Test Method for Thermal Compatibility Between Concrete and an Epoxy Resin Overlay.
17. ASTM C939 – Standard Test Method for Flow of Grout for Preplaced Aggregate Concrete (Flow Cone Method).
18. ASTM C1017 – Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
19. ASTM C1064 – Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
20. ASTM C1077 – Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation.
21. ASTM C 1090 – Standard Test Method for Measuring Changes in Height of Cylindrical Specimens of Hydraulic Cement Grout.
22. ASTM C1116 – Standard Specification for Fiber Reinforced Concrete.
23. ASTM C1181 – Standard Test Methods for Compressive Creep of Chemical Resistant Polymer Machinery Grouts.
24. ASTM E329 – Standard Specification for Agencies Engaged in Construction Inspection, Special Inspection, or Testing Materials Used in Construction.
25. COE CRD-C 621 – Non-Shrink Grout.

1.03 DEFINITIONS

A. (RESERVED)

1.04 SUBMITTALS

A. Submit under the provisions of Division 1 - Section 01330 – Submittal Procedures.

B. Product Data: Provide manufacturer's specifications, surface preparation and application methods.

C. Test Data: Provide confirmation of compliance with specified requirements.

D. Material Certifications: For each item listed, provide information indicated.

1. Aggregate

a. Producer Name.
b. Quarry Location.
c. Contact Person and Phone Number.
d. Material Test Reports: From a qualified testing agency, indicating compliance with requirements

2. Cement

a. Mill Test Report.
b. Producer Name and Location.

3. Water

a. Specify Potable Water Source.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.

B. Installer Qualifications: Firm with minimum 5 years documented experience with projects of similar scope, design, and materials.

C. Manufacturer Qualifications: Single manufacturer for each product with 20 years' experience in the production of products required by this section.

1. Engineer reserves the right to reject Manufacturer at any time and to require Contractor to obtain different supplier.

D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle products under provisions of Division 1 - General Requirements.

B. Deliver grouting materials in manufacturer's packaging including application instructions.

C. Store products according to manufacturer's instructions.

1.07 COORDINATION

A. Coordinate Work under provisions of Division 1 – General Requirements.

PART 2 PRODUCTS

2.01 GROUT MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I.

B. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.

C. Fine Aggregate: ASTM C 33, Free of materials with deleterious reactivity to alkali in cement.

D. Water: ASTM C 94 and potable.

2.02 GROUTS

A. Type G1: Non-Shrink Grout.

1. Description: Non-shrink, non-metallic grout.
2. Application: Grouts not specified as other types shall be Type G1.
3. Compliance:

    a. ASTM C 1107, Grades A, B, and C.
    b. COE CRD-C 621.

4. Positive Expansion: ASTM C 1090.
5. Minimum Compressive Strength, ASTM C 579:

    a. 3 days: 4000 psi
    b. 28 days: 7500 psi

6. ASTM C 939: Grout shall remain fluid for a working time of 30 minutes over a temperature range of 45 deg F to 90 deg F.

B. Type G2: Epoxy Grout.

1. Description: 3-part epoxy-resin-based grout.
2. Application: Bases for equipment 25 hp and greater; all other locations indicated on the Plans.
3. Thermal Compatibility with Concrete: ASTM C 884.
4. Minimum Compressive Strength, ASTM C 579:

    a. 1 day: 6000 psi
    b. 28 days: 11000 psi

5. Minimum Flexural Strength, ASTM C 580: 4000 psi.
6. Minimum Tensile Strength, ASTM C 307: 2000 psi.
7. Maximum Creep, ASTM C 1181: 4.0×10^{-3} in/in.

C. Type G3: Vessel Grout.

1. (RESERVED)

D. Type G4: Waterproofing Grout.

1. (RESERVED)

E. Type G5: Fast Setting Grout.

1. (RESERVED)

F. Type G6: Mass Application Grout.

1. Description: 1 part cement to 3 parts fine aggregate.
2. Application: As indicated on the plans.
3. Minimum Compressive Strength, ASTM C 579: 3000 psi at 28 days.
4. Slump, ASTM C 143: 7 inches.
5. Type G1 grout may be substituted for Type G6 grout.

2.03 RELATED MATERIALS

A. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify site conditions under provisions of Division 1 - General Requirements.

B. Inspect areas to receive grout. Do not proceed with grout work until surfaces and conditions comply with the requirements of the Engineer and/or manufacturer's written instructions.

3.02 PREPARATION

A. Prepare concrete surfaces in accordance with Engineer's and/or manufacturer's instructions.

B. Ensure concrete is a minimum of 7 days old.

C. Ensure concrete surfaces are clean and rough.

D. Provide surface preparation in accordance with grout manufacturer's requirements, or as directed by Engineer.

E. Apply a bonding agent to concrete surface as specified by grout manufacturer or as directed by Engineer.

F. Remove dirt, dust, oil, grease, debris, paint, curing compounds, sealers, and unsound concrete.

G. Saturate area to be grouted with water until uniformly damp. Remove excess water just before placing grout.

3.03 FORMS

A. Refer to Section 03100

B. Prepare forms in accordance with Engineer's and/or manufacturer's instructions.

3.04 MIXING

A. Mix grout in accordance with Engineer's and/or manufacturer's instructions.

B. Do not add water in an amount that will cause bleeding or segregation of mixed grout.

3.05 PLACEMENT

A. Place grout in accordance with Engineer's and/or manufacturer's instructions.

B. Shut down nearby equipment prior to placement. Avoid vibration for 24 hours after placement.

C. Pour and place grout from one side to eliminate air voids.

D. Grout may be rodded or tamped, but do not vibrate.

E. Use cold weather or hot weather grouting procedures in accordance with Engineer's and/or manufacturer's instructions, as temperature dictates.

F. Finish surface of grout in accordance with Engineer's and/or manufacturer's instructions.

3.06 FIELD QUALITY CONTROL

A. (RESERVED)

3.07 CURING

A. Refer to Specification Section 03390.

B. Cure grout in accordance with Engineer's and/or manufacturer's instructions.

3.08 PROTECTION

A. Protect placed grout from damage during construction.

B. Protect placed grout from freezing for a minimum of 7 days.

END OF SECTION 03600

MATTOON, ILLINOIS
RILEY CREEK CSO SATELLITE TREATMENT FACILITY – CONTRACT 1

DIVISION 4 – MASONRY

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PART 1 GENERAL

1.01 SUMMARY

A. This Section includes unit masonry assemblies consisting of the following:

1. Concrete masonry units (CMUs).
2. Decorative concrete masonry units.
3. Mortar and grout.
4. Reinforcing steel.
5. Masonry joint reinforcement.
6. Ties and anchors.
7. Embedded flashing.
8. Miscellaneous masonry accessories.

B. Related Sections include the following:

1. Division 3 Section 03300 – “Cast-In-Place Concrete”
2. Division 7 Section 07710 – “Manufacturers Roof Specialties” for parapet caps and copings.
3. Division 7 Section 07920 - "Joint Sealants" for sealing control and expansion joints in unit masonry.

1.02 DEFINITIONS

A. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.03 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For the following:

1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Show elevations of reinforced walls.
3. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.

C. Samples for Initial Selection: For the following:

1. Decorative concrete masonry units, in the form of small-scale units.

2. Colored mortar.
3. Weep holes/vents.

D. Samples for Verification: For each type and color of the following:

1. Pigmented mortar. Make Samples using same sand and mortar ingredients to be used on Project**.** Label Samples to indicate types and amounts of pigments used.
2. Weep holes/vents.

E. Material Certificates: Include statements of material properties indicating compliance with requirements including compliance with standards and type designations within standards. Provide for each type and size of the following:

1. Masonry units.

   a. Include material test reports substantiating compliance with requirements.
   b. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.

2. Cementitious materials. Include brand, type, and name of manufacturer.
3. Pre-blended, dry mortar mixes. Include description of type and proportions of ingredients.
4. Grout mixes. Include description of type and proportions of ingredients.
5. Reinforcing bars.
6. Joint reinforcement.
7. Anchors, ties, and metal accessories.

F. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports, per ASTM C 780, for mortar mixes required to comply with property specification.
2. Include test reports, per ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

G. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

H. Cold-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with cold-weather requirements.

1.04 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1093 for testing indicated, as documented according to ASTM E 548.

B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.

C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from a single manufacturer for each cementitious component and from one source or producer for each aggregate.

D. Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire-resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Deliver pre-blended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store pre-blended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.

E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

1.05 DELIVERY, STORAGE, AND HANDLING

1.06 PROJECT CONDITIONS

A. Extend cover a minimum of 24 inches (600 mm) down both sides and hold cover securely in place.

1. Where 1 wythe of multi-wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches (600 mm) down face next to unconstructed wythe and hold cover in place.

B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.

C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.

E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Products: Subject to compliance with requirements, provide one of the products specified.

2.02 MASONRY UNITS, GENERAL

A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to exceed tolerances and to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not uses units where such defects, including dimensions that vary from specified dimensions by more than

stated tolerances, will be exposed in the completed Work or will impair the quality of completed masonry.

2.03 CONCRETE MASONRY UNITS (CMUs)

A. Shapes: Provide shapes indicated and as follows:

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
2. Provide square-edged units for outside corners, unless otherwise indicated.

B. Integral Water Repellent: Provide units made with integral water repellent for exposed units.

1. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive according to ASTM E 514, with test period extended to 24 hours, show no visible water or leaks on the back of test specimen.

a. Products:

i. Addiment Incorporated; Block Plus W-10.
ii. Grace Construction Products, a unit of W. R. Grace & Co. - Conn.; Dry-Block.
iii. Master Builders, Inc.; Rheopel.

C. Concrete Masonry Units: ASTM C 90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi (13.1 MPa).
2. Weight Classification: Normal weight.
3. Nominal Size: 8” x 8” x 16"
4. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.

D. Decorative Concrete Masonry Units: ASTM C 90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi (13.1 MPa).
2. Weight Classification: Normal weight.
3. Nominal Size: 4” x 8” x 16", 12” x 8” x 16”.
4. Pattern and Texture:

a. Running bond and split-faced.

5. Colors: To be selected from manufacturer's standard colors.

6. Products: Meet specification requirements.
7. Integral water repellent as specified in 2.03.B. of this section.

2.04 MASONRY LINTELS

A. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam concrete masonry units with reinforcing bars placed as indicated and filled with coarse grout. Temporarily support built-in-place lintels until cured.

2.05 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of Portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207, Type S.

D. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortar.

1. Products:

a. Bayer Corporation, Industrial Chemicals Div.; Bayferrox Iron Oxide Pigments.
b. Davis Colors; True Tone Mortar Colors.
c. Solomon Grind-Chem Services, Inc.; SGS Mortar Colors.

E. Aggregate for Mortar: ASTM C 144.

1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
2. For joints less than 1/4 inch (6.5 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.
3. White-Mortar Aggregates: Natural white sand or crushed white stone.
4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

F. Aggregate for Grout: ASTM C 404.

G. Cold-Weather Admixture: Non-chloride, non-corrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

1. Products:

a. Addiment Incorporated; Mortar Kick.
b. Euclid Chemical Company (The); Accelguard 80.
c. Grace Construction Products, a unit of W. R. Grace & Co. - Conn.; Morset.
d. Sonneborn, Div. of ChemRex; Trimix-NCA.

H. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with concrete masonry units, containing integral water repellent by same manufacturer.

1. Products:

a. Addiment Incorporated; Mortar Tite.
b. Grace Construction Products, a unit of W. R. Grace & Co. - Conn.; Dry-Block Mortar Admixture.
c. Master Builders, Inc.; Color Cure Mortar Admix or Rheomix Rheopel.

I. Water: Potable.

2.06 REINFORCEMENT

A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60 (Grade 420).

B. Masonry Joint Reinforcement, General: ASTM A 951.

1. Interior Walls: Mill galvanized, carbon steel.
2. Exterior Walls: Hot-dip galvanized, carbon steel.
3. Wire Size for Side Rods: W1.7 or 0.148-inch (3.8-mm) diameter.
4. Wire Size for Cross Rods: W1.7 or 0.148-inch (3.8-mm) diameter.
5. Wire Size for Veneer Ties: W1.7 or 0.148-inch (3.8-mm) diameter.
6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches (407 mm) o.c.
7. Provide in lengths of not less than 10 feet (3 m), with prefabricated corner and tee units.

C. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

D. Masonry Joint Reinforcement for Multi-wythe Masonry:

1. Adjustable (two-piece) type, either ladder or truss design, with one side rod at each face shell of backing wythe and with separate ties that extend into facing wythe. Ties have two hooks that engage eyes or slots in reinforcement and resist movement perpendicular to wall. Ties extend at least halfway through facing wythe but with at least 5/8-inch (16-mm) cover on outside face. Ties have hooks or clips to engage a continuous horizontal wire in the facing wythe.

E. Masonry Joint Reinforcement for Veneers Anchored with Seismic Masonry-Veneer Anchors: Single 0.188-inch- (4.8-mm-) diameter, hot-dip galvanized, carbon-steel continuous wire.

2.07 TIES AND ANCHORS

A. Materials: Provide ties and anchors specified in subsequent paragraphs that are made from materials that comply with eight subparagraphs below, unless otherwise indicated.

1. Mill-Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 641/A 641M, Class 1 coating.
2. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 153/A 153M, Class B-2 coating.
3. Stainless-Steel Wire: ASTM A 580/A 580M, Type 304.
4. Galvanized Steel Sheet: ASTM A 653/A 653M, Commercial Steel, G60 (Z180) zinc coating.
5. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, hot-dip galvanized after fabrication to comply with ASTM A 153/A 153M.
6. Stainless-Steel Sheet: ASTM A 666, Type 304.
7. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
8. Stainless Steel bars: ASTM A 276 or ASTM a 666, Type 304.

B. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch (16-mm) cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches (50 mm) parallel to face of veneer.

C. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches (100 mm) wide.

1. Z-shaped ties with ends bent 90 degrees to provide hooks not less than 2 inches (50 mm) long may be used for masonry constructed from solid units or hollow units laid with cells horizontal.
2. Where wythes are of different materials, use adjustable ties with pintle-and-eye connections having a maximum adjustment of 1-1/4 inches (32 mm).
3. Wire: Fabricate from 3/16-inch- (4.8-mm-) diameter, hot-dip galvanized steel wire. Mill-galvanized wire ties may be used in interior walls, unless otherwise indicated.

2.08 EMBEDDED FLASHING MATERIALS

A. Metal Flashing: Provide metal flashing, where flashing is exposed or partly exposed and where indicated, complying with SMACNA's "Architectural Sheet Metal Manual" and as follows:

1. Stainless Steel: ASTM A 240/A 240M, Type 304, 0.016 inch (0.4 mm) thick.
2. Copper: ASTM B 370, Temper H00 or H01, cold-rolled copper sheet, 10-oz./sq. ft. (3-kg/sq. m) weight or 0.0135 inch (0.34 mm) thick for fully concealed flashing; 16-oz./sq. ft. (5-kg/sq. m) weight or 0.0216 inch (0.55 mm) thick elsewhere.
3. Fabricate continuous flashings in sections 96 inches (2400 mm) long minimum, but not exceeding 12 feet (3.6 m). Provide splice plates at joints of formed, smooth metal flashing.
4. Fabricate through-wall metal flashing embedded in masonry from stainless steel, with ribs at 3-inch (75-mm) intervals along length of flashing to provide an integral mortar bond.

    a. Products:

        i. Cheney Flashing Company; Cheney Flashing (Dovetail) or Cheney 3-Way Flashing (Sawtooth).
        ii. Keystone Flashing Company, Inc.; Keystone 3-Way Interlocking Thruwall Flashing.

5. Fabricate through-wall flashing with snaplock receiver on exterior face where indicated to receive counterflashing.
6. Fabricate through-wall flashing with drip edge, unless otherwise indicated. Fabricate by extending flashing 1/2 inch (13 mm) out from wall, with outer edge bent down 30 degrees [**and** hemmed].
7. Fabricate metal drip edges for ribbed metal flashing from plain metal flashing of same metal as ribbed flashing and extending at least 3 inches (75 mm) into wall with hemmed inner edge to receive ribbed flashing and form a hooked seam. Form hem on upper surface of metal so that completed seam will shed water.
8. Metal Drip Edges: Fabricate from stainless steel. Extend at least 3 inches (75 mm) into wall and 1/2 inch (13 mm) out from wall, with outer edge bent down 30 degrees [**and** hemmed].
9. Metal Flashing Terminations: Fabricate from stainless steel. Extend at least 3 inches (75 mm) into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4 inch (19 mm) and down into joint 3/8 inch (10 mm) to form a stop for retaining sealant backer rod.
10. Metal Expansion-Joint Strips: Fabricate from stainless steel to shapes indicated.

B. Flexible Flashing: For flashing not exposed to the exterior, use the following, unless otherwise indicated:

1. Copper-Laminated Flashing 7-oz./sq. ft. (2-kg/sq. m) copper sheet bonded with asphalt between 2 layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry.

    a. Products:

        i. Advanced Building Products Inc.; Copper Fabric Flashing.

ii. AFCO Products Inc.; Copper Fabric.
iii. Hohmann & Barnard, Inc.; H & B C-Fab Flashing.
iv. Phoenix Building Products; Type FCC-Fabric Covered Copper.
v. Polytite Manufacturing Corp.; Copper Fabric Flashing.
vi. Sandell Manufacturing Co., Inc.; Copper Fabric Flashing.
vii. York Manufacturing, Inc.; York Copper Fabric Flashing.

C. Solder and Sealants for Sheet Metal Flashings:

1. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
2. Solder for Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.
3. Elastomeric Sealant: ASTM C 920, chemically curing urethane sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

D. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

2.09 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Pre-molded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene, urethane or PVC.

B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

D. Weep/Vent Products: Use the following unless otherwise indicated:

1. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, full height and width of head joint and depth 1/8 inch (3 mm) less than depth of outer wythe, in color selected from manufacturer’s standard.

2.10 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces.

Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

1. Manufacturers:

   a. Diedrich Technologies, Inc.
   b. EaCo Chem, Inc.
   c. ProSoCo, Inc.

2.11 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.

   1. Do not use calcium chloride in mortar or grout.
   2. Limit cementitious materials in mortar to Portland cement and lime.
   3. Limit cementitious materials in mortar for exterior and reinforced masonry to Portland cement and lime.
   4. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

B. Pre-blended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a pre-blended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.

   1. For masonry below grade or in contact with earth, use Type M.
   2. For reinforced masonry, use Type S.
   3. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.
   4. For interior non-load-bearing partitions, Type O may be used instead of Type N.

D. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.

   1. Pigments shall not exceed 10 percent of Portland cement by weight.

E. Grout for Unit Masonry: Comply with ASTM C 476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
2. Provide grout with a slump of 8 to 11 inches (200 to 280 mm) as measured according to ASTM C 143/C 143M.

2.12 SOURCE QUALITY CONTROL

A. Concrete Masonry Unit Test: For each type of unit furnished, per ASTM C 140.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
2. Verify that foundations are within tolerances specified.
3. Verify that reinforcing dowels are properly placed.

B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION, GENERAL

A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.

B. Build chases and recesses to accommodate items specified in this and other Sections.

C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.

D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.

1. Mix units from several pallets or cubes as they are placed.

F. Comply with construction tolerances in ACI 530.1/ASCE 6/TMS 602 and with the following:

1. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
2. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2 inch (12 mm) maximum.
3. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
4. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm). Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch (3 mm).
5. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm). Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch (3 mm).
6. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch (1.5 mm) except due to warpage of masonry units within tolerances specified for warpage of units.
7. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch (1.5 mm) from one masonry unit to the next.

3.03 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 8-inch (100-mm) horizontal face dimensions at corners or jambs.

C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 8-inches (100-mm). Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.

D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry

surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

F. Fill space between steel frames and masonry solidly with mortar, unless otherwise indicated.

G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.

H. Fill cores in hollow concrete masonry units with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

I. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above, unless otherwise indicated.

1. Install compressible filler in joint between top of partition and underside of structure above.
2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch (13-mm) clearance between end of anchor rod and end of tube. Space anchors 48 inches (1200 mm) o.c., unless otherwise indicated.
3. Wedge non-load-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.
4. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Division 7 Section "Fire-Resistive Joint Systems."

3.04 MORTAR BEDDING AND JOINTING

A. Lay hollow concrete masonry units as follows:

1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.

D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint), unless otherwise indicated.

3.05 MASONRY JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (16 mm) on exterior side of walls, 1/2 inch (13 mm) elsewhere. Lap reinforcement a minimum of 6 inches (150 mm).

1. Space reinforcement not more than 16 inches (406 mm) o.c.
2. Space reinforcement not more than 8 inches (203 mm) o.c. in foundation walls and parapet walls.
3. Provide reinforcement not more than 8 inches (203 mm) above and below wall openings and extending 12 inches (305 mm) beyond openings.

    a. Reinforcement above is in addition to continuous reinforcement.

B. Interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.

C. Provide continuity at wall intersections by using prefabricated T-shaped units.

D. Provide continuity at corners by using prefabricated L-shaped units.

E. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, pipe enclosures, and other special conditions.

3.06 ANCHORING MASONRY TO STRUCTURAL MEMBERS

A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:

1. Provide an open space not less than 1 inch (25 mm) in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar and other rigid materials.
2. Anchor masonry to structural members with anchors embedded in masonry joints and attached to structure.
3. Space anchors as indicated, but not more than 24 inches (610 mm) o.c. vertically and 36 inches (915 mm) o.c. horizontally.

3.07 CONTROL AND EXPANSION JOINTS

A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.

B. Form control joints in concrete masonry using one of the following methods:

1. Fit bond-breaker strips into hollow contour in ends of concrete masonry units on one side of control joint. Fill resultant core with grout and rake out joints in exposed faces for application of sealant.
2. Install preformed control-joint gaskets designed to fit standard sash block.
3. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar or rake out joint for application of sealant.
4. Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete for application of sealant.

C. Provide horizontal, pressure-relieving joints by either leaving an air space or inserting a compressible filler of width required for installing sealant and backer rod specified in Division 7 Section "Joint Sealants," but not less than 3/8 inch (10 mm).

1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry.

3.08 LINTELS

A. Install steel lintels where indicated.

B. Provide masonry lintels where shown and where openings of more than 12 inches (305 mm) for brick-size units and 24 inches (610 mm) for block-size units are shown without structural steel or other supporting lintels.

C. Provide minimum bearing of 8 inches (200 mm) at each jamb, unless otherwise indicated.

3.09 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

B. Install flashing as follows, unless otherwise indicated:

1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
2. At multi-wythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 8 inches (200 mm), and through inner wythe to within 1/2 inch (13 mm) of the interior face of wall in exposed masonry. Where interior face of wall is to receive furring or

framing, carry flashing completely through inner wythe and turn flashing up approximately 2 inches (50 mm) on interior face.

3. At multi-wythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 8 inches (200 mm), and 1-1/2 inches (38 mm) into the inner wythe.
4. At lintels and shelf angles, extend flashing a minimum of 6 inches (150 mm) into masonry at each end. At heads and sills, extend flashing 6 inches (150 mm) at ends and turn up not less than 2 inches (50 mm) to form end dams.
5. Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches (38 mm) or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.
6. Install metal drip edges and sealant stops with ribbed sheet metal flashing by interlocking hemmed edges to form hooked seam. Seal seam with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.
7. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch (13 mm) back from outside face of wall and adhere flexible flashing to top of metal drip edge.
8. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch (13 mm) back from outside face of wall and adhere flexible flashing to top of metal flashing termination.
9. Cut flexible flashing off flush with face of wall after masonry wall construction is completed.

C. Install single-wythe CMU flashing system in bed joints of CMU walls where indicated to comply with manufacturer's written instructions. Install CMU cell pans with upturned edges located below face shells and webs of CMUs above and with weep spouts aligned with face of wall. Install CMU web covers so that they cover upturned edges of CMU cell pans at CMU webs and extend from face shell to face shell.

D. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.

E. Install vents in head joints in exterior wythes at spacing indicated. Use specified weep/vent products to form vents.

1. Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.

3.10 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in ACI 530.1/ ASCE 6/TMS 602.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to not more than [60 inches (1520 mm)].

