

**WASTEWATER TREATMENT PLANT IMPROVEMENTS  
WINFIELD, IOWA**

CONTRACTOR'S BID DATE: Thursday, April 6, 2023 @ 2:00 P.M.

PLACE FOR CONTRACTORS  
TO SUBMIT BIDS:

City of Winfield  
City Hall  
115 North Locust Street  
Winfield, Iowa 52659

**ADDENDUM NO.3**

April 4, 2023

**TO ALL PLANHOLDERS:**

The following changes, clarifications, additions, and/or deletions are hereby made a part of the contract documents for the above-referenced project, as fully and completely as if the same were fully set forth therein. All Bidders submitting a Bid on the above Contract shall carefully read this Addendum and give it consideration in the preparation of their Bid.

This Addendum No. 3 consists of the following:

- Addendum No. 3 (pages ADN3-1 through ADN3-4)
- Prebid meeting sign-in sheet (1 page)
- Section 00400 Bid Form (6 pages)
- Section 07 1616 Crystalline Waterproofing – Additive (6 pages)

**QUESTIONS FROM PREBID MEETING**

1. Can conduit in the new building be exposed or should it be run in the attic space?
  - a. The internal conduit can be exposed.
2. Should there be any support material or footing under the 2x6 framing for the SAGR cells?
  - a. No, unless additional support is needed for construction purposes as deemed necessary by the contractor. The wood frame and plywood panels are intended to be sacrificial and needed for construction purposes only. Once the SAGR cells are constructed and backfilled, the wood serves no further purpose for the project.
3. There is no electrician wage rate in the Davis Bacon Wage Rates. The wage rate for the electrical contractor(s)/electricians will be submitted for approval after the award of the project.
4. Will consideration be given to locally sourced out of spec rock for the SAGR cells?
  - a. The SAGR rock must meet the specifications provided. Testing information for the SAGR rock can be submitted for review prior to the bid date and will be reviewed for consideration.
5. Do arc flash studies require a PE stamp?
  - a. Arc flash studies require a PE stamp as specified.
6. Is Builder's Risk required to be supplied by the contractor or the owner?

- a. Builder's Risk Insurance is to be provided by the Contractor as specified in the Standard General Conditions of the Construction Contract C-700, 6.04 and the Supplementary Conditions SC-6.04.
7. Is the contractor to provide the Stormwater Pollution Prevention Plan (SWPPP)?
  - a. Yes. See Sheet C101 General Note 9.

**CLARIFICATIONS:**

1. On Sheet C502, Detail 1 shows a Berm Restoration Section. This detail should be referenced for any repair areas needed on the lagoon berms. This includes restoration due to excavation of the new air lines, pipe penetrations, abandoning the existing aeration piping, etc. No new lagoon berm construction is anticipated for this project.
2. The existing trickling filter rock can either be hauled offsite and disposed of at a sanitary landfill, or it can be reused for rip rap on the lagoon berms. There are several areas where air line abandonment, new pipe penetrations, and removal of existing pipes will occur during construction. The Trickling filter rock can be used as rip rap for these repair areas. The repair areas will require an estimated 48 CY of rip rap. There is an estimated 400 CY of rip rap in the trickling filter. Any trickling filter rock not used for berm repair and restoration may be spread around the existing lagoon berms at a thickness of 9-12 inches, locations to be determined by OWNER/ENGINEER.

**SPECIFICATIONS:**

1. **REFER TO SECTION 00200 INSTRUCTION TO BIDDERS:**
  - a. **CHANGE** Bid Item No. 8.03 to Valve Vault Access Hatch, 36"x42".  
**Note:** This was previously modified on Addendum #1, however this change was not reflected on the updated Bid Form. A new bid form is attached.
2. **REFER TO SECTION 03 3000 CAST-IN-PLACE CONCRETE**
  - a. **CHANGE** 1.03.B.1 to "Iowa-registered professional engineer experienced in concrete mix design or"
  - b. **ADD** to 1.04.C:
    7. Adhesive anchor Certified Installers: Submit names and certification evidence for all individuals who are certified adhesive rebar anchor installers.
  - c. **ADD** to 1.04:
    - i. Reinforcing steel shop drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices. Shop drawings must also comply with additional specific requirements below:
      1. Placing drawings shall have sufficient detail to permit installation of reinforcing without reference to the Contract Documents.
      2. Do not reproduce Contract Documents, but redraw plans, sections, elevations and details as necessary to show all bars and supports.


