

ADDENDUM NO. 4
TO THE BIDDING DOCUMENTS
for the construction of the
4th Street Pump Station and Gatewell, 2nd Street Floodwall South
Fargo, North Dakota
Work Package 42A.1/42A.3, Contract No. WP-42A.1/42A.3

Date: September 4, 2014
CH2M HILL Project No. 435534/WP-42A.1/42A.3
HMG Project No. 1014-210

To All Planholders and/or Prospective Bidders:

PART 2, CONTRACTING REQUIREMENTS

1. 00_C-520 AGREEMENT:

- a. REPLACE 00_C-520 AGREEMENT in its entirety with 00_C-520 AGREEMENT included in Addendum No. 4.

PART 3, SPECIFICATIONS

1. 01_31_13B_PROJECT_COORDINATION:

- a. REPLACE 01_31_13B_PROJECT_COORDINATION in its entirety with 01_31_13B_PROJECT_COORDINATION included in Addendum No. 4.

2. SECTION 09 90 00, PAINTS AND COATINGS:

- a. REPLACE SECTION 09 90 00, PAINTS AND COATINGS in its entirety with 09 90 00 AD-4, PAINTS AND COATINGS included with Addendum No. 4.

All Bidders shall acknowledge receipt and acceptance of this Addendum No. 4 in the Bid Form. Bid Forms submitted without acknowledgment or without this Addendum will be considered in nonconformance.

Houston-Moore Group, LLC



Project Engineer

Appended hereto and part of Addendum No. 4:

1. 00_C-520 AGREEMENT
2. 01_31_13B_PROJECT_COORDINATION
3. SECTION 09 90 00, PAINTS AND COATINGS

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of North Dakota. Responsible for Specification Sections 23 00 00, 23 03 00.00 20, 23 05 48.00 40, 23 05 93, 23 07 00, 23 08 00.00 10, 23 09 33.00 40, 23 23 00, 23 31 13.00 40, 23 82 46.00 40, 33 08 55, 33 52 10, 33 S6 10 and 33 58 00.

This document was originally issued and sealed by Jeffrey A. Lewis, Registration No. PE-9245, on July 25, 2014 and the original document is stored at CH2M HILL ENGINEERING, INC., Fargo, ND.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of North Dakota. Responsible for Specification Sections 02 41 00, 02 82 16.00 20, 03 22 70.01 13, 22 00 00, 22 10 00.00 10, 22 10 00.00 10A, 22 14 29.00 40, 31 23 33.00 13, 32 12 16, 32 92 19.01 13, 35 05 40.17, 35 20 16.53, 40 05 13, 35 31 19.00 13, 41 22 23.19, and 46 20 20.

This document was originally issued and sealed by Kenneth T. Demmons, Registration No. PE-8979, on July 25, 2014 and the original document is stored at CH2M HILL ENGINEERING, INC., Fargo, ND.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of North Dakota. Responsible for Specification Sections 03 11 13.00 10, 03 15 00.00 10, 03 20 00.00 10, 03 30 00.00 10, 03 35 00.00 10, 03 39 00.00 10, 03 45 33, 05 12 00, 05 50 13, 05 50 14 and 31 00 00.00 14.

This document was originally issued and sealed by Svein K. Magnussen, Registration No. PE-9375, on July 25, 2014 and the original document is stored at CH2M HILL ENGINEERING, INC., Fargo, ND.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Architect under the laws of the state of North Dakota. Responsible for Specification Sections 03 33 00, 04 20 00, 05 51 33, 05 72 00, 06 10 00, 07 11 13, 07 14 00, 07 19 00, 07 21 13, 07 22 00, 07 53 23, 07 60 00, 07 92 00, 08 11 16, 08 60 45, 08 71 00, 08 81 00, 08 91 00, 09 06 90, 09 90 00, 10 14 00.20, 10 44 16.

This document was originally issued and sealed by James C. Adrian Jr., R. A., License No. 2444, on July 25, 2014 and the original document is stored at CH2M HILL ENGINEERING, INC., Fargo, ND.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of North Dakota. Responsible for Specification Sections 26 00 00.00 20, 26 20 00, 26 23 00.00 40, 26 29 01.00 10, 26 32 15.00 10, 26 36 00.00 10, 26 41 00, 26 51 00, 26 56 00, 33 56 10, 33 58 00, 33 71 02, 40 95 00, 40 95 00A and 40 95 00B.

This document was originally issued and sealed by Kevin K. Themes, Registration No. PE-9499, on July 25, 2014 and the original document is stored at CH2M HILL ENGINEERING, INC., Fargo, ND.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of North Dakota. Responsible for Specification Section 31 00 00.00 13.

This document was originally issued and sealed by Randy G. Engelstad, Registration No. PE-6676, on July 25, 2014 and the original document is stored at CH2M HILL ENGINEERING, INC., Fargo, ND.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of North Dakota. Responsible for Specification Section 35 20 14.

This document was originally issued and sealed by Jeremy L. McLaughlin, Registration No. PE-4883, on July 25, 2014 and the original document is stored at CH2M HILL ENGINEERING, INC., Fargo, ND.

This document was originally issued and sealed by the above professionals, and the original document is stored at CH2M HILL ENGINEERING, INC., Fargo, ND.

END OF ADDENDUM

AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT

THIS AGREEMENT is by and between Flood Metro Diversion Authority (“Owner”) and

 (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:
- A. The Project consists of a new 100,000 gallon per minute (gpm) pump station, gatewell structure, backup power generator, outfall structure and approximately 280 feet of modifications for the existing 4th Street levee; demolition of the existing pump stations; construction of approximately 350 feet of concrete floodwall on 2nd Street South; and reconstruction of approximately 600 feet of 2nd Street South; realignment of street lights along the 2nd Street South corridor; and other associated components in Fargo, North Dakota.

ARTICLE 2 – THE PROJECT

- 2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as the 4th Street Pump Station and Gatewell; 2nd Street Floodwall South, Work Package 42A.1/42A.3.

ARTICLE 3 – ENGINEER AND OWNER’S REPRESENTATIVE

- 3.01 The Project has been designed by Houston-Moore Group, LLC (“Engineer”).
- 3.02 The Owner has retained CH2M HILL Engineers, Inc. to act as Owner’s Representative, assume all duties and responsibilities, and have the rights and authority assigned to Owner’s Representative in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

- 4.01 *Time of the Essence*
- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.
- 4.02 *Contract Times:*
- A. Parts of the Work shall be substantially completed on or before the following Milestone(s):
 1. 2nd Street Floodwall North of 2nd Street, 2nd Street Closure, Utilities, and 2nd Street Reconstruction: November 1, 2015.