3.11 REPAIRING, POINTING, AND CLEANING

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

3.12 MASONRY WASTE DISPOSAL

A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

END OF SECTION 04810

MATTOON, ILLINOIS
RILEY CREEK CSO SATELLITE TREATMENT FACILITY – CONTRACT 1

DIVISION 5 – METALS

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PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:

1. Non composite form deck

B. Related Requirements:

1. Division 03 Section 03300- "Cast-in-Place Concrete" for normal-weight and lightweight structural concrete fill over steel deck.
2. Division 05 Section 055000 "Metal Fabrications" for framing deck openings with miscellaneous steel shapes.
3. Division 09 Section 09960 – “High Performance Coatings” for repair painting of primed deck and finish painting of deck.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of deck, accessory, and product indicated.

B. Shop Drawings:

1. Include layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.

1.04 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Product Certificates: For each type of steel deck.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that each of the following complies with requirements:

1. Powder-actuated mechanical fasteners.

2. Acoustical roof deck.

D. Evaluation Reports: For steel deck.

E. Field quality-control reports.

1.05 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."

C. Electrical Raceway Units: Provide UL-labeled cellular floor-deck units complying with UL 209 and listed in UL's "Electrical Construction Equipment Directory" for use with standard header ducts and outlets for electrical distribution systems.

D. FM Global Listing: Provide steel roof deck evaluated by FM Global and listed in its "Approval Guide, Building Materials" for Class 1 fire rating and Class 1-90 windstorm ratings.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

1. Protect and ventilate acoustical cellular roof deck with factory-installed insulation to maintain insulation free of moisture.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

B. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

C. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.02 NONCOMPOSITE FORM DECK

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Consolidated Systems, Inc.; Metal Dek Group.
2. New Millennium Building Systems, LLC.
3. Nucor Corp.; Vulcraft Group.
4. Roof Deck, Inc.
5. Verco Manufacturing Co.
6. Wheeling Corrugating Company; Div. of Wheeling-Pittsburgh Steel Corporation.
7. Or Engineer approved equal.

B. Noncomposite Form Deck: Fabricate ribbed-steel sheet noncomposite form-deck panels to comply with "SDI Specifications and Commentary for Noncomposite Steel Form Deck," in SDI Publication No. 31, with the minimum section properties indicated, and with the following:

1. Galvanized and Shop-Primed Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 33 (230), G60 (Z180) zinc coating; cleaned, pretreated, and primed with manufacturer's standard baked-on, rust-inhibitive primer.

   a. Color: Gray top surface with white underside.

2. Profile Depth: 1 inch.
3. Design Uncoated-Steel Thickness: 0.0298 inch (22 Ga.).
4. Span Condition: Simple span.
5. Side Laps: Overlapped or interlocking seam at Contractor's option.

2.03 ACCESSORIES

A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.

D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.

E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi (230 MPa), not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.

F. Pour Stops and Girder Fillers: Steel sheet, minimum yield strength of 33,000 psi (230 MPa), of same material and finish as deck, and of thickness and profile recommended by SDI Publication No. 31 for overhang and slab depth.

G. Column Closures, End Closures, Z-Closures, and Cover Plates: Steel sheet, of same material, finish, and thickness as deck unless otherwise indicated.

H. Piercing Hanger Tabs: Piercing steel sheet hanger attachment devices for use with floor deck.

I. Weld Washers: Uncoated steel sheet, shaped to fit deck rib, 0.0747 inch thick, with factory-punched hole of 3/8-inch minimum diameter.

J. Flat Sump Plates: Single-piece steel sheet, 0.0747 inch thick, of same material and finish as deck. For drains, cut holes in the field.

K. Recessed Sump Pans: Single-piece steel sheet, 0.0747 inch thick, of same material and finish as deck, with 3-inch-wide flanges and level recessed pans of 1-1/2-inch minimum depth. For drains, cut holes in the field.

L. Galvanizing Repair Paint: ASTM A 780.

M. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION, GENERAL

A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer's written instructions, and requirements in this Section.

B. Install temporary shoring before placing deck panels if required to meet deflection limitations.

C. Locate deck bundles to prevent overloading of supporting members.

D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.

F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.

H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

3.03 FLOOR-DECK INSTALLATION

A. Fasten floor-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated and as follows:

1. Weld Diameter: 5/8 inch, nominal.
2. Weld Spacing: Weld edge ribs of panels at each support. Space additional welds an average of 12 inches apart, but not more than 18 inches apart.
3. Weld Washers: Install weld washers at each weld location.

B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of half of the span or 36 inches, and as follows:

1. Mechanically fasten with self-drilling, No. 10 diameter or larger, carbon-steel screws.
2. Mechanically clinch or button punch.
3. Fasten with a minimum of 1-1/2-inch-long welds.

C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 2 inches, with end joints as follows:

1. End Joints: Lapped.

D. Pour Stops and Girder Fillers: Weld steel sheet pour stops and girder fillers to supporting structure according to SDI recommendations unless otherwise indicated.

E. Floor-Deck Closures: Weld steel sheet column closures, cell closures, and Z-closures to deck, according to SDI recommendations, to provide tight-fitting closures at open ends of ribs and sides of deck.

3.04 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Field welds will be subject to inspection.

C. Testing agency will report inspection results promptly and in writing to Contractor and Architect.

D. Remove and replace work that does not comply with specified requirements.

E. Additional inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

3.05 PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

B. Repair Painting: Wire brush and clean rust spots, welds, and abraded areas on both surfaces of prime-painted deck immediately after installation, and apply repair paint.
   1. Wire brushing, cleaning, and repair painting of bottom deck surfaces are included in Division 09 Section "High Performance Coatings."

C. Repair Painting: Wire brushing, cleaning, and repair painting of rust spots, welds, and abraded areas of both deck surfaces are included in Division 09 Section "High Performance Coatings."

D. Provide final protection and maintain conditions to ensure that steel deck is without damage or deterioration at time of Substantial Completion.

END OF SECTION 053100

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:

1. Steel framing and supports for overhead doors and grilles.
2. Steel framing and supports for mechanical and electrical equipment.
3. Steel framing and supports for applications where framing and supports are not specified in other Sections.
4. Shelf angles.
5. Metal ladders.
6. Loose bearing and leveling plates for applications where they are not specified in other Sections.
7. Aluminum Hatches

B. Products furnished, but not installed, under this Section:

1. Loose steel lintels.
2. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
3. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.

C. Related Sections:

1. Division 03 Section 03300 - "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, slotted-channel inserts, wedge-type inserts, and other items cast into concrete.
2. Division 04 Section 04810 - "Unit Masonry" for installing loose lintels, anchor bolts, and other items built into unit masonry.
3. Division 05 Section 05510 - "Metal Stairs."
4. Division 05 Section 05520 - "Handrails and Railings."
5. Division 05 Section 05532 - "FRP Gratings."

1.03 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design ladders and alternating tread devices, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance of Metal Ladders: Metal ladders, including landings**,** shall withstand the effects of loads and stresses within limits and under conditions specified in ANSI A14.3.

C. Structural Performance of Alternating Tread Devices: Alternating tread devices shall withstand the effects of loads and stresses within limits and under conditions specified in ICC's International Building Code.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

   1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.04 SUBMITTALS

A. Product Data: For the following:

   1. Metal nosings and treads.
   2. Paint products.
   3. Grout.

B. LEED Submittals: (Reserved)

C. Shop Drawings: Show fabrication and installation details for metal fabrications.

   1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

D. Delegated-Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

E. Mill Certificates: Signed by manufacturers of stainless-steel certifying that products furnished comply with requirements.

F. Welding certificates.

G. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.

1.05 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
3. AWS D1.6, "Structural Welding Code - Stainless Steel."

1.06 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

1.07 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorages and steel weld plates and angles for casting into concrete. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 PRODUCTS

2.01 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.02 FERROUS METALS

A. Steel Plates, Non-W Shapes, and Bars: ASTM A 36.

B. W Shapes: ASTM A992, Grade 50

C. Stainless-Steel Sheet, Strip, and Plate: ASTM A 240 or ASTM A 666, as indicated.

D. Stainless-Steel Bars and Shapes: ASTM A 276, as indicated.

E. Rolled-Steel Floor Plate: ASTM A 786, rolled from plate complying with ASTM A 36 or ASTM A 283, Grade C or D.

F. Rolled-Stainless-Steel Floor Plate: ASTM A 793.

G. Abrasive-Surface Floor Plate: (Reserved)

H. Steel Tubing: ASTM A 500, cold-formed steel tubing, Grade B.

I. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40) unless otherwise indicated.

J. Cast Iron: Either gray iron, ASTM A 48/A 48M, or malleable iron, ASTM A 47/A 47M, unless otherwise indicated.

2.03 NONFERROUS METALS

A. Aluminum Plate and Sheet: ASTM B 209, Alloy 6061-T6.

B. Aluminum Extrusions: ASTM B 221, Alloy 6063-T6.

C. Aluminum-Alloy Rolled Tread Plate: ASTM B 632, Alloy 6061-T6.

D. Aluminum Castings: ASTM B 26, Alloy 443.0-F.

E. Bronze Plate, Sheet, Strip, and Bars: ASTM B 36, Alloy UNS No. C28000 (muntz metal, 60 percent copper).

F. Bronze Extrusions: ASTM B 455, Alloy UNS No. C38500 (extruded architectural bronze).

G. Bronze Castings: ASTM B 584, Alloy UNS No. C83600 (leaded red brass) or No. C84400 (leaded semired brass).

H. Nickel Silver Extrusions: ASTM B 151, Alloy UNS No. C74500.

I. Nickel Silver Castings: ASTM B 584, Alloy UNS No. C97600 (20 percent leaded nickel bronze).

2.04 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

1. Provide stainless-steel fasteners for fastening aluminum.
2. Provide stainless-steel fasteners for fastening stainless steel.
3. Provide stainless-steel fasteners for fastening nickel silver.
4. Provide bronze fasteners for fastening bronze.

B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.

C. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 325, Type 3; with hex nuts, ASTM A 563, Grade C3; and, where indicated, flat washers.

D. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F 593; with hex nuts, ASTM F 594; and, where indicated, flat washers; Alloy Group 1 (A1).

E. Anchor Bolts: ASTM F 1554, Grade 36, of dimensions indicated; with nuts, ASTM A 563; and, where indicated, flat washers.

1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.

F. Eyebolts: ASTM A 489.

G. Machine Screws: ASME B18.6.3 (ASME B18.6.7M).

H. Lag Screws: ASME B18.2.1 (ASME B18.2.3.8M).

I. Wood Screws: Flat head, ASME B18.6.1.

J. Plain Washers: Round, ASME B18.22.1 (ASME B18.22M).

K. Lock Washers: Helical, spring type, ASME B18.21.1 (ASME B18.21.2M).

L. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.

M. Cast-in-Place Anchors in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F 2329.

N. Post-Installed Anchors: Adhesive chemical anchors.

1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.
2. Material for Exterior Locations and Where Stainless Steel is Indicated: Alloy Group 1 (A1) stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594, unless otherwise indicated.

O. Slotted-Channel Inserts: Cold-formed, hot-dip galvanized-steel box channels (struts) complying with MFMA-4, 1-5/8 by 7/8 inches by length indicated with anchor straps or studs not less than 3 inches long at not more than 8 inches o.c. Provide with temporary filler and tee-head bolts, complete with washers and nuts, all zinc-plated to comply with ASTM B 633, Class Fe/Zn 5, as needed for fastening to inserts.

2.05 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

B. Shop Primers: Provide primers that comply with Division 09 painting Sections and Division 09 Section "High-Performance Coatings."

C. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.

   1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

D. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

E. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

F. Nonshrink, Metallic Grout: Factory-packaged, ferrous-aggregate grout complying with ASTM C 1107, specifically recommended by manufacturer for heavy-duty loading applications.

G. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107 on Section 03600 of these specification. Provide grout specifically recommended by manufacturer for interior and exterior applications.

H. Concrete: Comply with requirements in Division 03 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, concrete with a minimum 28-day compressive strength of 4000 psi.

2.06 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work with accurate angles and surfaces and straight edges.

E. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.

G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.07 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

1. Fabricate units from slotted channel framing where indicated.
2. Furnish inserts for units installed after concrete is placed.

C. Fabricate steel girders for wood frame construction from continuous steel shapes of sizes indicated.

1. Provide bearing plates welded to beams where indicated.
2. Drill or punch girders and plates for field-bolted connections where indicated.
3. Where wood nailers are attached to girders with bolts or lag screws, drill or punch holes at 24 inches o.c.