3. Show required clear cover on all section views for each face of concrete or masonry.
    - a. Reinforcing drawings that do not show clear cover will be rejected without review.
  4. Bar supports: call out type and size of applicable bar support(s) on each reinforcing drawing.
  5. Adhesive rebar anchor product: submit manufacturer's printed installation instructions and copy of current ICC Evaluation Service report.
- d. **ADD** to 1.05:
- G. Adhesive anchors requiring certified installers: For any adhesive rebar anchor installed in any position between horizontal and vertical-overhead, installation and inspection must be performed by ACI-certified individuals (or equivalent certifying agency). Submit names and certification information for all individuals who will be performing this work. See 05 5000-1.04.B for additional information.
- e. **ADD** to 2.02.C.3:
- e. Plastic-tipped metal chairs are specifically not allowed for any work on the project.
- f. **ADD** to 2.02:
- D. Adhesive Rebar Anchors
1. Manufacturers: Hilti (RE500 V3), Simpson (SET 3g) or approved equal.
  2. Embedment: Embed all adhesive rebar anchors a minimum of 16 times the rebar diameter, unless noted otherwise.
  3. Follow all manufacturer's printed instructions and all recommendations of the ICC Evaluation Service Report.
- g. **ADD** to 2.05:
- K. Water Repellant: Silane Product, BASF (MasterProtect H 1000), Euclid (Baracade Silane 100C), or approved equal.
- h. **ADD** to 3.03:
- E. Adhesive rebar anchors:
1. Do not install any adhesive rebar anchors in concrete that is less than 21 days old.
  2. For any anchor that requires a certified installer, if anchor is installed by a non-certified individual it is subject to replacement with additional anchor by a certified installer at no additional cost to Owner.
- i. **ADD** to 3.11:
- G. Water Repellant: Apply water repellant per manufacturer's instructions to all exterior flatwork.

3. **REFER TO SECTION 05 5000 METAL FABRICATIONS**
  - a. **CHANGE** 1.04.B.2 from "certified adhesive rebar anchor installers" to "certified adhesive threaded rod anchor installers "
  - b. **ADD** to 3.08.A: For any anchor that requires a certified installer, if anchor is installed by a non-certified individual, it is subject to replacement with additional anchor by a certified installer at no additional cost to Owner.
4. **ADD SECTION 07 1616 CRYSTALLINE WATERPROOFING - ADDITIVE** (attached)
5. **REFER TO SECTION 35 0000 HIGH DENSITY POLYETHYLENE (HDPE) GEOMEMBRANE:**
  - a. **DELETE** Section 2.01.C
  - b. There is no geosynthetic line for the lagoon cells.

**PLANS:**

1. **REFER TO SHEET S102:** All Concrete on this sheet is Mix 2.
2. **REFER TO SHEET C505,** Detail 4, Halliday and USF are approved equivalents.

All bidders shall acknowledge receipt and acceptance of Addendum No. 3 by signing in the space provided on the Bid Form. Bids submitted without Addendum No. 3 being acknowledged will be considered non-responsive.