2. Demo of Infrastructure Underneath Existing Levee: July 31, 2015
 3. Installation and backfill of Fargo Highrise utilities from west driveway to the west side of the eastern driveway plus installation of crushed concrete surfacing for temporary parking: July 31, 2015. Eastern driveway access shall remain open. Under no circumstances shall the western Highrise parking lot be closed for utility installation longer than 45 days. Access to the Highrise shall be maintained at all times.
 4. Installation and backfill of Fargo Highrise utilities from east driveway to the eastern construction limits plus installation of crushed concrete surfacing for temporary parking: August 20, 2015. Western access shall be open during this time. Under no circumstances shall the eastern Highrise parking lot be closed for utility installation longer than 20 days. Access to the Highrise shall be maintained at all times.
 5. Pump Station, Yard Piping, Outfall Gatewell and Levee Modifications: November 13, 2015.
 6. Demolition of Existing Pump Stations: January 29, 2016.
 7. Generator Building and Floodwall South of 2nd Street: September 5, 2016.
- B. The Work will be substantially completed on September 5, 2016 as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions by November 11, 2016.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties 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 completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. Substantial Completion: Contractor shall pay Owner \$3,000 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
 2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$2,000 for each day that expires after such time until the Work is completed and ready for final payment.
 3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

4.04 *Special Damages*

- A. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner for any delay claims paid by Owner to other owners or Contractor(s) delayed as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

- A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item):

ITEM NO.	DESCRIPTION	UNITS	ESTIMATED QUANTITY	UNIT PRICE (\$)	Total Estimated Price (\$)
0001	Mobilization	LS	1		
0002	Demolition-Pump Stations, Storm Sewers, Force Mains	LS	1		
0003	Demolition-Other	LS	1		
0004	Storm Sewers	LS	1		
0005	Water Mains	LS	1		
0006	Force Mains and Sump Pump Discharge	LS	1		
0007	Paving, Sidewalks, Curb and Gutter	LS	1		
0008	Re-vegetation	LS	1		
0009	Levee (Sta. 5+10.00 to Sta. 7+42.06)	LS	1		
0010	Erosion and Sediment Control	LS	1		
0011	Traffic Control	LS	1		
0012	Pump Station-Structural and Architectural	LS	1		
0013	Stormwater Pumps and Motors	LS	1		
0014	Sump Pumps	LS	1		
0015	Trash Racks and Miscellaneous Metals	LS	1		
0016	Sluice Gates and Wall Thimbles	LS	1		
0017	Generator Bldg. – Structural and Architectural	LS	1		
0018	Gatewell-Structural	LS	1		
0019	Gatewall-Miscellaneous Metals	LS	1		
0020	Floodwall (Sta. 0+51.25 to Sta. 5+10.00)	LF	459		
0021	Sheetpiling	LS	1		
0022	ST-1	LS	1		

ITEM NO.	DESCRIPTION	UNITS	ESTIMATED QUANTITY	UNIT PRICE (\$)	Total Estimated Price (\$)
0023	ST-2	LS	1		
0024	ST-3	LS	1		
0025	ST-4	LS	1		
0026	Diesel Generator	LS	1		
0027	Switchboard SWBDA, Motor Control Center MCLA, Automatic Transfer Switch, Panel HP1	LS	1		
0028	Electrical-Interior	LS	1		
0029	Electrical-Exterior	LS	1		
0030	Instrumentation and Controls	LS	1		
0031	Programming	LS	1		
0032	HVAC - General	LS	1		
0033	Plumbing-General	LS	1		
0034	Generator Accessories, Fuel Storage, and Fuel System	LS	1		
0035	Health and Safety	LS	1		
0036	Sanitary Sewers	LS	1		

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Owner's Representative.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Owner's Representative as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments

previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract

- a. 90 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Owner's Representative, and if the character and progress of the Work have been satisfactory to Owner and Owner's Representative, then as long as the character and progress of the Work remain satisfactory to Owner and Owner's Representative, there will be no additional retainage; and
 - b. Ninety (90) percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 200 percent of Owner's Representative's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Owner's Representative as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

- 7.01 No interest will be paid for late payments.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
 - E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related

reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Owner's Representative written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Owner's Representative is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 Contents

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to 8, inclusive).
 - 2. Performance bond (pages 1 to 3, inclusive).
 - 3. Payment bond (pages 1 to 4, inclusive).
 - 4. General Conditions (pages 1 to 68, inclusive).
 - 5. Supplementary Conditions (pages 1 to 4, inclusive).
 - 6. Specifications as listed in the table of contents of the Project Manual.
 - 7. Drawings (not attached but incorporated by reference) consisting of 156 sheets with each sheet bearing the following general title: 4th Street Pump Station and Gatewell, Fargo, North Dakota, Work Package 42A.1/42A.3.
 - 8. Addenda (numbers to , inclusive).
 - 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages 1 to , inclusive).
 - 10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.

- c. Change Orders.
- d. Field Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is 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.

10.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of

Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

- 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
- 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:
Metro Flood Diversion Authority

CONTRACTOR:

By: Darrell Vanyo

By: _____

Title: Board Chair, MFDA

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

Cass County Courthouse

211 Ninth Street South

Box 2806

Fargo ND 58108-2806

License No.: _____

END OF SECTION

SECTION 01 31 13
PROJECT COORDINATION

PART 1 GENERAL

1.01 SUBMITTALS

A. Informational:

1. Statement of Qualification (SOQ) for land surveyor or civil engineer.
2. Statement of Qualification (SOQ) for professional photographer and videographer.
3. Photographs:
 - a. Digital Images: Submit two copies of DVDs containing images within 5 days of being taken.
 - b. Video Recordings: Submit two copies of DVDs, including updated copy of project video log, within 5 days of being taken.

1.02 RELATED WORK AT SITE

A. General:

1. Other work that is either directly or indirectly related to scheduled performance of the Work under these Contract Documents, listed below, is anticipated to be performed at Site:
 - a. Contract No. 1-General Construction
 - b. Contract No. 2-Electrical Construction
 - c. Contract No. 3-Mechanical Construction
2. Coordinate the Work of these Contract Documents with work of others as specified in General Conditions.
3. Include sequencing constraints specified herein as a part of Progress Schedule.

1.03 UTILITY NOTIFICATION AND COORDINATION

A. Coordinate the Work with various utilities within Project limits. Notify applicable utilities prior to commencing Work, if damage occurs, or if conflicts or emergencies arise during the Work.

1. Electric Company:
 - a. Xcel Energy:
 - 1) Contact Person: Cory Kiemele
 - a) Telephone: (701) 241-8664
 - b) Email: cory.f.kiemele@xcelenergy.com

2. Communications:
 - a. Cable One:
 - 1) Contact Person: Mark Lovik
 - a) Telephone: (701) 729-6205
 - b) Email: mark.lovik@cableone.biz
 - b. Eventis:
 - 1) Contact Person: Ross Branster
 - a) Telephone: (701) 361-0551
 - b) Email: ross.branster@eventis.com
 - c. 702 Communications:
 - 1) Contact Person: Mike Day
 - a) Telephone: (218) 284-5733
 - b) Email: mday@702communications.com
 - d. City of Fargo Fiber Optic:
 - 1) Contact Person: Ron Gronneberg
 - a) Telephone: (701) 241-1312
 - b) Email: rgronneberg@cityoffargo.com
3. City of Fargo Utilities:
 - a. City of Fargo:
 - 1) Contact Person: Nathan Boerboom
 - a) Telephone: (701) 476-6743
 - b) Email: nboerboom@cityoffargo.com
 - 2) Contact Person: Brenda Derrig
 - a) Telephone: (701) 241-1549
 - b) Email: bderrig@cityoffargo.com