D. Fabricate steel pipe columns for supporting wood frame construction from steel pipe with steel baseplates and top plates as indicated. Drill or punch baseplates and top

plates for anchor and connection bolts and weld to pipe with fillet welds all around. Make welds the same size as pipe wall thickness unless otherwise indicated.

1. Unless otherwise indicated, fabricate from Schedule 40 steel pipe.
2. Unless otherwise indicated, provide 1/2-inch baseplates with four 5/8-inch anchor bolts and 1/4-inch top plates.

E. Galvanize miscellaneous framing and supports where indicated.

2.09 SHELF ANGLES

A. Fabricate shelf angles from steel angles of sizes indicated and for attachment to concrete framing. Provide horizontally slotted holes to receive 3/4-inch bolts, spaced not more than 6 inches from ends and 24 inches o.c., unless otherwise indicated.

1. Provide mitered and welded units at corners.
2. Provide open joints in shelf angles at expansion and control joints. Make open joint approximately 2 inches larger than expansion or control joint.

B. For cavity walls, provide vertical channel brackets to support angles from backup masonry and concrete.

C. Galvanize shelf angles located in exterior walls.

D. Prime shelf angles located in exterior walls with zinc-rich primer.

E. Furnish wedge-type concrete inserts, complete with fasteners, to attach shelf angles to cast-in-place concrete.

2.10 METAL LADDERS

A. General:

1. Comply with ANSI A14.3 unless otherwise indicated.
2. For elevator pit ladders, comply with ASME A17.1.

B. Stainless Steel Ladders:

1. Space siderails 18 inches apart unless otherwise indicated.
2. Space siderails of elevator pit ladders 12 inches apart.
3. Siderails: Continuous, 1/2-by-2-1/2-inch steel flat bars, with eased edges.
4. Rungs: 1-inch diameter.
5. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.
6. Provide nonslip surfaces on top of each rung, either by coating rung with aluminum-oxide granules set in epoxy-resin adhesive or by using a type of manufactured rung filled with aluminum-oxide grout.
7. Provide nonslip surfaces on top of each rung by coating with abrasive material metallically bonded to rung.

a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

i. IKG Industries, a division of Harsco Corporation; Mebac.
ii. SlipNOT Metal Safety Flooring, a W. S. Molnar company; SlipNOT.
iii. Or Engineer approved equal.

8. Provide platforms as indicated fabricated from welded or pressure-locked steel bar grating, supported by steel angles. Limit openings in gratings to no more than 1/2 inch in least dimension.
9. Support each ladder at top and bottom and not more than 60 inches o.c. with welded or bolted steel brackets.

C. Aluminum Ladders:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. ACL Industries, Inc.
b. Alco-Lite Industrial Products.
c. Halliday Products.
d. O'Keeffe's Inc.
e. Precision Ladders, LLC.
f. Royalite Manufacturing, Inc.
g. Thompson Fabricating, LLC.
h. Or Engineer approved equal.

2. Space siderails 18 inches apart unless otherwise indicated.
3. Siderails: Continuous extruded-aluminum channels or tubes, not less than 2-1/2 inches deep, 3/4 inch wide, and 1/8 inch thick.
4. Rungs: Extruded-aluminum tubes, not less than 3/4 inch deep and not less than 1/8 inch thick, with ribbed tread surfaces.
5. Fit rungs in centerline of siderails; fasten by welding or with stainless-steel fasteners or brackets and aluminum rivets.
6. Provide platforms as indicated fabricated from pressure-locked aluminum bar grating or extruded-aluminum plank grating, supported by extruded-aluminum framing. Limit openings in gratings to no more than 1/2-inch.
7. Support each ladder at top and bottom and not more than 60 inches o.c. with welded or bolted aluminum brackets.

2.11 LADDER SAFETY CAGES

A. General:

1. Fabricate ladder safety cages to comply with ANSI A14.3. Assemble by welding or with stainless-steel fasteners.

2. Provide primary hoops at tops and bottoms of cages and spaced not more than 20 feet o.c. Provide secondary intermediate hoops spaced not more than 48 inches o.c. between primary hoops.
3. Fasten assembled safety cage to ladder rails and adjacent construction by welding or with stainless-steel fasteners unless otherwise indicated.

B. Stainless Steel Ladder Safety Cages:

1. Primary Hoops: 1/4-by-4-inch flat bar hoops.
2. Secondary Intermediate Hoops: 1/4-by-2-inch flat bar hoops.
3. Vertical Bars: 3/16-by-1-1/2-inch flat bars secured to each hoop.
4. Galvanize ladder safety cages, including brackets and fasteners.

C. Aluminum Ladder Safety Cages:

1. Primary Hoops: 1/4-by-4-inch flat bar hoops.
2. Secondary Intermediate Hoops: 1/4-by-2-inch flat bar hoops.
3. Vertical Bars: 1/4-by-2-inch flat bars secured to each hoop.

2.12 METAL SHIPS' LADDERS (RESERVED)

2.13 STRUCTURAL-STEEL DOOR FRAMES (RESERVED)

2.14 MISCELLANEOUS STEEL TRIM

A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.

B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.

1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.

C. Galvanize miscellaneous steel trim.

D. Prime miscellaneous steel trim with primer specified in Division 09.

2.15 LOOSE BEARING AND LEVELING PLATES

A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

B. Galvanize plates.

2.16 LOOSE STEEL LINTELS

A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.

B. Size loose lintels to provide bearing length at each side of openings equal to 1/12 of clear span but not less than 8 inches unless otherwise indicated.

C. Galvanize loose steel lintels located in exterior walls.

2.17 STEEL WELD PLATES AND ANGLES

A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

2.18 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish metal fabrications after assembly.

C. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.19 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. As-Fabricated Finish: AA-M10 (Mechanical Finish: as fabricated, unspecified). Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

2.20 ALUMINUM HATCHES

A. All access hatches shall be ¼” aluminum channel with anchor flange around the perimeter. Door leaf shall be ¼” aluminum diamond plate reinforced with aluminum stiffeners as required. The door shall open to 90 degrees and lock automatically in that position. Doors shall be built to withstand a live load indicated in the schedule below and be equipped with a snap lock and recessed hasp covered by a hinged lid flush with surface. Mill finish with bituminous coating to be applied to

exterior of frame by manufacturer. Hardware shall be stainless steel. Installation shall be in accordance with manufacturer's instructions.

B. Safety grating shall be factor installed on all aluminum hatches. Grating shall be designed to support 300 pounds per square foot live load and shall be constructed of either aluminum "I" bar grating with a powder coated finish, or one piece molded fiberglass with load bearing bars in both directions. Grating shall be colored either safety orange or safety yellow. Grating shall be hinged to open in the same direction as the aluminum hatch and shall be supplied with a positive latch to maintain unit in an upright position. A padlock hasp for owner supplied padlock shall be provided. All hardware and fasters shall be stainless steel.

C. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Halliday Products
2. Bilco
3. Engineer accepted equal.

D. Hatch Schedule

Location	Designation	Length(ft)	Width(ft)	Hinge Side	Live Load Requirement
Influent Pump Station	H-01	16.0 (4 leaves)	4..0	East	300 psf
Influent Pump Station	H-02	3.0	3.0	East	300 psf
Influent Pump Station	H-03	3.0	3.0	East	300 psf
Influent Pump Station	H-04	3.0	3.0	East	300 psf
Foul Sewer – Drain P.S.	H-05	4..0	4.0	West	300 psf
Foul Sewer – Drain P.S.	H-06	4.0	4.0	West	300 psf

PART 3 EXECUTION

3.01 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping

size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.

E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:

1. Cast Aluminum: Heavy coat of bituminous paint.
2. Extruded Aluminum: Two coats of clear lacquer.

3.02 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

B. Anchor supports for operable partitions securely to and rigidly brace from building structure.

C. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.

1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified in "Installing Bearing and Leveling Plates" Article.

D. Install pipe columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified in "Installing Bearing and Leveling Plates" Article.

1. Grout baseplates of columns supporting steel girders after girders are installed and leveled.

3.03 INSTALLING BEARING AND LEVELING PLATES

A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.

B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.

1. Use nonshrink grout, either metallic or nonmetallic, in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations unless otherwise indicated.
2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.04 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.

B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 09 painting Sections.

C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 055000

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Steel stair frame of structural sections, with open risers.

B. Open grate stair treads.

C. Walkways and landings associated with metal stairs.

1.02 RELATED SECTIONS

A. Section 055000 - Metal Fabrications
B. Section 05520 - Handrails and Railings
C. Section 05532 – FRP Gratings and Floor Plates

1.03 REFERENCES

A. ASTM A36 - Structural Steel.

B. ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.

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

D. ASTM A202.1 - Metal Bar Grating Manual for Steel and Aluminum Gratings and Stair Treads.

E. ASTM A276 - Stainless Steel Anchors and Bolts, Type 304.

F. ASTM A307 - Carbon Steel Externally Threaded Standard Fasteners.

G. ASTM A325 - High Strength Bolts for Structural Steel Joints.

H. ASTM A992 – Standard Specifications for Steel for Structural Shapes for Use in Building Frames.

I. AWS A2.0 - Standard Welding Symbols.

J. AWS D1.1 - Structural Welding Code.

K. SSPC - Steel Structures Painting Council.

1.04 DESIGN REQUIREMENTS

A. All stair, walkway and landing framing and connections shall be designed to withstand a uniform live load of 150 lbs. per square foot and a concentrated load of

300 pounds plus the dead load of the structure, as well as all loading combinations from wind and seismic forces in accordance with the 2012 International Building Code. The deflection of any framing member shall not exceed 1/360 of the design span.

B. Grating for stairs, walkways and landings shall be designed in accordance with Section 05532 of these specifications.

C. Connections not detailed on the drawings shall be designed in accordance with the latest edition of AISC Manual of Steel Construction.

1.05 SUBMITTALS

A. Submit shop drawings for fabrication and erection of metal stair assemblies. Include plans and elevations at not less than 1" to 1'-0" scale, and include details of sections and connections at not less than 3" to 1'-0" scale. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.

B. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

C. Shop drawings shall be signed and sealed by a Licensed Structural Engineer registered in the State of Illinois.

1.06 QUALIFICATIONS

A. Prepare Shop Drawings under supervision of an Engineer experienced in design of this work.

B. Welders' Certificates: Submit in accordance with Section 01330 of Division 1 of these specifications, certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.07 FIELD MEASUREMENTS

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

PART 2 PRODUCTS

2.01 MATERIALS

A. Steel W Sections: ASTM A992, Grade 50

B. Steel Channels, Plates and Angles: ASTM A36.

C. Pipe: ASTM A53, Grade B, Type S, Schedule 40.

D. Open Riser Stair Landings and Platforms: Pultruded FRP I-bar with gritted surface, or approved equal.

E. Stair Treads: 1½" pultruded FRP I-bar with gritted surface, or approved equal.

F. Bolts, Nuts, and Washers: ASTM A307.

G. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; consistent with design of stair structure.

H. Welding Materials: Low hydrogen E70XX conforming to AWS A5.1 or A5.5.

2.02 FABRICATION - GENERAL

A. Fit and shop assemble in largest practical sections, for delivery to site.

B. Fabricate components with joints tightly fitted and secured.

C. Continuously seal jointed pieces by continuous welds.

D. Supply components required for anchorage of fabrications. Fabricate related components of same material and finish as fabrication, except where specifically noted otherwise.

E. Accurately form components required for anchorage of stairs and railings to each other and to structure.

2.03 FABRICATION - OPEN GRATING STAIRS

A. Form hollow stringers with rolled steel channels and paint finish for interior stairs.

2.04 FABRICATIONS – STAIRS WITH CLOSED RISERS (RESERVED)

2.05 PREFABRICATED WORK PLATFORM (RESERVED)

2.06 SHIPS LADDER (RESERVED)

2.07 FINISHES

A. Unless noted otherwise, stair framing shall be hot dip galvanized.

B. Painted items shall be in accordance with Section 09960.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

B. Beginning of installation means erector accepts existing conditions.

3.02 PREPARATION

A. Clean and strip steel items to bare metal where field welding is required.

B. Supply drilled-in anchors required to anchor stairs to concrete.

3.03 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide anchors, angles and struts required for connecting stairs to structure.

C. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

D. Field weld components indicated on Drawings. Perform field welding in accordance with AWS D1.1.

E. Obtain Engineer approval prior to site cutting or making adjustments not scheduled.

F. After erection, clean welds, abrasions, and bolted connections and paint exposed areas with paint as specified in Section 09960.

3.04 ERECTION TOLERANCES

A. Erect individual pieces so that deviation from plumb, level and alignment does not exceed 1 in 500.

3.05 SCHEDULE (RESERVED)

END OF SECTION 05510

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aluminum pipe handrails, posts, and fittings.

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

A. Section 05500 – Metal Fabrications

1.03 REFERENCE TO STANDARDS

A. ASTM B209, 6061-T6 - Plate and Sheet.

B. ASTM B247, 6061-T6 - Die and Hand Forgings.

C. ASTM B429, 6061-T6 - Extruded Structural Pipe and Tube.

D. ASTM B221, 6061-T6 - Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.

E. ASTM B483, 6061-T6 - Aluminum and Aluminum-Alloy Drawn Tubes for General Purpose Applications.

F. ASTM B26, 356-T6 - Castings.

G. ASTM A53, Grade B, Type S, Schedule 40 - Steel pipe.

H. ASTM A663 – Standard Specifications for Steel Bars.

1.04 DESIGN REQUIREMENTS

A. Comply with ASTM E985 based on the following:

1. Testing per ASTM E894 and E935.

B. Design, fabricate and install handrails and railing systems to withstand the following structural loads without exceeding the allowable design working stress of the materials for handrails, railing systems, anchors, and connections. Apply each load to produce the maximum stress in each of the respective components comprising handrails and railing systems.

1. Top Rail of Guardrail Systems: Capable of withstanding concentrated load of 200 lb applied at any point and in any direction and capable of withstanding a uniform load of 50 pounds per lineal foot applied horizontally at right angles to the top rail. Concentrated load shall not be assumed to act concurrently with uniform loads.
2. Handrails Not Serving as Top Rails: Capable of withstanding concentrated load of 200 lb applied at any point and in any direction and capable of withstanding a uniform load of 50 pounds per lineal foot applied horizontally at right angles to the top rail. Concentrated and uniform loads shall not be assumed to act concurrently.
3. Infill Area of Guardrail Systems: Capable of withstanding a horizontal concentrated load of 200 lb applied to one sq. ft. at any point in the system including panels, intermediate rails, balusters, or other elements composing the infill area. Load shall not be assumed to act concurrently with loads on top rails of railing systems in determining stress on guard.

C. Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.05 SUBMITTALS

A. In addition to product data, submit following:

1. Shop drawings showing railing layout and details of components.
2. Samples of each type of metal finish indicated.
3. Test reports from independent testing laboratory evidencing compliance with ASTM E985.

1.06 FIELD MEASUREMENTS

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

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Steel Pipe and Tube Railings: (RESERVED)
2. Aluminum Pipe and Tube Railings:

a. ATR Technologies, Inc.
b. Blum, Julius & Co., Inc.
c. Braun, J.G., Company; a division of the Wagner Companies.
d. CraneVeyor Corp.
e. Golden Railings, Inc.
f. Hollaender Manufacturing Company.
g. Kee Industrial Products, Inc.

h. Moultrie Manufacturing Company.
i. Pisor Industries, Inc.
j. Sterling Dula Architectural Products, Inc.; Div. of Kane Manufacturing.
k. Superior Aluminum Products, Inc.
l. Thompson Fabricating, LLC.
m. Tri Tech, Inc.
n Tubular Specialties Manufacturing, Inc.
o. Tuttle Railing Systems; Div. of Tuttle Aluminum & Bronze, Inc.
p. Wagner, R & B, Inc.; a division of the Wagner Companies.

2.02 ALUMINUM RAILING SYSTEM

A. Rails and Posts: 1-1/2 inch inside diameter, anodized schedule 40, extruded tubing conforming to ASTM B221.

1. Handrail consists of vertical posts and two (2) horizontal rails.

a. Posts shall be spaced not greater than six (6) feet apart except at end posts where spacing shall not exceed four (4) feet.
b. Horizontal rails shall be spaced as follows: top rail 3'-6" from top of walking surface and bottom rail 1'-9" from walking surface. Stairs shall have an additional rail at 3’-0” +/- 2” from tread nosing.

C. Fittings: Elbows, T-shapes, wall brackets, escutcheons; cast aluminum.

D. Mounting handrail to structural steel members or concrete.

1. All handrail posts shall be mechanically attached to structural steel or concrete. Attachment shall be made utilizing standard brackets and flanges of cast or formed aluminum or a plate welded to the handrail posts in accordance with the specifications for Aluminum Structures (min. plate size 1/2" x 2" x 6"). Handrail manufacturer shall certify that mechanical attachments meet or exceed the design requirements (loading) of 1.04B of this specification section.
2. All mechanical attachments to structural steel shall be made with a minimum of two (2) 1/2" diameter stainless steel bolts.
3. All mechanical attachments to concrete shall be made with a minimum of four (4) 3/8" diameter stainless steel adhesive anchors, installed per manufacturer’s recommendations.
4. All aluminum surfaces of railings in contact with concrete shall be coated with bitumastic paint. All aluminum surfaces of railings in contact with steel or dissimilar metal shall be isolated by rubber or neoprene gaskets.

E. Splice Connectors: Concealed mechanical fasteners and fittings. Fabricate splice joints for field connection using epoxy structural adhesive.

F. Fasteners: Same material as fastened metal; concealed unless otherwise indicated or unavoidable and standard with systems indicated.

G. Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.

H. Bolts: 3/8" dia. min. meeting the requirements of Type 304 stainless steel.

I. Expansion Joints: Install expansion joints at locations indicated but not further apart than required to accommodate thermal movement.

J. Form changes in direction of railing members as follows:

1. By inserting prefabricated elbow fittings.
2. By radius bends of radius indicated.
3. By mitering at elbow bends.
4. By bending.
5. By any method indicated above, applicable to change of direction involved.

K. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required without deforming exposed surfaces.

L. Provide toeboards, wall returns, closed ends, brackets, flanges, fittings and sleeves as required for type of installation indicated. Toeboard shall be 1/4" x 4" aluminum plate. Bent up floor plate is not acceptable.

M. Finish: Aluminum Class I Clear Anodized Finish AA-M32C22A41 complying with AAMA 607.1 color.

2.03 STEEL HANDRAIL SYSTEM (RESERVED)

2.04 FABRICATION

A. Fit and shop assemble components in largest practical sizes, for delivery to site.

B. Fabricate components with joints tightly fitted and secured.

C. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

D. Supply components required for anchorage of fabrications. Fabricate components of same material and finish as fabrication, except where specifically noted otherwise.

E. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

F. Accurately form components to suit stairs and landings to each other and to structure.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

B. Beginning of installation means erector accepts existing conditions.

3.02 PREPARATION

A. Clean steel and concrete surfaces which will be in contact with handrail post assemblies.

B. Supply neoprene for installation between aluminum flange plate and supporting surface.

3.03 INSTALLATION

A. Set work accurately in location, alignment and elevation and free from rack.

B. Provide all returns at ends of wall-mounted handrails, unless otherwise indicated. Close ends of returns unless clearance between end of the railing and wall is 1/4" or less.

C. Comply with manufacturer's recommendations for field connections of handrail and railing members.

D. Anchor posts to metal surfaces with fittings designed for this purpose.

E. Anchor rail ends to masonry and concrete with round flanges connected to rail ends and fastened to wall with post-installed anchors and bolts.

3.04 ERECTION TOLERANCES

A. Deviation from plumb, level and alignment shall not exceed 1 in 500.

END OF SECTION 05520

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this section.

1.02 SUMMARY

A. Provide all labor, materials, and equipment required to complete the installation of all fiberglass grating, stair landings and treads.

B. The work shall include, but not be limited to, the following principal items:

1. Pultruded FRP I-Bar grating – 1½".
2. Pultruded FRP heavy duty rectangular bar grating – 2".
3. Fiberglass embedment angle frames.

1.03 RELATED WORK

A. Section 03100 – Concrete Formwork
B. Section 055000 – Metal Fabrications

1.04 QUALITY ASSURANCE

A. Codes and Standards: Provide the FRP grating to conform to the following codes and standards:

1. ASTM E-84: Standard Test Method for Surface Burning Characteristics of Building Materials.
2. ASTM E-448: Test Method for Strength of Anchors in Concrete and Masonry Elements
3. ASCE 7-05: Minimum Design Loads for Buildings and Other Structures

B. Take field measurements prior to the preparation of Shop Drawings and fabrication.

1.05 SUBMITTALS

A. Product Data: Provide manufacturer's product and complete installation data for all grating and floor plate materials in this specification.

B. Shop Drawings: Submit shop drawings to show plan, elevations, profiles, joining method, fastening details, adjacent construction interfaces, and dimensions prior to fabrication and installation. Contractor shall submit structural load tables for the applicable use.

C. Samples: Provide on request; sized to adequately represent the materials.

D. Contract Closeout: Submit the Manufacturer's Warranty prior to contract closeout.

1.06 PRODUCT HANDLING

A. All materials shall be delivered in the manufacturer's original steel strapping/packaging.

B. Store materials in a dry, protected, well-vented area. Report damaged material immediately to delivering carrier and manufacturer.

1.07 JOB CONDITIONS

A. Verify that other trades are complete before installing the FRP grating or floor plates.

B. Mounting surfaces shall be straight and secure; substrates of proper width.

C. Refer to construction documents, shop drawings and the manufacturer's installation instructions.

1.08 WARRANTY/GUARANTEE

A. Manufacturer's Standard Warranty: The grating and floor plate sections shall be free of defects in material and workmanship for one year from date of shipment. If, after inspection, the manufacturer agrees that materials are defective, the manufacturer shall repair or replace them at no additional cost. Manufacturer shall be liable for removal or reinstallation costs of defective material or resulting damage.

PART 2 PRODUCTS

2.01 PULTRUDED FRP I-BAR GRATING – 1½"

A. Performance requirements:

1. Grating shall be designed to carry a uniform live load of 150 pounds per square foot and a 300 pound concentrated load at mid-span. The uniform and concentrated load can be applied independently for the design.
2. Maximum deflection under live loads stated above shall be the lesser of the following:

   a. Span Length/240
   b. 0.25 inches

B. Manufacturers: Subject to the compliance with requirements, provide products by one of the following:

1. Strongwell
2. McNichols
3. Fibergrate Composite Structures Inc.
4. Engineer accepted equal.

C. Exterior FRP I-bar grating shall have UV coating.

D. Color shall be standard gray.

E. Grating shall have lightly gritted surface.

F. Resin system shall be premium grade polyester: PN (for non-fire-retardant polyester)

2.02 PULTRUDED FRP HEAVY DUTY RECTANGULAR BAR GRATING – 2”

A. Manufacturers: Subject to the compliance with requirements, provide one of the following products:

1. DURAGRID HD-6000 2” Bearing Bar by Strongwell.
2. HI5820 by Fibergrate Composite Structures Inc.

B. Pultruded FRP heavy duty rectangular bar grating is required in the WAS Thickening Building, Digested Sludge Thickening Building, and Sludge Dewatering Building, as shown on the drawings.

C. Color shall be standard gray.

D. Grating shall have lightly gritted surface.

E. Resin system shall be premium grade polyester: PN (for non-fire-retardant polyester)

2.03 FIBERGLASS PLATE (RESERVED)

2.04 ACCESSORIES

A. Support Angles: Manufacturer’s standard FRP support angles shall be provided for pultruded FRP heavy duty rectangular bar grating.

B. Grating Clips: Provide manufacturer’s stainless steel fastener clips.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify that the floor plate installation will not disrupt other trades and verify that the substrate is dry, clean and free of foreign matter. Correct all defects prior to installation.

B. The Contractor shall verify that the substrate can support the floor plate before installation begins.

3.02 INSTALLATION

A. Install the grating, floor plate and embedment angles in accordance with the project drawings, specifications, approved shop drawings, and manufacturer’s installation standards.

B. Grating and floor plate panels shall be fabricated to be square within manufacturer’s tolerances and free from warping and any defect that may affect serviceability and reliability.