	<p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.</p> <p style="text-align: right;">Date: 4/4/23</p>
	<p><b>MATTHEW JOHN WILDMAN, P.E.</b></p> <p>License No. <b>17910</b></p> <p>My renewal date is <b>December 31, 2023</b></p> <p>Pages or sheets covered by this seal: <b>Addendum #3</b></p>

MATTHEW J. WILDMAN, PE  
HR GREEN, INC.  
8710 EARHART LANE  
CEDAR RAPIDS, IOWA 52404  
PHONE: (319) 841-4000

**END OF ADDENDUM #3**



## MEETING SIGN-IN SHEET

Project Name: Wastewater Treatment Plant Improvements

Project Job Number: 220323.01

Date: March 29, 2023 Time: 10:00 AM

Location: Winfield City Hall

Name (Please Print)	Representing	Phone Number	E-Mail Address
Eric Rea	PMG (Electrical)	309-221-3133	<a href="mailto:eric@precisionmechanicalgroupinc.com">eric@precisionmechanicalgroupinc.com</a>
Bob Roy	Keokuk Contractors	319-524-7343	<a href="mailto:bobroy@keokukcontractors.com">bobroy@keokukcontractors.com</a>
Jeff Clark	Esco Electric	660-342-0595	<a href="mailto:jeffclark@theescogroup.com">jeffclark@theescogroup.com</a>
Kory Stockdale	Esco Electric	641-295-4060	<a href="mailto:korystockdale@theescogroup.com">korystockdale@theescogroup.com</a>
JR Herrick	City of Winfield	319-850-1180	
Matt Wildman	HR Green	319-899-4798	<a href="mailto:mwildman@hrgreen.com">mwildman@hrgreen.com</a>
Jeff Getz	Fye Excavating	319-985-2200	<a href="mailto:jeff@fyeexcavating.com">jeff@fyeexcavating.com</a>
Nick Ford	Woodruff Construction	319-800-1247	<a href="mailto:nickf@woodruff.build">nickf@woodruff.build</a>
Steve Bush	Fye Excavating	319-985-2200	<a href="mailto:sbush@fyeexcavating.com">sbush@fyeexcavating.com</a>
Brittni Rahmus	SEIRPC	319-850-6122	<a href="mailto:brahmus@seirpc.com">brahmus@seirpc.com</a>
Jordan Richey	WRH	319-622-3816	<a href="mailto:jrichey@wendlerinc.com">jrichey@wendlerinc.com</a>
Josh Ellison	Tri City Electric	563-320-3327	<a href="mailto:jellison@tricityelectric.com">jellison@tricityelectric.com</a>

**ADDENDUM 3  
SECTION 00400  
BID FORM**

BID TO: City of Winfield  
115 North Locust Street  
Winfield, Iowa 52659

- The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the Owner in the form included in the Contract Documents to perform the WORK as specified or indicated in said Contract Documents entitled:

Wastewater Treatment Plant Improvements

- Bidder accepts all of the terms and conditions of the Contract Documents, including without limitation those in the Notice to Bidders and Instructions to Bidders, dealing with the disposition of the Bid Security.
- Schedule of prices for construction of Wastewater Treatment Plant Improvements in accordance with the Contract Documents.

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
<b>Division 1 – General</b>					
1.01	Mobilization	LS	1	\$	\$
1.02	Testing and Miscellaneous Items	LS	1	\$	\$
1.03	WWTP Warning Signs	EA	7	\$	\$
<b>Division 2 – Existing Conditions</b>					
2.01	Demolition	LS	1	\$	\$
2.02	Clearing and Grubbing	LS	1	\$	\$
2.03	Fence Removal	LF	2,395	\$	\$
<b>Division 3 – Concrete</b>					
3.01	Blower Building Foundation	LS	1	\$	\$
3.02	New Generator Foundation & Pad	LS	1	\$	\$
3.03	Transformer Pad	LS	1	\$	\$
3.04	Lift Station Control Panel Pad	LS	1	\$	\$
3.05	Effluent Sampler Pad	LS	1	\$	\$
3.06	Lift Station Wet Well, 10-ft Diameter	LS	1	\$	\$
3.07	Valve Vault, Rectangular	LS	1	\$	\$