1.04 PROJECT MILESTONES

- A. General: Include the Milestones specified herein as a part of the Progress Schedule required under Section 01 32 00, Construction Progress Documentation.
- B. Project Milestones: Generally described in the Agreement Form. Following is a description of each:
 1. 2nd Street Floodwall North of 2nd Street, 2nd Street Closure, Utilities, and 2nd Street Reconstruction: November 1, 2015.
 2. Demo of Infrastructure Underneath Existing Levee: July 31, 2015
 3. Installation and backfill of Fargo Highrise utilities from west driveway to the west side of the eastern driveway plus installation of crushed concrete surfacing for temporary parking: July 31, 2015. Eastern driveway access shall remain open. Under no circumstances shall the western Highrise parking lot be closed for utility installation longer than 45 days. Access to the Highrise shall be maintained at all times.
 4. Installation and backfill of Fargo Highrise utilities from east driveway to the eastern construction limits plus installation of crushed concrete surfacing for temporary parking: August 20, 2015. Western access shall

be open during this time. Under no circumstances shall the eastern Highrise parking lot be closed for utility installation longer than 20 days. Access to the Highrise shall be maintained at all times.

5. Pump Station, Yard Piping, Outfall Gatewell and Levee Modifications: November 13, 2015.
6. Demolition of Existing Pump Stations: January 29, 2016.
7. Generator Building and Floodwall South of 2nd Street: September 5, 2016.

1.05 WORK SEQUENCING/CONSTRAINTS

A. Include the following in the Progress Schedule, at a minimum:

1. Pump Station.
2. Floodwall.
3. Utility Relocations.
4. Yard Piping.
5. Outfall.
6. Gatewell.
7. Demolition.
8. Levee Modifications.
9. Generator.
10. 2nd Street Closure.

1.06 ADJACENT FACILITIES AND PROPERTIES

A. Examination:

1. After Effective Date of the Agreement and before Work at Site is started, Contractor, Owner's Representative, and affected property owners and utility owners shall make an examination of pre-existing conditions including existing buildings, structures, and other improvements in vicinity of Work, as applicable, which could be damaged by construction operations.
2. Record and submit three copies documenting observations made on examination inspections in accordance with Article Construction Photographs and Article Audio-Video Recordings.
3. Upon receipt, Owner's Representative will review, sign, and return one record copy of documentation to Contractor, and retain two copies.
4. Such documentation shall be used as indisputable evidence in ascertaining whether and to what extent damage occurred as a result of Contractor's operations, and is for the protection of adjacent property owners, Contractor, and Owner.

1.07 REFERENCE POINTS AND SURVEYS

A. Owner's Responsibilities:

1. Establish bench marks, horizontal reference points, and coordinate system for Contractor's use as necessary to lay out Work.
2. Survey for measurement of quantities for payment.
3. Survey for as-built and record drawings.

B. Location and elevation of bench marks and other reference points are shown on Drawings.

C. Contractor's Responsibilities:

1. Provide survey and layout required to layout the Work.
2. Check and establish exact location of existing facilities prior to construction of new facilities and any connections thereto.
3. In event of discrepancy in data or staking, request clarification before proceeding with Work.
4. Retain professional land surveyor or civil engineer registered in North Dakota who shall perform or supervise engineering surveying necessary for construction staking and layout.
5. On request of Owner's Representative, submit documentation.
6. Provide access and assistance as Owner's Representative may require to:
 - a. Check layout, survey, and or other work for record documentation.
 - b. Measure quantities for payment purposes.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 CONSTRUCTION PHOTOGRAPHS

A. Photographically document the phases of the project including pre-existing conditions, construction progress post-construction, and post-revegetation conditions.

B. Photography:

1. Photographer: Professional commercial photographer, experienced in shooting interior/exterior construction photos, in daylight and nighttime conditions, and in good and inclement weather.
2. Camera: Digital SLR, minimum sensor size 36.0 mm by 23.9 mm.
3. Format: JPEG, minimum resolution 4,256 by 2,832 pixels.

C. Consult with Owner's Representative on the subject matter and vantage point from which photographs are to be taken.

D. Preconstruction, Post-Construction, and Post-Revegetation:

1. After Effective Date of the Agreement and before Work at Site is started, and again upon issuance of Substantial Completion, take a minimum of 50 photographs of the Construction Site and property adjacent to the perimeter of Construction Site to fully represent and document pre-construction and post-construction conditions.
2. Direct the emphasis of photographs to facilities both inside and outside the Site.
3. Prior to Final Completion, photographically demonstrate revegetation.

E. Construction Progress Photos:

1. Photographically demonstrate progress of construction, showing Site and adjacent properties.
2. Weekly: Minimum of 20 photographs.
3. Electronically display the month, day, year, and time of the photograph.

F. Digital Images:

1. Archive using a commercially available photo management system as directed by Owner's Representative.
2. CD or DVD Label:
 - a. 2nd Street/Downtown Area-Phase 42A.1/42A.3.
 - b. Photos.
 - c. CD or DVD number (numbered sequentially, beginning with WP-42A.1/42A.3-001).
 - d. Project Name: WP-42A.1/42A.3.
 - e. Applicable location by engineering stationing.
 - f. Date and time of coverage.
 - g. Parcel number and property owner.

3.02 AUDIO-VIDEO RECORDINGS

A. Pre-Construction and Post-Construction Audio Video Recordings:

1. Prior to beginning Work on Construction Site or of a particular area of the Work, and again within 10 days following date of Substantial Completion, video photograph Construction Site and property adjacent to Construction Site.
2. Direct the emphasis of the video to physical condition of existing vegetation, structures, and pavements within the alignment, along authorized haul routes and access roads, and areas adjacent to and within the right-of-way or easement, and Contractor storage and staging areas.

- B. Post-Revegetation Audio Video Recordings:
1. Within 10 days following the determination of a satisfactory stand, video photograph the Construction Site.
 2. +within the alignment, and Contractor storage and staging areas.
- C. In the case of preconstruction recording, do not begin Work in the area prior to Owner's Representative's review and approval of content and quality of video for that area.
- D. Consult with Owner's Representative subject matter and vantage point from which video recordings are taken.
- E. Video recording will be by a professional commercial videographer, experienced in shooting exterior and interior construction videos, in both good and inclement weather.
- F. Video Format and Quality:
1. MPEG-2 or MPEG-4 format or approved equal, with sound.
 2. Video:
 - a. 1080 line High Definition Video (HDV).
 - b. Electronically display the month, day, year, and time of the recording.
 - c. Playable on standard compatible DVD players.
 3. Audio:
 - a. Audio documentation shall be clear, precise, and at a moderate pace.
 - b. Indicate date, project name, and a brief description of the location of taping, including:
 - 1) Facility name.
 - 2) Street names or easements.
 - 3) Addresses of private property.
 - 4) Direction of coverage, including engineering stationing, if applicable.
 4. Documentation:
 - a. DVD Label:
 - 1) 2nd Street/Downtown Area-Phase 42A.1/42A.3.
 - 2) Video.
 - 3) DVD number (numbered sequentially, beginning with WP-42A.1/42A.3-001).
 - 4) Project name – WP-42A.1/42A.3.
 - 5) Name of street(s) or easement(s) included.
 - 6) Applicable location by engineering stationing.
 - 7) Date and time of coverage.
 - 8) Parcel number and property owner.