C. Install the grating and floor plate with a min. 1-1/2” bearing surface at the support ends. Hardware and clips are the responsibility of the installer. Grating shall be fastened to the support substrate using grating clips supplied by the grating manufacturer with a minimum of four stainless steel saddle clips per section piece. Hardware to attach clips is the responsibility of the installer. Fastening shall be consistent with the manufacturer’s instructions.

D. Tolerances between sections shall provide for not more than ¼” clearance between adjacent sections or between sections and frames. Adjacent sections shall line up to form an uninterrupted straight line, where possible. Clearance between floor plate and equipment shall be 1/2”.

E. Grating and floor plate sections shall be installed to be removable unless indicated otherwise.

F. Openings shall be field cut by the installer where necessary to permit field installation of wiring, equipment, piping, etc. Where openings are provided, the grating and floor plate shall be discontinuous to allow each section of floor plate to be easily removed. All rectangular cutouts shall be made to the next bearing bar past the obstruction. Circular cutouts shall be 2” larger in diameter than the obstruction.

G. Coat all cut or sanded surfaces with resin furnished by the grating and floor plate manufacturer in accordance with the manufacturer’s instructions.

3.03 IN-USE MAINTENANCE

A. Provide the Owner with the manufacturer’s maintenance instructions.

END OF SECTION 05532

MATTOON, ILLINOIS
RILEY CREEK CSO SATELLITE TREATMENT FACILITY – CONTRACT 1

DIVISION 6 – WOOD AND PLASTICS

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PART 1 GENERAL

1.01 SECTION INCLUDES

A. Rough carpentry work not specified elsewhere and generally intended for support of other work.

B. Miscellaneous blocking, grounds, nailers and panels.

C. Plywood.

1.02 REFERENCE TO STANDARDS

A. ALSC - American Lumber Standards Committee, Softwood Lumber Standards.

B. APA - American Plywood Association.

C. AWPA - American Wood Preservers Association.

D. NFPA - National Forest Products Association.

E. SPIB - Southern Pine Inspection Bureau.

F. WWPA - Western Wood Products Association.

1.03 SUBMITTALS

A. Submit under the provisions of Special Conditions - Section 01330.

1. Material certificates for dimension lumber indicated for compliance with selected minimum design values.

2. Wood treatment data including treatment plant's certification of compliance with indicated requirements.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with the Lumber Grading Agency certified by ALSC and Plywood Grading Agency certified by APA.

B. Submit manufacturer's certificates that materials used comply with selected minimum design values.

1.05 DELIVERY, STORAGE AND HANDLING

A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack material above ground level on uniformly spaced supports to prevent deformation.

B. For material pressure treated with waterborne chemicals, place spacers between each bundle for air circulation.

PART 2 PRODUCTS

2.01 LUMBER, GENERAL

A. Standards: Furnish lumber manufactured to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.

B. Grade Stamps: Furnish lumber with each piece factory-marked with grade stamp of inspection agency that indicates grading agency, grade, species, moisture content at time of surfacing, and mill.

1. For exposed lumber, furnish pieces marked on ends or back of each piece.

C. Sizes: Provide nominal sizes indicated, complying with PS 20 except where actual sizes are specifically noted as being required.

D. Surfacing: Dressed lumber, S4S, unless otherwise indicated.

E. Provide lumber with 15% moisture content at time of dressing and shipment for sizes 2" or less in thickness.

2.02 CONCEALED BOARDS

A. Standard grade, any species graded under WWPA rules or No. 3 grade Southern Pine graded under SPIB rules.

2.03 LUMBER FOR MISCELLANEOUS USES

A. Unless otherwise indicated, provide Standard grade lumber for support of other work, including bucks, nailers, blocking, furring, grounds, stripping and similar members.

2.04 PLYWOOD

A. Exposed Plywood

1. Where plywood will be concealed by other work provide either DOC PS1 or DOC PS2, unless otherwise indicated. Provide Exterior, Exposure 1, Grade Roof plywood roof sheathing.
2. Where transparent or natural finish or no finish is indicated, provide Exterior Type plywood for exterior use and Interior Type with exterior glue for interior use of species indicated.
3. Where painted finish is indicated, provide Medium Density Overlay (MDO/EXT-APA).

B. Concealed Plywood

1. Where plywood will be concealed by other work, provide Interior Type plywood C-D Plugged Grade, unless otherwise specified.
2. For backing panels for electrical or telephone equipment, provide fire-retardant treated Standard grade plywood with exterior glue.

2.05 FASTENERS

A. General: Where miscellaneous carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel.

B. Nails, Wire, Brads and Staples: FS FF-N-105.

C. Bolts: ASTM A 307, Grade A; with ASTM A 563 hex nuts and flat washers.

2.06 PRESERVATIVE WOOD TREATMENT

A. General: Obtain preservative-treated lumber complying with AWPA Standard C2. Mark each treated item with AWPB or SPIB Quality Mark Requirements. Coat surfaces cut after treatment to comply with AWPA M4.

B. Above-Ground Wood Treatment: Pressure treat with waterborne preservatives to a minimum retention of 0.25 pcf.

1. Kiln-dry interior dimension lumber after treatment to 19 percent maximum moisture content.
2. Kiln-dry interior construction panels after treatment to 15 percent maximum moisture content.
3. Treat wood items indicated and in the following circumstances:

   a. In contact with roofing, flashing, or waterproofing.
   b. In contact with masonry or concrete.
   c. Within 18 inches of grade.

C. Ground-Contact Wood Treatment: Pressure treat with waterborne preservatives to a minimum retention of 0.40 pcf.

2.07 FIRE-RETARDANT TREATMENT

A. All wood and plywood used for interior framing construction to receive fire-retardant treatment shall comply with the AWPA standards for pressure impregnation with fire-retardant chemicals to achieve a flame spread rating of not more than 25 when tested in accordance with UL Test 723, ASTM E84 or NFPA Test 355.

B. Where treated items are indicated to receive transparent or paint finish, use fire-retardant treatment which will not bleed through or adversely affect bond of finish.

PART 3 EXECUTION

3.01 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of miscellaneous carpentry and in sizes that would require an excessive number or poor arrangement of joints.

B. Cut and fit miscellaneous carpentry accurately. Install members plumb and true to line and level.

C. Coat cut edges of preservative-treated wood to comply with AWPA M4.

D. Securely fasten miscellaneous carpentry as indicated and according to applicable codes and recognized standards.

E. Countersink nail heads on exposed carpentry work and fill holes.

F. Use fasteners of appropriate type and length. Predrill members when necessary to avoid splitting wood.

3.02 WOOD GROUNDS, NAILERS, BLOCKING AND SLEEPERS

A. Install where shown and where required for screeding or attachment of other work. Cut and shape to required size. Coordinate location with other work involved.

B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated.

END OF SECTION 06105

MATTOON, ILLINOIS
RILEY CREEK CSO SATELLITE TREATMENT FACILITY – CONTRACT 1

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

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PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Foam-plastic board insulation.
2. Glass-fiber blanket insulation.
3. Vapor retarders.

1.02 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Product test reports.

C. Research/evaluation reports.

PART 2 PRODUCTS

2.01 FOAM-PLASTIC BOARD INSULATION

A. Extruded-Polystyrene Board Insulation: ASTM C 578, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

A. DiversiFoam Products.
b. Dow Chemical Company (The).
c. Owens Corning.
d. Pactiv Building Products.

2.02 GLASS-FIBER BLANKET INSULATION

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. CertainTeed Corporation.
2. Guardian Building Products, Inc.
3. Johns Manville.
4. Knauf Insulation.
5. Owens Corning.

B. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

2.03 VAPOR RETARDERS

A. Polyethylene Vapor Retarders: ASTM D 4397, 6 mils (0.15 mm) thick, with maximum permeance rating of 0.13 perm (7.5 ng/Pa x s x sq. m).

B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

PART 3 EXECUTION

3.01 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and applications indicated.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

D. Provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

3.02 INSTALLATION OF BELOW-GRADE INSULATION

A. On vertical footing and foundation wall surfaces, set insulation units loosely laid according to manufacturer's written instructions.

1. If not otherwise indicated, extend insulation a minimum of 24 inches (610 mm) below exterior grade line.

B. On horizontal surfaces under slabs, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

1. If not otherwise indicated, extend insulation a minimum of 24 inches (610 mm) in from exterior walls.

3.03 INSTALLATION OF CAVITY-WALL INSULATION

A. Foam-Plastic Board Insulation: Install pads of adhesive spaced approximately 24 inches (610 mm) o.c. both ways on inside face, and as recommended by manufacturer. Fit courses of insulation between wall ties and other obstructions, with edges butted tightly in both directions. Press units firmly against inside substrates.

1. Supplement adhesive attachment of insulation by securing boards with two-piece wall ties designed for this purpose and specified in Division 04 Section "Unit Masonry."

3.04 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION

A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units to meet current International Energy Conservation Code Requirement for Air Barriers.

B. Foam-Plastic Board Insulation: Seal joints between units by applying adhesive, mastic, sealant, or tape to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer to meet current International Energy Conservation Code Requirement for Air Barriers.

C. Glass-Fiber or Mineral-Wool Blanket Insulation: Install in cavities formed by framing members according to the following requirements:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
3. Maintain 3-inch (76-mm) clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
4. Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.
5. For metal-framed wall cavities where cavity heights exceed 96 inches (2438 mm), support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
6. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:

   a. With faced blankets having stapling flanges, secure insulation by inset, stapling flanges to sides of framing members.
   b. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.

7. Vapor-Retarder-Faced Blankets: Tape joints and ruptures in vapor-retarder facings, and seal each continuous area of insulation to ensure airtight installation.

   a. Exterior Walls: Set units with facing placed toward interior of construction.
   b. Interior Walls: Set units with facing placed toward areas of high humidity.

D. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Loose-Fill Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft. (40 kg/cu. m).
2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

3.05 INSTALLATION OF CURTAIN-WALL INSULATION

A. Install board insulation in curtain-wall construction where indicated on Drawings according to curtain-wall manufacturer's written instructions.

1. Hold insulation in place by securing metal clips and straps or integral pockets within window frames, spaced at intervals recommended in writing by insulation manufacturer to hold insulation securely in place without touching spandrel glass. Maintain cavity width of dimension indicated between insulation and glass.
2. Install insulation where it contacts perimeter fire-containment system to prevent insulation from bowing under pressure from perimeter fire-containment system.

3.06 INSTALLATION OF VAPOR RETARDERS

A. Place vapor retarders on side of construction indicated on Drawings. Extend vapor retarders to extremities of areas to protect from vapor transmission. Secure vapor retarders in place with adhesives or other anchorage system as indicated. Extend vapor retarders to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

B. Seal vertical joints in vapor retarders over framing by lapping no fewer than two studs.

1. Fasten vapor retarders to wood framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches (406 mm) o.c.

2. Before installing vapor retarders, apply urethane sealant to flanges of metal framing including runner tracks, metal studs, and framing around door and window openings. Seal overlapping joints in vapor retarders with vapor-retarder tape according to vapor-retarder manufacturer's written instructions. Seal butt joints with vapor-retarder tape. Locate all joints over framing members or other solid substrates.
3. Firmly attach vapor retarders to metal framing and solid substrates with vapor-retarder fasteners as recommended by vapor-retarder manufacturer.

C. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarders.

D. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarders.

END OF SECTION 072100

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes adhered membrane roofing system.

B. Roof insulation.

1.02 SUBMITTALS

A. Product Data: For each product indicated.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other Work.

C. Samples: For each product included in membrane roofing system.

D. Research/evaluation reports.

E. Maintenance data.

1.03 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.

B. Source Limitations: Obtain components for membrane roofing system approved by roofing membrane manufacturer.

C. Fire-Test-Response Characteristics: Provide membrane roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction.

1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.

1.04 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.05 WARRANTY

A. Special Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.

1. Warranty Period: 15 years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 EPDM ROOFING MEMBRANE

A. EPDM Roofing Membrane: ASTM D 4637, Type I, nonreinforced uniform, flexible sheet made from EPDM, and as follows:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

   a. Carlisle SynTec Incorporated.
   b. Celotex Corporation.
   c. ERSystems.
   d. Firestone Building Products Company.
   e. GenFlex Roofing Systems.
   f. International Diamond Systems.
   g. Johns Manville International, Inc.
   h. Mule-Hide Products Co., Inc.
   i. Protective Coatings, Inc.
   j. Roofing Products International, Inc.
   k. Stafast Roofing Products.
   l. Versico Inc.