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
<b>Division 3 – Concrete cont.</b>					
3.08	Primary Splitter Structure, TK-4004	LS	1	\$	\$
3.09	Primary SAGR Collection Manhole, MH-4400	LS	1	\$	\$
3.10	Secondary Splitter Structure, TK-5005	LS	1	\$	\$
3.11	SAGR Level Control Manhole, TK-5810	LS	1	\$	\$
3.12	Effluent Metering Manhole, MH-8120	LS	1	\$	\$
<b>Division 4 – Masonry</b>					
4.01	Blower Building	LS	1	\$	\$
<b>Division 5 – Metals</b>					
5.01	Bollards	EA	8	\$	\$
5.02	Aluminum Grating	SF	319	\$	\$
<b>Division 8 – Openings</b>					
8.01	Wet Well Access Hatch; 30"x36"	EA	1	\$	\$
8.02	Wet Well Access Hatch; 36"x72"	EA	1	\$	\$
8.03	Valve Vault Access Hatch; 36"x42"	EA	1	\$	\$
<b>Division 9 – Finishes</b>					
9.01	Paints and Coatings	LS	1	\$	\$
<b>Division 22 – Plumbing</b>					
22.01	3" Plug Valve	EA	1	\$	\$
22.02	4" Plug Valve	EA	1	\$	\$
22.03	8" Plug Valve	EA	12	\$	\$
22.04	10" Plug Valve	EA	2	\$	\$
22.05	12" Plug Valve	EA	4	\$	\$
22.06	18" Plug Valve	EA	2	\$	\$
22.07	4" Check Valve	EA	1	\$	\$
22.08	8" Check Valve	EA	2	\$	\$
22.09	Plumbing Piping and Fixtures	LS	1	\$	\$
<b>Division 23 – HVAC</b>					
23.01	Blower Building HVAC	LS	1	\$	\$

<b>Division 25 – Integrated Automation</b>					
25.01	Existing Ultrasonic Level Detector/Transmitter (Effluent Flow Meter)	EA	1	\$	\$
25.02	Magnetic Flow Meter	EA	1	\$	\$
25.03	Control Panel CP-1200	LS	1	\$	\$
<b>Division 26 – Electrical</b>					
26.01	Utility Service Upgrade Electrical	LS	1	\$	\$
26.02	New Engine-Generator & Wiring	LS	1	\$	\$
26.03	Blower Building Electrical	LS	1	\$	\$
26.04	Lift Station Electrical	LS	1	\$	\$
26.05	Lightning Protection	LS	1	\$	\$
26.06	Existing PV Rework Electrical	LS	1	\$	\$
<b>Division 31 – Site Work</b>					
31.01	Site Restoration	LS	1	\$	\$
31.02	Excavation	LS	1	\$	\$
31.03	Backfill	LS	1	\$	\$
31.04	Uniform Graded Clean Rock	CY	4,877	\$	\$
31.05	Gravel Landscape	SF	3,107	\$	\$
31.06	Gravel Drive	SF	17,254	\$	\$
31.07	Gravel Drive Overlay	SF	3,638	\$	\$
31.08	Insulating Mulch	CY	513	\$	\$
31.09	Non-Woven Geotextile	SF	28,212	\$	\$
31.10	SAGR HDPE Liner	SF	28,212	\$	\$
31.10	Wall Framing and Sheathing	LF	1,104	\$	\$
<b>Division 32 – Exterior Improvements</b>					
32.01	Fencing, Woven Wire	LF	2,317	\$	\$
<b>Division 33 – Utilities</b>					
33.01	Sanitary Sewer Abandonment, Fill & Plug	LF	300	\$	\$
33.02	Sanitary Sewer Gravity Main, PVC, 4"	LF	142	\$	\$
33.03	Sanitary Sewer Gravity Main, PVC, 8"	LF	218	\$	\$
33.04	Sanitary Sewer Gravity Main, PVC 12" PVC	LF	66	\$	\$