- G. Project Video Log: Maintain an ongoing log that incorporates above noted label information for DVDs on Project.

END OF SECTION

SECTION 09 90 00 AD-4

PAINTS AND COATINGS AD-4

05/11
09/04/2014

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)

ACGIH 0100 (2001; Supplements 2002-2008)
Documentation of the Threshold Limit
Values and Biological Exposure Indices

ASME INTERNATIONAL (ASME)

ASME A13.1 (2007; R 2013) Scheme for the
Identification of Piping Systems

ASTM INTERNATIONAL (ASTM)

ASTM D235 (2002; R 2012) Mineral Spirits (Petroleum
Spirits) (Hydrocarbon Dry Cleaning Solvent)

ASTM D4263 (1983; R 2012) Indicating Moisture in
Concrete by the Plastic Sheet Method

ASTM D523 (2008) Standard Test Method for Specular
Gloss

ASTM D6386 (2010) Standard Practice for Preparation
of Zinc (Hot-Dip Galvanized) Coated Iron
and Steel Product and Hardware Surfaces
for Painting

ASTM F1869 (2011) Measuring Moisture Vapor Emission
Rate of Concrete Subfloor Using Anhydrous
Calcium Chloride

MASTER PAINTERS INSTITUTE (MPI)

MPI 101 (Oct 2009) Epoxy Anti-Corrosive Metal
Primer

MPI 107 (Oct 2009) Rust Inhibitive Primer
(Water-Based)

MPI 108 (Oct 2009) High Build Epoxy Coating, Low
Gloss

MPI 11 (Oct 2009) Exterior Latex, Semi-Gloss, MPI

	Gloss Level 5
MPI 113	(Oct 2009) Exterior Pigmented Elastomeric Coating (Water Based)
MPI 134	(Oct 2009) Galvanized Primer (Waterbased)
MPI 138	(Oct 2009) Interior High Performance Latex, MPI Gloss Level 2
MPI 147	(Oct 2009) Institutional Low Odor / VOC Interior Latex, Semi-Gloss, MPI Gloss Level 5
MPI 153	(Oct 2009) Interior W.B. Light Industrial Coating, Semi-Gloss, MPI Gloss Level 5
MPI 163	(Oct 2009) Exterior W.B. Light Industrial Coating, Semi-Gloss, MPI Gloss Level 5
MPI 2	(Oct 2009) Aluminum Heat Resistant Enamel (up to 427 C and 800 F
MPI 21	(Oct 2009) Heat Resistant Enamel, Gloss (up to 205 degrees C and 400 degrees F), MPI Gloss Level 6
MPI 22	(Oct 2009) Aluminum Paint, High Heat (up to 590 degrees C and 1100 degrees F.
MPI 23	(Oct 2009) Surface Tolerant Metal Primer
MPI 4	(Oct 2009) Interior/Exterior Latex Block Filler
MPI 42	(Oct 2009) Latex Stucco and Masonry Textured Coating
MPI 47	(Oct 2009) Interior Alkyd, Semi-Gloss, MPI Gloss Level 5
MPI 50	(Oct 2009) Interior Latex Primer Sealer
MPI 79	(Oct 2009) Alkyd Anti-Corrosive Metal Primer
MPI 94	(Oct 2009) Exterior Alkyd, Semi-Gloss, MPI Gloss Level 5
MPI 95	(Oct 2009) Quick Drying Primer for Aluminum

THE SOCIETY FOR PROTECTIVE COATINGS (SSPC)

SSPC 7/NACE No.4	(2007; E 2004) Brush-Off Blast Cleaning
SSPC PA 1	(2000; E 2004) Shop, Field, and Maintenance Painting of Steel
SSPC PA Guide 3	(1982; E 1995) A Guide to Safety in Paint

Application

SSPC QP 1	(1998; E 2004) Standard Procedure for Evaluating Painting Contractors (Field Application to Complex Industrial Structures)
SSPC SP 1	(1982; E 2004) Solvent Cleaning
SSPC SP 10/NACE No. 2	(2007) Near-White Blast Cleaning
SSPC SP 12/NACE No.5	(2002) Surface Preparation and Cleaning of Metals by Waterjetting Prior to Recoating
SSPC SP 2	(1982; E 2000; E 2004) Hand Tool Cleaning
SSPC SP 3	(1982; E 2004) Power Tool Cleaning
SSPC SP 6/NACE No.3	(2007) Commercial Blast Cleaning
SSPC VIS 1	(2002; E 2004) Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning
SSPC VIS 3	(2004) Guide and Reference Photographs for Steel Surfaces Prepared by Hand and Power Tool Cleaning
SSPC VIS 4/NACE VIS 7	(1998; E 2000; E 2004) Guide and Reference Photographs for Steel Surfaces Prepared by Waterjetting

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FED-STD-313	(Rev D; Notice 1) Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Owner's Representative Activities
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U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.1000	Air Contaminants
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1.2 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

The current MPI, "Approved Product List" which lists paint by brand, label, product name and product code as of the date of contract award, will be used to determine compliance with the submittal requirements of this specification. The Contractor may choose to use a subsequent MPI "Approved Product List", however, only one list may be used for the entire contract and each coating system is to be from a single manufacturer. All coats on a particular substrate must be from a single manufacturer. No variation from the MPI Approved Products List is acceptable.

Samples of specified materials may be taken and tested for compliance with specification requirements.

SD-02 Shop Drawings

Piping identification

Submit color stencil codes

SD-03 Product Data

Certification

Coating; G

Manufacturer's Technical Data Sheets

SD-04 Samples

Color; G

Submit manufacturer's samples of paint colors. Cross reference color samples to color scheme as indicated.

SD-07 Certificates

Applicator's qualifications

Qualification Testing laboratory for coatings; G

SD-08 Manufacturer's Instructions

Application instructions

Mixing

Detailed mixing instructions, minimum and maximum application temperature and humidity, potlife, and curing and drying times between coats.

Manufacturer's Material Safety Data Sheets

Submit manufacturer's Material Safety Data Sheets for coatings, solvents, and other potentially hazardous materials, as defined in FED-STD-313.

SD-10 Operation and Maintenance Data

Coatings; G

Preprinted cleaning and maintenance instructions for all coating systems shall be provided.

1.3 APPLICATOR'S QUALIFICATIONS

1.3.1 Contractor Qualification

Submit the name, address, telephone number, FAX number, and e-mail address of the contractor that will be performing all surface preparation and coating application. Submit evidence that key personnel have successfully performed surface preparation and application of coatings on concrete and

concrete masonry on a minimum of three similar projects within the past three years. List information by individual and include the following:

a. Name of individual and proposed position for this work.

b. Information about each previous assignment including:

Position or responsibility

Employer (if other than the Contractor)

Name of facility owner

Mailing address, telephone number, and telex number (if non-US) of facility owner

Name of individual in facility owner's organization who can be contacted as a reference

Location, size and description of structure

Dates work was carried out

Description of work carried out on structure

1.3.2 SSPC QP 1 Certification

All contractors and subcontractors that perform surface preparation or coating application shall be certified by the Society for Protective Coatings (formerly Steel Structures Painting Council) (SSPC) to the requirements of SSPC QP 1 prior to contract award, and shall remain certified while accomplishing any surface preparation or coating application. The painting contractors and painting subcontractors must remain so certified for the duration of the project. If a contractor's or subcontractor's certification expires, the firm will not be allowed to perform any work until the certification is reissued. Requests for extension of time for any delay to the completion of the project due to an inactive certification will not be considered and liquidated damages will apply. Notify the Owner's Representative of any change in contractor certification status.