3. Thickness: 60 mils (1.5 mm), nominal.
4. Exposed Face Color: Black.

2.02 AUXILIARY MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.

B. Sheet Flashing: 60-mil- (1.5-mm-) thick EPDM, partially cured or cured, according to application.

C. Bonding Adhesive: Manufacturer's standard bonding adhesive.

D. Seaming Material: Manufacturer's standard synthetic-rubber polymer primer and 3-inch- (75-mm-) wide minimum, butyl splice tape with release film.

E. Miscellaneous Accessories: Provide lap sealant, water cutoff mastic, metal termination bars, metal battens, pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

2.03 ROOF INSULATION

A. Extruded-Polystyrene Board Insulation: ASTM C 578, Type IV, 1.60-lb/cu. ft. (26-kg/cu. m) minimum density unless otherwise indicated; with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively.

B. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.04 INSULATION ACCESSORIES

A. Cold Fluid-Applied Adhesive: Manufacturer's standard cold fluid-applied adhesive formulated to adhere roof insulation to substrate.

PART 3 EXECUTION

3.01 INSULATION INSTALLATION

A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.

C. Adhesive Fastened Insulation: Install each layer of insulation and secure to deck using manufacturer's adhesive specifically designed for fastening specified board-type roof insulation to deck type.

1. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.

3.02 ADHERED ROOFING MEMBRANE INSTALLATION

A. Install roofing membrane over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.

B. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

C. Bonding Adhesive: Apply bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry. Do not apply bonding adhesive to splice area of roofing membrane.

D. Mechanically or adhesively fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.

E. Adhesive Seam Installation: Clean both faces of splice areas, apply splicing cement, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.

F. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.

G. Repair tears, voids, and lapped seams in roofing that does not meet requirements.

3.03 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars, as shown on drawings.

3.04 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.

B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.

C. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.

END OF SECTION 07531

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. Copings.
2. Metal fascia and miscellaneous metal trim.
3. Roof edge drainage systems.

1.02 PERFORMANCE REQUIREMENTS

A. FMG Listing: Manufacture and install copings that are listed in FMG's "Approval Guide" and approved for Windstorm Classification, Class 1-90. Identify materials with FMG markings.

1.03 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show layouts of manufactured roof specialties, including plans and elevations. Identify factory- vs. field-assembled work.

C. Samples: For each type of manufactured roof specialty indicated with factory-applied color finishes.

D. Product Test Reports: Verifying compliance of copings with performance requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

2.02 EXPOSED METALS

A. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy and temper recommended by manufacturer for use and finish indicated, finished as follows:

1. Surface: Smooth, flat finish.
2. High-Performance Organic Finish: Two-coat, thermocured system with color coats containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2604.

B. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), alloy and temper recommended by manufacturer for type of use and finish indicated, finished as follows:

1. High-Performance Organic Finish: Two-coat, thermocured system with color coats containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2604.

2.03 CONCEALED METALS

A. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy and temper recommended by manufacturer for use and structural performance indicated, mill finished.

B. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), alloy and temper recommended by manufacturer for type of use and structural performance indicated, mill finished.

C. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304.

D. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation; structural quality.

2.04 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, protective coatings, separators, sealants, and other miscellaneous items required by manufacturer for a complete installation.

B. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to withstand design loads.

1. Exposed Penetrating Fasteners: Gasketed screws with hex washer heads matching color of sheet metal.

C. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

D. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, heavy bodied for hooked-type expansion joints with limited movement.

E. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.05 COPINGS

A. Copings: Manufactured coping system consisting of formed-metal coping cap in section lengths not exceeding 12 feet (3.6 m), concealed anchorage, concealed splice plates with same finish as coping caps, mitered corner units, and end cap units.

1. Available Manufacturers:

   a. Architectural Products Co.
   b. ATAS International, Inc.
   c. Castle Metal Products.
   d. Cheney Flashing Company.
   e. Hickman, W. P. Company.
   f. Metal-Era, Inc.
   g. Metal-Fab Manufacturing LLC.
   h. Petersen Aluminum Corp.

2. Coping Caps: Snap-on, fabricated from the following exposed metal:

   a. Aluminum: 0.050 inch (1.2 mm).

3. Coping Cap Color: As selected by Architect from manufacturer's full range.
4. Corners: Continuously welded.
5. Snap-on Coping Anchor Plates: Concealed, galvanized steel sheet, 12 inches (300 mm) wide, 0.028 inch (0.7 mm) thick, with integral cleats.

2.06 METAL FASCIA AND MISCELLANEOUS METAL TRIM

A. Manufactured and finished aluminum sheets of same specifications as gutter and downspouts.

1. Provide metal sheets with smooth finish, no striations for rigidity.
2. Configure metal as indicated on drawings.

2.07 ROOF EDGE DRAINAGE SYSTEMS

A. Manufacturers:

1. Architectural Products Co.
2. ATAS International, Inc.
3. Berger Bros. Co.
4. Castle Metal Products.
5. Cheney Flashing Company.
6. Hickman, W. P. Company.
7. Metal-Era, Inc.
8. Metal-Fab Manufacturing LLC.
9. MM Systems Corporation.
10. Petersen Aluminum Corp.

B. Gutters and Downspouts: Manufactured formed gutter in uniform section lengths not exceeding 16 feet (3.6 m) , with mitered and welded or soldered corner units, end caps, outlet tubes, and other accessories. Elevate back edge at least 1 inch (25 mm) above front gutter rim. Furnish with flat-stock gutter straps and gutter support brackets and expansion joints and expansion-joint covers fabricated from same metal as gutters.

1. Fabricate gutter from the following exposed metal:

a. Aluminum: 0.050 inch (1.2 mm) thick.

2. Gutter Style: Beveled 6” X 6”, unless otherwise noted on drawings.
3. Downspouts: Rectangular closed-face 3” x 4” with mitered elbows, manufactured from the following exposed metal. Furnish wall brackets, from same material and finish as downspouts, with anchors.

a. Formed Aluminum: 0.050 inch (1.2 mm) thick.

PART 3 EXECUTION

3.01 INSTALLATION

A. General: Install manufactured roof specialties according to manufacturer's written instructions. Anchor manufactured roof specialties securely in place and capable of resisting forces specified in performance requirements. Use fasteners, separators, sealants, and other miscellaneous items as required to complete manufactured roof specialty systems.

1. Install manufactured roof specialties with provisions for thermal and structural movement.
2. Torch cutting of manufactured roof specialties is not permitted.

B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

C. Install manufactured roof specialties level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil-canning, buckling, or tool marks.

D. Install manufactured roof specialties to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.

E. Expansion Provisions: Provide for thermal expansion of exposed manufactured roof specialties. Space movement joints at a maximum of 12 feet (3.6 m) with no unplanned joints within 18 inches (450 mm) of corners or intersections.
F. Fasteners: Use fasteners of type and size recommended by manufacturer but of sizes that will penetrate substrate not less than 1-1/4 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for wood screws.

G. Seal joints with sealant as required by manufacturer of roofing specialties.

3.02 COPING INSTALLATION

A. Install cleats, anchor plates, and other anchoring and attachment accessories and devices with concealed fasteners.

B. Anchor copings to resist uplift and outward forces according to performance requirements.

1. Interlock face and back leg drip edges of snap-on coping cap into cleated anchor plates anchored to substrate at 30-inch (760-mm) centers.

3.03 ROOF EDGE DRAINAGE SYSTEM INSTALLATION

A. General: Install gutters and downspouts to produce a complete roof drainage system according to manufacturer's written instructions. Coordinate installation of roof perimeter flashing with installation of roof drainage system.

B. Gutters: Join and seal gutter lengths. Attach gutters to firmly anchored gutter brackets spaced not more than 36 inches (900 mm) apart. Slope gutters to downspouts.

1. Install gutter with expansion joints at locations indicated but not exceeding 50 feet (15.2 m) apart. Install expansion joint caps.

C. Downspouts: Join sections with manufacturer's standard telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1500 mm) o.c. in between.

END OF SECTION 07710

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes joint sealants for the following applications, including those specified by reference to this Section:

1. Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
2. Exterior joints in horizontal traffic surfaces.
3. Interior joints in vertical surfaces and horizontal nontraffic surfaces.
4. Interior joints in horizontal traffic surfaces.

B. See Division 8 Section 08800 – Glass and Glazing for glazing sealants.

1.02 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and air-tight continuous joint seals without staining or deteriorating joint substrates.

B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.03 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

C. Compatibility and adhesion test reports.

1.04 QUALITY ASSURANCE

A. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates according to the method in ASTM C 1193 that is appropriate for the types of Project joints.

1.05 WARRANTY

A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.02 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

B. VOC Content of Interior Sealants: Provide interior sealants and sealant primers that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.
2. Nonmembrane Roof Sealants: 300 g/L.
3. Single-Ply Roof Membrane Sealants: 450 g/L.
4. Sealant Primers for Nonporous Substrates: 250 g/L.
5. Sealants Primers for Porous Substrates: 775 g/L.
6. Modified Bituminous Sealant Primers: 500 g/L.

C. Colors of Exposed Joints Sealants: As selected by Architect from manufacturer’s full range.

2.03 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

C. Suitability for Immersion in Liquids. Where elastomeric sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247 and qualify for the length of exposure indicated by reference to ASTM C 920 for Class 1 or 2. Liquid used for testing sealants is deionized water, unless otherwise indicated.

D. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

E. Multicomponent Nonsag Polysulfide Sealant:

1. Available Products:

a. Pacific Polymers, Inc.; Elasto-Seal 227 Type II (Gun Grade).
b. Pecora Corporation; Synthacalk GC-2+.
c. Polymeric Systems Inc.; PSI-350.
d. PolySpec Corp.; T-2235-M.
e. PolySpec Corp.; T-2282.
f. PolySpec Corp.; Thiokol 2P.
g. Sonneborn, Division of ChemRex Inc.; Sonolastic Polysulfide Sealant.

2. Type and Grade: M (multicomponent) and NS (nonsag).
3. Class: 25.
4. Uses Related to Exposure: T (traffic), NT (nontraffic), T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

F. Multicomponent Nonsag Immersible Polysulfide Sealant:

1. Available Products:

a. Pecora Corporation; GC-2+
b. PolySpec Corp.; T-2235-M.

2. Type and Grade: M (multicomponent) and NS (nonsag).
3. Class: 25.
4. Uses Related to Exposure: T (traffic), NT (nontraffic), and I (immersible), Class 1.
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

G. Multicomponent Pourable Polysulfide Sealant:

1. Available Products:

a. Meadows, W. R., Inc.; Deck-O-Seal.
b. Pacific Polymers, Inc.; Elastoseal 227 Type I (Pourable).

2. Type and Grade: M (multicomponent) and P (pourable).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

H. Single-Component Nonsag Polysulfide Sealant:

1. Available Products:

a. Pacific Polymers, Inc.; Elastoseal 230 Type I (Gun Grade).
b. Polymeric Systems Inc.; PSI-7000.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

I. Multicomponent Nonsag Neutral-Curing Silicone Sealant:

1. Available Products:

a. Dow Corning Corporation; 756 H.P.

2. Type and Grade: M (multicomponent) and P (pourable).
3. Class: 50.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

J. Single-Component Pourable Neutral-Curing Silicone Sealant:

1. Available Products:

a. Dow Corning Corporation; 890-SL.
b. Pecora Corporation; 300 Pavement Sealant (Self Leveling).
c. Dow Corning Corporation; SL Parking Structure Sealant.

2. Type and Grade: S (single component) and P (pourable).
3. Class: 100/50.
4. Uses Related to Exposure: NT and T (traffic).
5. Uses Related to Joint Substrates: M, A and O, as applicable to joint substrates indicated.

K. Single-Component Neutral- and Basic-Curing Silicone Sealant:

1. Available Products:

a. Dow Corning Corporation; 790.
b. GE Silicones; SilPruf LM SCS2700.

c. Tremco; Spectrem 1 (Basic).
d. GE Silicones; SilPruf SCS2000.
e. Pecora Corporation; 864.
f. Pecora Corporation; 890.
g. Polymeric Systems Inc.; PSI-641.
h. Sonneborn, Division of ChemRex Inc.; Omniseal.
i. Tremco; Spectrem 3.
j. Dow Corning Corporation; 791.
k. Dow Corning Corporation; 795.
l. GE Silicones; SilPruf NB SCS9000.
m. GE Silicones; UltraPruf II SCS2900.
n. Pecora Corporation; 865.
o. Pecora Corporation; 895.
p. Pecora Corporation; 898.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 50.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
6. Stain-Test-Response Characteristics: Nonstaining to porous substrates per ASTM C 1248.