<b>Division 33 – Utilities cont.</b>					
33.05	Sanitary Sewer Gravity Main, PVC, 18"	LF	110	\$	\$
33.06	Sanitary Sewer Gravity Main, PVC 24"	LF	531	\$	\$
33.07	Field Tile, HDPE, 8"	LF	100	\$	\$
33.08	Blower Discharge Piping Stainless Steel	LS	1	\$	\$
33.09	Aeration Header Piping, HDPE, 4"	LF	270	\$	\$
33.10	Aeration Header Piping, HDPE, 6"	LF	408	\$	\$
<b>Division 33 – Utilities cont.</b>					
33.11	Sanitary Sewer Force Main, DIP, 4"	LF	15	\$	\$
33.12	Sanitary Sewer Force Main, DIP, 8"	LF	51	\$	\$
33.13	Water Service, PE, 2"	LF	129	\$	\$
<b>Division 35 – Waterway and Marine Construction</b>					
35.01	24" Slide Gate	EA	1	\$	\$
35.02	Turtle Guard, Lagoon Draw Pipes	EA	1	\$	\$
35.03	24" Animal Guard, Outfall	EA	1	\$	\$
<b>Division 41 – Material Processing and Handling Equipment</b>					
41.01	Portable Crane & Electric Hoist	LS	1	\$	\$
<b>Division 43 – Process Gas and Liquid Handling, Purification, and Storage Equipment</b>					
43.01	Submersible Solids Handling Pumps	LS	1	\$	\$
<b>Division 44 – Pollution and Waste Control Equipment</b>					
44.01	Influent Composite Sampler	EA	1	\$	\$
44.02	Effluent Composite Sampler Removal & Re-Installation	EA	1	\$	\$
44.03	SAGR System	LS	1	\$	\$
<b>Division 46 – Water and Wastewater Equipment</b>					
46.01	Lagoon Aeration System	LS	1	\$	\$
46.02	Trash Basket	EA	1	\$	\$
<b>TOTAL ITEM 1.01 THROUGH 46.02</b>					<b>\$</b>

4. Name of person who inspected site of proposed WORK for your firm:

Name: \_\_\_\_\_ Date of Inspection: \_\_\_\_\_

5. Bidder has examined copies of all the Contract Documents including the following addenda (receipt of all of which is hereby acknowledged):

Number	_____	Date	_____
	_____		_____
	_____		_____

6. Failure to acknowledge addenda may render the Bid non-responsive and be cause for its rejection. Bidder has familiarized itself with the nature and extent of the Contract Documents, WORK, site, 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.

7. The Bidder hereby agrees to comply with the additional requirements listed below which are included in this proposal and identified as Bid Form attachments:

<b>ITEM NO.</b>	<b>DESCRIPTION OF ATTACHMENT</b>
1.	Bidder Status Form and Worksheet: Authorization to Transact Business
2.	Section 00430 – Bid Bond (Submitted in Separate Sealed Envelope)
3.	SRF Attachments 1, 2, 3, 4, 5 & 10

To all the foregoing, and including all Bid Forms contained in this Bid, said Bidder further agrees to complete the WORK required under the Contract Documents within the Contract Time stipulated in said Contract Documents, and to accept in full payment therefore the Contract Price based on the Total Bid Price(s) named in the aforementioned Bid Form.

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

By: \_\_\_\_\_  
(Firm Name)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Typed or Printed Name)

(Title)

(1) BIDDER's name and address:

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

(2) BIDDER's telephone numbers, and e-mail address:

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

(3) Federal Tax I.D. No.: \_\_\_\_\_ Iowa Contractor License No.:

\_\_\_\_\_  
(DO NOT OMIT)

(4) BIDDER's authorized agent for contract execution: \_\_\_\_\_  
Name and Title

(5) BIDDER's attesting agent for contract execution: \_\_\_\_\_  
Name and Title

(6) BIDDER's type of business: \_\_\_\_\_  
(Corporation, partnership, individual, etc.)

END OF SECTION 00400

## SECTION 07 1616

### CRYSTALLINE WATERPROOFING - ADDITIVE

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. Section Includes: Furnishing of all labor, materials, services and equipment necessary for the supply and installation of crystalline waterproofing additive to concrete structures as indicated on the drawings and as specified herein. The crystalline waterproofing material shall be added to concrete during the mixing cycle, and shall be used in above or below-grade walls as indicated on the drawings.
- B. Related Sections:
  - 1. Section 03 3000 - Concrete Work
  - 2. Section 03 2000 - Concrete Reinforcement
  - 3. Section 07 1617 – Crystalline Waterproofing – Exterior Application for manholes.