1.3.3 SSPC QP 1 Waiver of Requirement

In lieu of SSPC QP 1 certification, surface preparation and coating Contractors and subcontractors may submit for waiver of this requirement if the following items are submitted and approved by the Engineer prior to approval of submittals or commencement of work:

1. Identify 5 similar sized or larger projects, including both process piping and exterior coating work, completed in the last three (3) years.
2. Provide written letters of recommendation from a minimum of three (3) separate clients (not Contractors or Engineers).

1.4 REGULATORY REQUIREMENTS

1.4.1 Environmental Protection

In addition to requirements specified elsewhere for environmental

protection, provide coating materials that conform to the restrictions of the local Air Pollution Control District and regional jurisdiction. Notify **Owner's Representative** of any paint specified herein which fails to conform.

1.4.2 Lead Content

Do not use coatings having a lead content over 0.06 percent by weight of nonvolatile content.

1.4.3 Chromate Content

Do not use coatings containing zinc-chromate or strontium-chromate.

1.4.4 Asbestos Content

Materials shall not contain asbestos.

1.4.5 Mercury Content

Materials shall not contain mercury or mercury compounds.

1.4.6 Silica

Abrasive blast media shall not contain free crystalline silica.

1.4.7 Human Carcinogens

Materials shall not contain **ACGIH 0100** confirmed human carcinogens (A1) or suspected human carcinogens (A2).

1.5 PACKAGING, LABELING, AND STORAGE

Paints shall be in sealed containers that legibly show the contract specification number, designation name, formula or specification number, batch number, color, quantity, date of manufacture, manufacturer's formulation number, manufacturer's directions including any warnings and special precautions, and name and address of manufacturer. Pigmented paints shall be furnished in containers not larger than **5 gallons**. Paints and thinners shall be stored in accordance with the manufacturer's written directions, and as a minimum, stored off the ground, under cover, with sufficient ventilation to prevent the buildup of flammable vapors, and at temperatures between **40 to 95 degrees F**.

1.6 SAFETY AND HEALTH

Apply coating materials using safety methods and equipment in accordance with the following:

Work shall comply with applicable Federal, State, and local laws and regulations, and with the **ACCIDENT PREVENTION PLAN**.

1.6.1 Safety Methods Used During Coating Application

Comply with the requirements of **SSPC PA Guide 3**.

1.6.2 Toxic Materials

To protect personnel from overexposure to toxic materials, conform to the

most stringent guidance of:

- a. The applicable [manufacturer's Material Safety Data Sheets](#) (MSDS) or local regulation.
- b. [29 CFR 1910.1000](#).
- c. [ACGIH 0100](#), threshold limit values.

1.7 ENVIRONMENTAL CONDITIONS

Comply, at minimum, with manufacturer recommendations for space ventilation during and after installation.

1.7.1 Coatings

Do not apply coating when air or substrate conditions are:

- a. Less than [5 degrees F](#) above dew point;
- b. Below [50 degrees F](#) or over [95 degrees F](#), unless specifically pre-approved by the [Owner's Representative](#) and the product manufacturer. Under no circumstances shall application conditions exceed manufacturer recommendations.

1.8 COLOR SELECTION

Colors of finish coats shall be as indicated or specified. Where not indicated or specified, colors shall be selected by the [Owner's Representative](#). Manufacturers' names and color identification are used for the purpose of color identification only. Named products are acceptable for use only if they conform to specified requirements. Products of other manufacturers are acceptable if the colors approximate colors indicated and the product conforms to specified requirements.

Tint each coat progressively darker to enable confirmation of the number of coats.

Color, texture, and pattern of wall coating systems shall be in accordance with Section [09 06 90](#) COLOR SCHEDULE.

1.9 LOCATION AND SURFACE TYPE TO BE PAINTED

1.9.1 Painting Included

Where a space or surface is indicated to be painted, include the following unless indicated otherwise.

- a. Surfaces behind portable objects and surface mounted articles readily detachable by removal of fasteners, such as screws and bolts.
- b. New factory finished surfaces that require identification or color coding and factory finished surfaces that are damaged during performance of the work.
- c. Existing coated surfaces that are damaged during performance of the work.

1.9.1.1 Exterior Painting

Includes new surfaces and new coated surfaces, of the building and appurtenances. Also included are existing coated surfaces made bare by cleaning operations.

- a. Rooftop exhaust fans and wall mounted fans.

1.9.1.2 Interior Painting

Includes new surfaces of the building and appurtenances as indicated. Where a space or surface is indicated to be painted, include the following items, unless indicated otherwise.

- a. Exposed CMU, precast concrete; and
- b. Other contiguous surfaces.

1.9.2 Painting Excluded

Do not paint the following unless indicated otherwise.

- a. Surfaces concealed and made inaccessible by panelboards, fixed ductwork, machinery, and equipment fixed in place.
- b. Surfaces in concealed spaces. Concealed spaces are defined as enclosed spaces such as chases.
- c. Steel to be embedded in concrete, except steel embedded into precast concrete lintels..
- d. Copper, stainless steel, aluminum, brass, and lead except existing coated surfaces.
- e. Hardware, fittings, and other factory finished items.
- f. Skylights (except lifting system).
- g. Brick.
- h. Precast Concrete.
- i. Louvers.
- j. Aluminum doors and frames.
- k. Downspouts, scuppers, and conductor heads.

1.9.3 Mechanical and Electrical Painting

Includes field coating of interior and exterior surfaces.

- a. Where a space or surface is indicated to be painted, include the following items unless indicated otherwise.
 - (1) Exposed piping, conduit, and ductwork;
 - (2) Supports, hangers, air grilles, and registers;

(3) Miscellaneous metalwork and insulation coverings.

b. Do not paint the following, unless indicated otherwise:

(1) New zinc-coated, aluminum, and copper surfaces under insulation

(2) New aluminum jacket on piping

(3) New interior ferrous piping under insulation.

1.9.4 Exterior Painting of Site Work Items

Field coat the following items:

New Surfaces

a. **Bollards.**

b. **Iron Gates.**

1.9.5 Definitions and Abbreviations

1.9.5.1 Qualification Testing

Qualification testing is the performance of all test requirements listed in the product specification. This testing is accomplished by MPI to qualify each product for the MPI Approved Product List, and may also be accomplished by Contractor's third party testing lab if an alternative to Batch Quality Conformance Testing by MPI is desired.

1.9.5.2 Batch Quality Conformance Testing

Batch quality conformance testing determines that the product provided is the same as the product qualified to the appropriate product specification. This testing shall only be accomplished by MPI testing lab.