L. Single-Component Neutral-Curing Silicone Sealant:

1. Available Products:

a. Dow Corning Corporation; 799.
b. GE Silicones; UltraGlaze SSG4000.
c. GE Silicones; UltraGlaze SSG4000AC.
d. Polymeric Systems Inc.; PSI-631.
e. Schnee-Morehead, Inc.; SM5731 Poly-Glaze Plus.
f. Tremco; Proglaze SG.
g. Tremco; Spectrem 2.
h. Tremco; Tremsil 600.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

M. Single-Component Acid-Curing Silicone Sealant:

1. Available Products:

a. Bostik Findley; Chem-Calk 1200.
b. Dow Corning Corporation; 999-A.
c. Dow Corning Corporation; Trademate Glazing.
d. GE Silicones; Construction SCS1200.
e. GE Silicones; Contractors SCS1000.

f. GE Silicones; Sanitary SCS1700.
g. Pecora Corporation; 860.
h. Polymeric Systems Inc.; PSI-601.
i. Polymeric Systems Inc.; PSI-613.
j. Schnee-Morehead, Inc.; SM5732 Polyglaze.
k. Sonneborn, Division of ChemRex Inc.; OmniPlus.
l. Tremco; Proglaze.
m. Tremco; Tremsil 200.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: G, A, and, as applicable to joint substrates indicated, O.

N. Single-Component Mildew-Resistant Neutral-Curing Silicone Sealant:

1. Available Products:

a. Pecora Corporation; 898.
b. Tremco; Tremsil 600 White.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

O. Single-Component Mildew-Resistant Acid-Curing Silicone Sealant:

1. Available Products:

a. Dow Corning Corporation; 786 Mildew Resistant.
b. GE Silicones; Sanitary SCS1700.
c. Tremco; Tremsil 200 Clear.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: G, A, and, as applicable to joint substrates indicated, O.

P. Multicomponent Nonsag Urethane Sealant:

1. Available Products:

a. Pecora Corporation; Dynatrol II.
b. Tremco; Dymeric 511.
c. Tremco; Vulkem 922.

2. Type and Grade: M (multicomponent) and NS (nonsag).

3. Class: 50.
4. Uses Related to Exposure: NT (nontraffic) and T (traffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

Q. Multicomponent Nonsag Urethane Sealant:

1. Available Products:

a. Schnee-Morehead, Inc.; Permathane SM 7200.
b. Sika Corporation, Inc.; Sikaflex - 2c NS TG.
c. Sonneborn, Division of ChemRex Inc.; NP 2.
d. Tremco; Vulkem 227.
e. Tremco; Vulkem 322 DS.

2. Type and Grade: M (multicomponent) and NS (nonsag).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, [G,] A, and, as applicable to joint substrates indicated, O.

R. Multicomponent Nonsag Urethane Sealant:

1. Available Products:

a. Bostik Findley; Chem-Calk 500.
b. Pacific Polymers, Inc.; Elasto-Thane 227 R Type II (Gun Grade).
c. Polymeric Systems Inc.; PSI-270.
d. Tremco; Dymeric.

2. Type and Grade: M (multicomponent) and NS (nonsag).
3. Class: 25.
4. Additional Movement Capability: 40 percent movement in extension and 25 percent in compression for a total of 65 percent movement.
5. Use Related to Exposure: NT (nontraffic).
6. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

S. Multicomponent Nonsag Urethane Sealant:

1. Available Products:

a. Pacific Polymers, Inc.; Elasto-Thane 227 High Shore Type II (Gun Grade).
b. Pacific Polymers, Inc.; Elasto-Thane 227 Type II (Gun Grade).
c. Pecora Corporation; Dynatred.
d. Polymeric Systems Inc.; PSI-270.

2. Type and Grade: M (multicomponent) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: T (traffic).

5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

T. Multicomponent Nonsag Immersible Urethane Sealant:

1. Available Products:

a. Pacific Polymers, Inc.; Elasto-Thane 227 R Type II (Gun Grade).
b. Pecora Corporation; Dynatred.
c. Tremco; Vulkem 227.
d. Tremco; Vulkem 322 DS.

2. Type and Grade: M (multicomponent) and NS (nonsag).
3. Class: 25.
4. Uses Related to Exposure: T (traffic), NT (nontraffic) and I (immersible), Class 1.
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

U. Multicomponent Pourable Urethane Sealant:

1. Available Products:

a. Bostik Findley; Chem-Calk 550.
b. Meadows, W. R., Inc.; POURTHANE.
c. Pacific Polymers, Inc.; Elasto-Thane 227 High Shore Type I (Self Leveling).
d. Pacific Polymers, Inc.; Elasto-Thane 227 Type I (Self Leveling).
e. Pecora Corporation; Urexpan NR-200.
f. Polymeric Systems Inc.; PSI-270SL.
g. Schnee-Morehead, Inc.; Permathane SM 7201.
h. Tremco; THC-901.
i. Tremco; THC-900.
j. Tremco; Vulkem 245.
k. Pecora Corporation; Urexpan NR 300, Type H.
l. Pecora Corporation; Urexpan NR 300, Type M.

2. Type and Grade: M (multicomponent) and P (pourable).
3. Class: 25.
4. Use Related to Exposure: T (traffic).
5. Uses Related to Joint Substrates: M, A, and, as applicable to joint substrates indicated, O.

V. Multicomponent Pourable Urethane Sealant:

1. Available Products:

a. Pecora Corporation; Dynatrol II-SG.
b. Sika Corporation, Inc.; Sikaflex - 2c SL.
c. Sonneborn, Division of ChemRex Inc.; SL 2.

2. Type and Grade: M (multicomponent) and P (pourable).

3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

W. Multicomponent Pourable Immersible Urethane Sealant:

1. Available Products:

a. Pacific Polymers, Inc.; Elasto-Thane 227 R Type II (Self Leveling).
b. Tremco; Vulkem 245.

2. Type and Grade: M (multicomponent) and P (pourable).
3. Class: 25.
4. Uses Related to Exposure: T (traffic), NT (nontraffic) and I (immersible), Class 1.
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

X. Single-Component Nonsag Urethane Sealant:

1. Available Products:

a. Sika Corporation, Inc.; Sikaflex - 1a.
b. Sonneborn, Division of ChemRex Inc.; Ultra.
c. Sonneborn, Division of ChemRex Inc.; NP 1.
d. Tremco; Vulkem 116.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

Y. Single-Component Nonsag Urethane Sealant:

1. Available Products:

a. Bostik Findley; Chem-Calk 900.
b. Bostik Findley; Chem-Calk 915.
c. Bostik Findley; Chem-Calk 916 Textured.
d. Bostik Findley; Chem-Calk 2639.
e. Pecora Corporation; Dynatrol I-XL.
f. Polymeric Systems Inc.; Flexiprene 1000.
g. Polymeric Systems Inc.; PSI-901.
h. Schnee-Morehead, Inc.; Permathane SM7100.
i. Schnee-Morehead, Inc.; Permathane SM7108.
j. Schnee-Morehead, Inc.; Permathane SM7110.
k. Sika Corporation, Inc.; Sikaflex 15LMg
l. Tremco; DyMonic.
m Tremco; Vulkem 921.

n. Tremco; Vulkem 931.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 50.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

Z. Multicomponent Nonsag Immersible Urethane Sealant:

1. Available Products:

a. Tremco; Vulkem 116.
b. Tremco; Vulkem 921.

2. Type and Grade: M (multicomponent) and P (pourable).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic) and I (immersible), Class 1.
5. Uses Related to Joint Substrates: M, A, and, as applicable to joint substrates indicated, O.

AA. Single-Component Pourable Urethane Sealant:

1. Available Products:

a. Sika Corporation, Inc.; Sikaflex - 1CSL.
b. Sonneborn, Division of ChemRex Inc.; SL 1.
c. Tremco; Vulkem Nova 300 SSL.

2. Type and Grade: S (single component) and P (pourable).
3. Class: 50.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

BB. Single-Component Pourable Urethane Sealant:

1. Available Products:

a. Bostik Findley; Chem-Calk 950.
b. Pecora Corporation; Urexpan NR-201.
c. Polymeric Systems Inc.; Flexiprene 952.
d. Schnee-Morehead, Inc.; Permathane SM7101.
e. Tremco; Tremflex S/L.
f. Tremco; Vulkem 45.

2. Type and Grade: S (single component) and P (pourable).
3. Class: 25.
4. Use Related to Exposure: T (traffic).

5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

2.04 SOLVENT-RELEASE JOINT SEALANTS

A. Acrylic-Based Solvent-Release Joint Sealant: Comply with ASTM C 1311 or FS TT-S-00230.

1. Available Products:

a. Schnee-Moorehead, Inc.; Acryl-R Acrylic Sealant.
b. Tremco; Mono 555.

B. Butyl-Rubber-Based Solvent-Release Joint Sealant: Comply with ASTM C 1085.

1. Available Products:

a. Bostik Findley; Bostik 300.
b. Fuller, H. B. Company; SC-0296.
c. Fuller, H. B. Company; SC-0288.
d. Pecora Corporation; BC-158.
e. Polymeric Systems Inc.; PSI-301.
f. Sonneborn, Division of ChemRex Inc.; Sonneborn Multi-Purpose Sealant.
g. Tremco; Tremco Butyl Sealant.

C. Pigmented Narrow-Joint Sealant: Manufacturer's standard, solvent-release-curing, pigmented, synthetic-rubber sealant complying with AAMA 803.3 and formulated for sealing joints 3/16 inch (5 mm) or smaller in width.

1. Available Products:

a. Fuller, H. B. Company; SC-0289.
b. Schnee-Morehead, Inc.; SM 5504 Acryl-R Narrow Joint Sealant.

2.05 LATEX JOINT SEALANTS

A. Latex Sealant: Comply with ASTM C 834, Type O P, Grade NF.

B. Available Products:

1. Bostik Findley; Chem-Calk 600.
2. Pecora Corporation; AC-20+.
3. Schnee-Morehead, Inc.; SM 8200.
4. Sonneborn, Division of ChemRex Inc.; Sonolac.
5. Tremco; Tremflex 834.

2.06 ACOUSTICAL JOINT SEALANTS

A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Available Products:

a. Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant.
b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.

B. Acoustical Sealant for Concealed Joints: Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.

1. Available Products:

a. Pecora Corporation; BA-98.
b. Tremco; Tremco Acoustical Sealant.

2.07 PREFORMED JOINT SEALANTS

A. Preformed Silicone-Sealant System: Manufacturer's standard system consisting of precured low-modulus silicone extrusion, in sizes to fit joint widths indicated, combined with a neutral-curing silicone sealant for bonding extrusions to substrates.

1. Available Products:

a. Dow Corning Corporation; 123 Silicone Seal.
b. GE Silicones; UltraSpan US1100.
c. Pecora Corporation; Sil-Span.
d. Tremco; Spectrem Ez Seal.

B. Preformed Foam Sealant: Manufacturer's standard mildew-resistant, nonmigratory, nonstaining, preformed, precompressed, open-cell foam sealant that is manufactured from high-density urethane foam impregnated with a nondrying, water-repellent agent.

1. Available Products:

a. EMSEAL Joint Systems, Ltd.; Emseal 25V.
b. illbruck Sealant Systems, Inc.; Wilseal 600.
c. Polytite Manufacturing Corporation; Polytite B.
d. Polytite Manufacturing Corporation; Polytite Standard.
e. Sandell Manufacturing Co., Inc.; Polyseal.
f. Density: Manufacturer’s standard.

2.08 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), O (open-cell material), B (bicellular material with a surface skin), or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F (minus 32 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.09 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 EXECUTION

3.01 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant.

a. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.

2. Remove laitance and form-release agents from concrete.

a. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.02 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.

2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

G. Installation of Preformed Silicone-Sealant System: Comply with manufacturer's written instructions.

H. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, producing seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in compliance with sealant manufacturer's written instructions.

I. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 07920