##### 1.02 REFERENCES

- A. Applicable Standards: The following standards are referenced herein.
  - 1. American Society for Testing and Materials (ASTM)
  - 2. Army Corps of Engineers (CRD)
  - 3. American Concrete Institute (ACI)
  - 4. NSF International (NSF)

##### 1.03 SYSTEM DESCRIPTION

- A. Crystalline Waterproofing Additive: Concrete waterproofing system shall be of the crystalline type that chemically controls and permanently fixes a non-soluble crystalline structure throughout the capillary voids of the concrete. The system shall cause the concrete to become sealed against the penetration of liquids from any direction, and shall protect the concrete from deterioration due to harsh environmental conditions.

##### 1.04 SYSTEM PERFORMANCE REQUIREMENTS

- A. Testing Requirements: Crystalline waterproofing system shall be tested in accordance with the following standards and conditions, and the testing results shall meet or exceed the performance requirements as specified herein.
- B. Independent Laboratory: Testing shall be performed by an independent laboratory meeting the requirements of ASTM E 329-90 and certified by the United States Bureau of Standards. Testing laboratory shall obtain all concrete samples and waterproofing product samples.
- C. Crystalline Formation: Crystallizing capability of waterproofing system shall be evidenced by independent SEM (Scanning Electron Microscope) photographs showing crystalline formations within the concrete matrix.
- D. Permeability: Independent testing shall be performed according to U.S. Army Corps of Engineers CRD-C48-73 "Permeability of Concrete". Treated concrete samples shall be pressure tested to 150 psi (350 foot head of water) or 1.05 MPa (106m head of water). The treated samples shall exhibit no measurable leakage.
- E. Chemical Resistance: Independent testing shall be performed to determine "Sulfuric Acid Resistance of Concrete Specimens". Treated concrete samples (dosage rates of 3%, 5% and

7%) shall be tested against untreated control samples. All samples shall be immersed in sulfuric acid and weighed daily until a control sample reaches a weight loss of 50% or over. On final weighing the percentage weight loss of the treated samples shall test significantly lower than the control samples.

- F. Compressive Strength: Independent testing shall be performed according to ASTM C39 "Compressive Strength of Cylindrical Concrete Specimens". Concrete samples containing the crystalline waterproofing additive shall be tested against untreated control sample. At 28 days, the treated samples shall exhibit a minimum of 10% increase in compressive strength over the control sample.
- G. Potable Water Approval: Independent testing shall be performed according to NSF Standard 61, and approval for use of waterproofing material on structures holding potable water shall be evidenced by NSF certification.

### 1.05 SUBMITTALS

- A. General: Submit listed submittals in accordance with conditions of the Contract and with Division 1 Submittal Procedures Section.
- B. Product Data: Submit product data, including manufacturer's specifications, installation instructions, and general recommendations for waterproofing applications. Also include manufacturer's certification or other data substantiating that products comply with requirements of Contract Documents.
- C. Test Reports: Submit, for acceptance, complete test reports from approved independent testing laboratories certifying that waterproofing system conforms to performance characteristics and testing requirements specified herein.
- D. Manufacturer's Certification: Provide certificate signed by manufacturer or manufacturer's representative certifying that the materials to be installed comply in all respects with the requirements of this specification.

### 1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer to be ISO 9001 registered, and to have no less than 10 years experience in manufacturing the crystalline waterproofing additive for the required work. Manufacturer must be capable of providing field service representation during construction phase. Manufacturers that cannot provide the performance test data specified herein will not be considered for the project.
- B. Applicator: Installer of crystalline waterproofing additive shall be approved by the manufacturer or manufacturer's representative in writing.
- C. Pre-Installation Conference: Prior to installation of waterproofing, conduct meeting with Engineer, owner's representative, applicator (concrete supplier), concrete placer and waterproofing manufacturer's representative to verify and review the following:
  - 1. Project requirements for waterproofing as set out in Contract Document.
  - 2. Manufacturer's product data including application instructions.
- D. Technical Consultation: The waterproofing manufacturer's representative shall provide technical consultation on waterproofing application.