1.9.5.3 Coating

A film or thin layer applied to a base material called a substrate. A coating may be a metal, alloy, paint, or solid/liquid suspensions on various substrates (metals, plastics, wood, paper, leather, cloth, etc.). They may be applied by electrolysis, vapor deposition, vacuum, or mechanical means such as brushing, spraying, calendaring, and roller coating. A coating may be applied for aesthetic or protective purposes or both. The term "coating" as used herein includes emulsions, enamels, stains, varnishes, sealers, epoxies, and other coatings, whether used as primer, intermediate, or finish coat. The terms paint and coating are used interchangeably.

1.9.5.4 DFT or dft

Dry film thickness, the film thickness of the fully cured, dry paint or coating.

1.9.5.5 DSD

Degree of Surface Degradation, the MPI system of defining degree of surface degradation. Five (5) levels are generically defined under the Assessment

sections in the MPI Maintenance Repainting Manual.

1.9.5.6 EPP

Environmentally Preferred Products, a standard for determining environmental preferability in support of Executive Order 13101.

1.9.5.7 EXT

MPI short term designation for an exterior coating system.

1.9.5.8 INT

MPI short term designation for an interior coating system.

1.9.5.9 micron / microns

The metric measurement for 0.001 mm or one/one-thousandth of a millimeter.

1.9.5.10 mil / mils

The English measurement for 0.001 in or one/one-thousandth of an inch, equal to 25.4 microns or 0.0254 mm.

1.9.5.11 mm

The metric measurement for millimeter, 0.001 meter or one/one-thousandth of a meter.

1.9.5.12 MPI Gloss Levels

MPI system of defining gloss. Seven (7) gloss levels (G1 to G7) are generically defined under the Evaluation sections of the MPI Manuals. Traditionally, Flat refers to G1/G2, Eggshell refers to G3, Semigloss refers to G5, and Gloss refers to G6.

Gloss levels are defined by MPI as follows:

Gloss Level	Description	Units at 60 degrees	Units at 85 degrees
G1	Matte or Flat	0 to 5	10 max
G2	Velvet	0 to 10	10 to 35
G3	Eggshell	10 to 25	10 to 35
G4	Satin	20 to 35	35 min
G5	Semi-Gloss	35 to 70	
G6	Gloss	70 to 85	
G7	High Gloss		

Gloss is tested in accordance with [ASTM D523](#). Historically, the [Owner's Representative](#) has used Flat (G1 / G2), Eggshell (G3), Semi-Gloss (G5), and Gloss (G6).

1.9.5.13 MPI System Number

The MPI coating system number in each Division found in either the MPI Architectural Painting Specification Manual or the Maintenance Repainting Manual and defined as an exterior (EXT/REX) or interior system (INT/RIN). The Division number follows the CSI Master Format.

1.9.5.14 Paint

See Coating definition.

1.9.5.15 REX

MPI short term designation for an exterior coating system used in repainting projects or over existing coating systems.

1.9.5.16 RIN

MPI short term designation for an interior coating system used in repainting projects or over existing coating systems.

PART 2 PRODUCTS

2.1 MATERIALS

Conform to the [coating](#) specifications and standards referenced in PART 3. Submit [manufacturer's technical data sheets](#) for specified [coatings](#) and solvents. Comply with applicable regulations regarding toxic and hazardous materials.

PART 3 EXECUTION

3.1 PROTECTION OF AREAS AND SPACES NOT TO BE PAINTED

Prior to surface preparation and coating applications, remove, mask, or otherwise protect, hardware, hardware accessories, machined surfaces, plates, lighting fixtures, public and private property, and other such items not to be coated that are in contact with surfaces to be coated. Following completion of painting, workmen skilled in the trades involved shall reinstall removed items. Restore surfaces contaminated by coating materials, to original condition and repair damaged items.

3.2 SURFACE PREPARATION

Remove dirt, splinters, loose particles, grease, oil, disintegrated coatings, and other foreign matter and substances deleterious to coating performance as specified for each substrate before application of paint or surface treatments. Oil and grease shall be removed prior to mechanical cleaning. Cleaning shall be programmed so that dust and other contaminants will not fall on wet, newly painted surfaces. Exposed ferrous metals such as nail heads on or in contact with surfaces to be painted with water-thinned paints, shall be spot-primed with a suitable corrosion-inhibitive primer capable of preventing flash rusting and compatible with the coating specified for the adjacent areas.

3.3 PREPARATION OF METAL SURFACES

3.3.1 New Ferrous Surfaces

- a. Ferrous Surfaces including Shop-coated Surfaces and Small Areas That Contain Rust, Mill Scale and Other Foreign Substances: Solvent clean in accordance with [SSPC SP 1](#) to remove oil and grease. Where shop coat is missing or damaged, clean according to [SSPC SP 6/NACE No.3](#), or [SSPC SP 10/NACE No. 2](#). Brush-off blast remaining surface in accordance with [SSPC 7/NACE No.4](#); Water jetting to [SSPC SP 12/NACE No.5](#) WJ-4 may

be used to remove loose coating and other loose materials. Use inhibitor as recommended by coating manufacturer to prevent premature rusting. Shop-coated ferrous surfaces shall be protected from corrosion by treating and touching up corroded areas immediately upon detection.

- b. Surfaces With More Than 20 Percent Rust, Mill Scale, and Other Foreign Substances: Clean entire surface in accordance with [SSPC SP 10/NACE No. 2/SSPC SP 12/NACE No.5](#) WJ-2.

3.3.2 Final Ferrous Surface Condition:

For tool cleaned surfaces, the requirements are stated in [SSPC SP 2](#) and [SSPC SP 3](#). As a visual reference, cleaned surfaces shall be similar to photographs in [SSPC VIS 3](#).

For abrasive blast cleaned surfaces, the requirements are stated in [SSPC 7/NACE No.4](#), [SSPC SP 6/NACE No.3](#), and [SSPC SP 10/NACE No. 2](#). As a visual reference, cleaned surfaces shall be similar to photographs in [SSPC VIS 1](#).

For waterjet cleaned surfaces, the requirements are stated in [SSPC SP 12/NACE No.5](#). As a visual reference, cleaned surfaces shall be similar to photographs in [SSPC VIS 4/NACE VIS 7](#).

3.3.3 Galvanized Surfaces

- a. New Galvanized Surfaces With Only Dirt and Zinc Oxidation Products: Clean with solvent, or non-alkaline detergent solution in accordance with [SSPC SP 1](#). If the galvanized metal has been passivated or stabilized, the coating shall be completely removed by brush-off abrasive blast. New galvanized steel to be coated shall not be "passivated" or "stabilized" If the absence of hexavalent stain inhibitors is not documented, test as described in [ASTM D6386](#), Appendix X2, and remove by one of the methods described therein.
- b. Galvanized with Slight Coating Deterioration or with Little or No Rusting: Water jetting to [SSPC SP 12/NACE No.5](#) WJ3 to remove loose coating from surfaces with less than 20 percent coating deterioration and no blistering, peeling, or cracking. Use inhibitor as recommended by the coating manufacturer to prevent rusting.
- c. Galvanized With Severe Deteriorated Coating or Severe Rusting: Spot abrasive blast rusted areas as described for steel in [SSPC SP 6/NACE No.3](#), and waterjet to [SSPC SP 12/NACE No.5](#), WJ3 to remove existing coating.

3.3.4 Non-Ferrous Metallic Surfaces

Aluminum and aluminum-alloy, lead, copper, and other nonferrous metal surfaces.

Surface Cleaning: Solvent clean in accordance with [SSPC SP 1](#) and wash with mild non-alkaline detergent to remove dirt and water soluble contaminants.

3.3.5 Terne-Coated Metal Surfaces

Solvent clean surfaces with mineral spirits, [ASTM D235](#). Wipe dry with clean, dry cloths.

3.3.6 Existing Surfaces with a Bituminous or Mastic-Type Coating

Remove chalk, mildew, and other loose material by washing with a solution of $\frac{1}{2}$ cup trisodium phosphate, $\frac{1}{4}$ cup household detergent, one quart 5 percent sodium hypochlorite solution and 3 quarts of warm water.

3.4 PREPARATION OF CONCRETE AND CEMENTITIOUS SURFACE

3.4.1 Concrete and Masonry

- a. Curing: Concrete and masonry surfaces shall be allowed to cure at least 30 days before painting.
- b. Surface Cleaning: Remove the following deleterious substances.
 - (1) Dirt, Chalking, Grease, and Oil: Wash new surfaces with a solution composed of $\frac{1}{2}$ cup trisodium phosphate, $\frac{1}{4}$ cup household detergent, and 4 quarts of warm water. Then rinse thoroughly with fresh water. For large areas, water blasting may be used.
 - (2) Fungus and Mold: Wash surfaces with a solution composed of $\frac{1}{2}$ cup trisodium phosphate, $\frac{1}{4}$ cup household detergent, 1 quart 5 percent sodium hypochlorite solution and 3 quarts of warm water. Rinse thoroughly with fresh water.
 - (3) Paint and Loose Particles: Remove by wire brushing.
 - (4) Efflorescence: Remove by scraping or wire brushing followed by washing with a 5 to 10 percent by weight aqueous solution of hydrochloric (muriatic) acid. Do not allow acid to remain on the surface for more than five minutes before rinsing with fresh water. Do not acid clean more than 4 square feet of surface, per workman, at one time.
- c. Cosmetic Repair of Minor Defects: Repair or fill mortar joints and minor defects, including but not limited to spalls, in accordance with manufacturer's recommendations and prior to coating application.
- d. Allowable Moisture Content: Do not apply coatings to damp surfaces as determined by ASTM D4263 or horizontal surfaces that exceed 3 lbs of moisture per 1000 square feet in 24 hours as determined by ASTM F1869. In all cases follow manufacturers recommendations. Allow surfaces to cure a minimum of 30 days before painting.

3.5 APPLICATION

3.5.1 Coating Application

Painting practices shall comply with applicable federal, state and local laws enacted to insure compliance with Federal Clean Air Standards. Apply coating materials in accordance with SSPC PA 1. SSPC PA 1 methods are applicable to all substrates, except as modified herein.

At the time of application, paint shall show no signs of deterioration. Uniform suspension of pigments shall be maintained during application.

Unless otherwise specified or recommended by the paint manufacturer, paint may be applied by brush, roller, or spray. Use trigger operated spray

nozzles for water hoses. Rollers for applying paints and enamels shall be of a type designed for the coating to be applied and the surface to be coated. Wear protective clothing and respirators when applying oil-based paints or using spray equipment with any paints.

Paints, except water-thinned types, shall be applied only to surfaces that are completely free of moisture as determined by sight or touch.

Thoroughly work coating materials into joints, crevices, and open spaces. Special attention shall be given to insure that all edges, corners, crevices, welds, and rivets receive a film thickness equal to that of adjacent painted surfaces.

Each coat of paint shall be applied so dry film shall be of uniform thickness and free from runs, drops, ridges, waves, pinholes or other voids, laps, brush marks, and variations in color, texture, and finish. Hiding shall be complete.

Touch up damaged coatings before applying subsequent coats. Interior areas shall be broom clean and dust free before and during the application of coating material.

3.5.2 Mixing and Thinning of Paints

Reduce paints to proper consistency by adding fresh paint, except when thinning is mandatory to suit surface, temperature, weather conditions, application methods, or for the type of paint being used. Obtain written permission from the Owner's Representative to use thinners. The written permission shall include quantities and types of thinners to use.

When thinning is allowed, paints shall be thinned immediately prior to application with not more than 1 pint of suitable thinner per gallon. The use of thinner shall not relieve the Contractor from obtaining complete hiding, full film thickness, or required gloss. Thinning shall not cause the paint to exceed limits on volatile organic compounds. Paints of different manufacturers shall not be mixed.

3.5.3 Two-Component Systems

Two-component systems shall be mixed in accordance with manufacturer's instructions. Any thinning of the first coat to ensure proper penetration and sealing shall be as recommended by the manufacturer for each type of substrate.

3.5.4 Coating Systems

- a. Systems by Substrates: Apply coatings that conform to the respective specifications listed in the following Tables:

Table

Division 3.	Exterior Concrete Paint Table
Division 5.	Exterior Metal, Ferrous and Non-Ferrous Paint Table
Division 3.	Interior Concrete Paint Table
Division 4.	Interior Concrete Masonry Units Paint Table
Division 5.	Interior Metal, Ferrous and Non-Ferrous Paint Table

- b. Minimum Dry Film Thickness (DFT): Apply paints, primers, varnishes,

enamels, undercoats, and other coatings to a minimum dry film thickness of 1.5 mil each coat unless specified otherwise in the Tables. Coating thickness where specified, refers to the minimum dry film thickness.

- c. Coatings for Surfaces Not Specified Otherwise: Coat surfaces which have not been specified, the same as surfaces having similar conditions of exposure.
- d. Existing Surfaces Damaged During Performance of the Work, Including New Patches In Existing Surfaces: Coat surfaces with the following:
 - (1) One coat of primer.
 - (2) One coat of undercoat or intermediate coat.
 - (3) One topcoat to match adjacent surfaces.
- e. Existing Coated Surfaces To Be Painted: Apply coatings conforming to the respective specifications listed in the Tables herein, except that pretreatments, sealers and fillers need not be provided on surfaces where existing coatings are soundly adhered and in good condition. Do not omit undercoats or primers.

3.6 COATING SYSTEMS FOR METAL

Apply coatings of Tables in Division 5 for Exterior and Interior.

- a. Apply specified ferrous metal primer on the same day that surface is cleaned, to surfaces that meet all specified surface preparation requirements at time of application.
- b. Inaccessible Surfaces: Prior to erection, use one coat of specified primer on metal surfaces that will be inaccessible after erection.
- c. Shop-primed Surfaces: Touch up exposed substrates and damaged coatings to protect from rusting prior to applying field primer.
- d. Surface Previously Coated with Epoxy or Urethane: Apply MPI 101, 1.5 mils DFT immediately prior to application of epoxy or urethane coatings.
- e. Pipes and Tubing: The semitransparent film applied to some pipes and tubing at the mill is not to be considered a shop coat, but shall be overcoated with the specified ferrous-metal primer prior to application of finish coats.
- f. Exposed Nails, Screws, Fasteners, and Miscellaneous Ferrous Surfaces. On surfaces to be coated with water thinned coatings, spot prime exposed nails and other ferrous metal with latex primer MPI 107.