### 1.07 DELIVERY, STORAGE AND HANDLING

- A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Delivery: Deliver packaged waterproofing materials to project site in original undamaged containers, with manufacturer's labels and seals intact.
- C. Storage: Store waterproofing materials in dry, enclosed location, at temperature and humidity conditions recommended by manufacturer.

### 1.08 WARRANTY

- A. Project Warranty: Refer to conditions of the Contract for project warranty provisions.
- B. Manufacturer's Warranty: Manufacturer shall provide standard product warranty executed by authorized company official. Term of warranty shall be two years from Date of Substantial Completion.

## PART 2 – PRODUCTS

### 2.01 MATERIALS

- A. Acceptable Manufacturer:

Xypex Chemical Corporation  
13731 Mayfield Place, Richmond, B.C., Canada V6V 2G9  
Tel: 800 961.4477 or 604 273.5265 Fax: 604 270.0451  
E-mail: [info@xypex.com](mailto:info@xypex.com) Website: [www.xypex.com](http://www.xypex.com)

Master Builders Solutions US LLC  
23700 Chagrin Blvd  
Beachwood, OH 44122  
Ph: 662-420-9563, email: [richard.hill@mbcc-group.com](mailto:richard.hill@mbcc-group.com)

Penetron USA, Inc.  
45 Research Way, Suite 203  
East Setauket, NY 11733  
Website: [www.penetron.com](http://www.penetron.com)

- B. Proprietary Products: Xypex crystalline waterproofing materials as follows:
  - 1. Xypex Admix C-500
  - 2. Xypex Admix C-1000
  - 3. Xypex Admix C-2000
  - 4. MasterLife 300D
  - 5. Penetron Admix SB

Note: Supplemental specifications are available for Xypex Admix C-500 NF (no fines grade), Xypex Admix C-1000 NF (no fines grade) and Xypex Admix C-2000 NF (no fines grade).

- C. Substitutions: Only Engineer approved substitutions are permitted.
- D. Source Quality: Obtain proprietary crystalline waterproofing products from a single manufacturer.

## 2.02 DOSAGE

- A. General: Xypex Admix must be added to concrete mix at time of batching.
- B. Dosage Rate: Under normal conditions, the crystalline waterproofing powder shall be added to the concrete mix at the following rate for Xypex products:

Xypex Admix C-500	2% – 3% by weight of portland cement content
Xypex Admix C-1000	2% – 3% by weight of portland cement content
Xypex Admix C-2000	2% by weight of portland cement content
Xypex Admix NF (no fines grade)	1 – 1.5% by weight of portland cement content

For enhanced chemical protection or meeting specific project requirements, or where the concrete mix design contains higher than 20% fly ash content or includes a portland cement/slag cement blend, consult with manufacturer or its authorized representative to determine appropriate dosage rates.

Dosage rates and batching for other approved substitutions shall be per manufacturer's recommendations.

## PART 3 – EXECUTION

### 3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data regarding installation, including technical bulletins, product catalogue, installation instructions and product packaging labels.

### 3.02 PROJECT CONDITIONS

- A. Reinforcement: All reinforcement shall be rib deformed bar in accordance with applicable standards. Exposed concrete decks (joint free) shall contain sufficient reinforcement to minimize thermal movement and control cracking.
- B. Setting Time and Strength: Some retardation of set may occur when using Xypex Admix products. The amount of retardation will depend upon the concrete mix design, the particular Admix product used, dosage rate of the Admix, temperature of the concrete and climatic conditions. Concrete containing a Xypex Admix product may develop higher ultimate strengths than plain concrete. Conduct trial mixes under project conditions to determine setting time and strength of the concrete. Consult with manufacturer or manufacturer's representative regarding concrete mix design, project conditions and proper dosage rate.
- C. Weather Conditions: For mixing, transporting and placing concrete under conditions of high temperature or low temperature, follow concrete practices as referred to in ACI 305R (Hot Weather Concreting) and ACI 306R (Cold Weather Concreting). For flatwork being placed in either hot, dry or windy conditions use of monomolecular film (evaporation retardant) is recommended to control loss of bleed water.

### 3.03 APPLICATION

- A. General: Xypex Admix shall be added to the concrete mix at time of batching. Thorough blending of the Xypex Admix throughout the concrete mix is essential for correct performance of the product and, therefore, care should be taken to ensure that a homogeneous mixture is obtained.

- B. Concrete Batching & Mixing: Procedures for mixing will vary according to type of batch plant operation and equipment.
  - 1. Ready Mix Plant - Dry Batching Operation: Add Xypex Admix powder to drum of ready-mix truck, then add 60% - 70% of required water along with 300 - 500 lb. (136 - 227 kg) of aggregate. Mix the materials for 2 - 3 minutes to ensure that the Admix is distributed evenly throughout the mix water. Add balance of materials to the ready-mix truck and mix in accordance with standard batch practices.
  - 2. Ready Mix Plant - Central Mix Operation: Mix Xypex Admix with water to form a very thin slurry (e.g. 15 - 20 lb. or 6.75 - 9 kg of powder mixed with 3 gallons or 13.6 litres of water). Pour the required amount of material in drum of ready-mix truck. The aggregate, cement and water should be batched and mixed in the plant in accordance with standard practices (taking into account the quantity of water that has already been placed in the ready-mix truck). Pour the concrete into the truck and mix for at least 5 minutes to ensure even distribution of the Xypex Admix throughout the concrete.

### **3.04 CURING**

- A. General: Concrete containing Xypex Admix shall be moist cured in accordance with ACI Reference 308, "Standard Practice for Curing Concrete".
- B. Curing Compounds: Curing compounds may be used in the event that project requirements or conditions prevent moist curing. Curing compounds shall comply with ASTM C-309.

### **3.05 PROTECTION**

- A. Protection: Protect installed product and finished surfaces from damage during construction.

### **3.06 FIELD QUALITY CONTROL**

- A. Examination for Defects: Do not conceal Xypex treated concrete before it has been observed by Architect / Engineer, waterproofing manufacturer's representative and other designated entities. Concrete shall be examined for structural defects such as faulty construction joints, cold joints and cracks. Such defects to be repaired in accordance with manufacturer's repair procedures.

### **3.07 INTERACTION WITH OTHER MATERIALS**

- A. Backfilling: Normal backfilling procedures may be used after concrete has been cured for at least seven days and watertightness test is completed. In no event shall backfilling take place before concrete has gained sufficient strength to withstand the applied load.
- B. Grout, Cement Parge Coat, Plaster or Stucco: Because concrete containing Xypex Admix forms a relatively smooth surface and the resulting crystalline formation fills the concrete pores thereby reducing suction characteristics of the concrete, it may be necessary to use a suitable bonding agent for proper bonding of cementitious systems.
- C. Responsibility to Ensure Compatibility: Xypex Admix products are compatible with most admixtures used in the production of quality concrete. However, Xypex Chemical Corporation makes no representations or warranties regarding such compatibility of Xypex Admix products with other additives or admixtures, nor regarding compatibility of the Xypex treated concrete with coatings, plasters, stuccos, tiles or other surface-applied materials. It shall be the responsibility of the concrete contractor to take whatever measures are necessary, including testing, to ensure compatibility of the Xypex Admix with other additives or admixtures being used in the concrete mix, and it shall be the responsibility of the installer of the surface-applied material that is to be applied over the Xypex treated concrete to take whatever measures are



necessary, including testing, to ensure acceptance by or adhesion to the Xypex treated concrete.

**END OF SECTION**