3.7 COATING SYSTEMS FOR CONCRETE AND CEMENTITIOUS SUBSTRATES

Apply coatings of Tables in Division 3, 4 and 9 for Exterior and Interior.

3.8 PIPING IDENTIFICATION

Piping Identification, Including Surfaces In Concealed Spaces: Provide in accordance with ASME A13.1. Place stenciling in clearly visible locations. On piping not covered by ASME A13.1, stencil approved names or code letters, in letters a minimum of 1/2 inch high for piping and a

minimum of 2 inches high elsewhere. Stencil arrow-shaped markings on piping to indicate direction of flow using black stencil paint.

3.9 INSPECTION AND ACCEPTANCE

In addition to meeting previously specified requirements, demonstrate mobility of moving components, including swinging and sliding doors, cabinets, and windows with operable sash, for inspection by the Owner's Representative. Perform this demonstration after appropriate curing and drying times of coatings have elapsed and prior to invoicing for final payment.

3.10 WASTE MANAGEMENT

As specified in the Waste Management Plan and as follows. Do not use kerosene or any such organic solvents to clean up water based paints. Properly dispose of paints or solvents in designated containers. Close and seal partially used containers of paint to maintain quality as necessary for reuse. Store in protected, well-ventilated, fire-safe area at moderate temperature. Place materials defined as hazardous or toxic waste in designated containers. Set aside extra paint for future color matches or reuse by the Owner's Representative.

3.11 PAINT TABLES

All DFT's are minimum values. Acceptable products are listed in the MPI Green Approved Products List, available at <http://www.specifygreen.com/APL/ProductIdxByMPInum.asp>.

3.11.1 EXTERIOR PAINT TABLES

DIVISION 3: EXTERIOR CONCRETE PAINT TABLE

A. New concrete, elastomeric System; vertical surfaces but excluding tops of slabs:

1. Elastomeric Coating

New; MPI EXT 3.1F / Existing; MPI REX 3.1F

Primer: Intermediate: Topcoat:

Per Manufacturer MPI 113 MPI 113

System DFT: 16 mils

Primer as recommended by manufacturer. Topcoat: Coating to match adjacent surfaces. Surface preparation and number of coats in accordance with manufacturer's instructions.

NOTE: Apply sufficient coats of MPI 113 to achieve a minimum dry film thickness of 16 mils.

DIVISION 5: EXTERIOR METAL, FERROUS AND NON-FERROUS PAINT TABLE

STEEL / FERROUS SURFACES

A. New Steel that has been hand or power tool cleaned to SSPC SP 2 or SSPC SP 3

1. Alkyd

STEEL / FERROUS SURFACES

New; MPI EXT 5.1Q-G5 (Semigloss)
Primer: Intermediate: Topcoat:
MPI 23 MPI 94 MPI 94
System DFT: 5.25 mils

B. New Steel that has been blast-cleaned to SSPC SP 6/NACE No.3:

1. Alkyd

New; MPI EXT 5.1D-G5 (Semigloss)
Primer: Intermediate: Topcoat:
MPI 79 MPI 94 MPI 94
System DFT: 5.25 mils

C. Existing steel that has been spot-blasted to SSPC SP 6/NACE No.3:

1. Surface previously coated with alkyd or latex:

Waterborne Light Industrial Coating
MPI REX 5.1C-G5 (Semigloss)
Spot Primer: Intermediate: Topcoat:
MPI 79 MPI 163 MPI 163
System DFT: 5 mils

2. Surface previously coated with epoxy:

Waterborne Light Industrial
a. MPI REX 5.1L-G5 (Semigloss)
Spot Primer: Intermediate: Topcoat:
MPI 101 MPI 163 MPI 163
System DFT: 5 mils

D. New steel blast cleaned to SSPC SP 10/NACE No. 2:

1. Waterborne Light Industrial

MPI EXT 5.1R-G5 (Semigloss)
Primer: Intermediate: Topcoat:
MPI 101 MPI 108 MPI 163
System DFT: 8.5 mils

EXTERIOR GALVANIZED SURFACES

E. New Galvanized surfaces:

1. Waterborne Primer / Latex

MPI EXT 5.3H-G5 (Semigloss)
Primer: Intermediate: Topcoat:
MPI 134 MPI 11 MPI 11
System DFT: 4.5 mils

F. Galvanized surfaces with slight coating deterioration; little or no rusting:

1. Waterborne Light Industrial Coating

MPI REX 5.3J-G5 (Semigloss)
Primer: Intermediate: Topcoat:
MPI 134 N/A MPI 163

EXTERIOR GALVANIZED SURFACES

System DFT: 4.5 mils

G. Galvanized surfaces with severely deteriorated coating or rusting:

1. Waterborne Light Industrial Coating

MPI REX 5.3L-G5 (Semigloss)

Primer: Intermediate: Topcoat:
MPI 101 MPI 108 MPI 163

System DFT: 8.5 mils

EXTERIOR SURFACES, OTHER METALS (NON-FERROUS)

H. Aluminum, aluminum alloy and other miscellaneous non-ferrous metal items not otherwise specified except hot metal surfaces, roof surfaces, and new prefinished equipment. Match surrounding finish:

1. Waterborne Light Industrial Coating

MPI EXT 5.4G-G5 (Semigloss)

Primer: Intermediate: Topcoat:
MPI 95 MPI 163 MPI 163

System DFT: 5 mils

I. Surfaces adjacent to painted surfaces; Mechanical, Electrical, exposed copper piping, and miscellaneous metal items not otherwise specified except floors, hot metal surfaces, and new prefinished equipment. Match surrounding finish:

1. Waterborne Light Industrial Coating

MPI EXT 5.1C-G5 (Semigloss)

Primer: Intermediate: Topcoat:
MPI 79 MPI 163 MPI 163

System DFT: 5 mils

J. Hot metal surfaces subject to temperatures up to 400 degrees F:

1. Heat Resistant Enamel

MPI EXT 5.2A

Primer: Intermediate: Topcoat:
MPI 21 Surface preparation and number of coats per manufacturer's instructions.

System DFT: Per Manufacturer

K. Ferrous metal subject to high temperature, up to 750 degrees F:

1. Heat Resistant Aluminum Enamel

MPI EXT 5.2B (Aluminum Finish)

Primer: Intermediate: Topcoat:
MPI 2 Surface preparation and number of coats per manufacturer's instructions.

System DFT: Per Manufacturer

L. New surfaces made bare cleaning to SSPC SP 10/NACE No. 2 subject to temperatures up to 593 degrees C (1100 degrees F):

1. Heat Resistant Coating

MPI EXT 5.2D

EXTERIOR SURFACES, OTHER METALS (NON-FERROUS)

Primer: Intermediate: Topcoat:
MPI 22 Surface preparation and number of coats per
manufacturer's instructions.
System DFT: Per Manufacturer

3.11.2 INTERIOR PAINT TABLES

DIVISION 3: INTERIOR CONCRETE PAINT TABLE

A. New Concrete, vertical surfaces, not specified otherwise:

1. Institutional Low Odor / Low VOC Latex
New; MPI INT 3.1M-G5 (Semigloss
Primer: Intermediate: Topcoat:
MPI 50 MPI 147 MPI 147
System DFT: 4 mils

B. Concrete ceilings, uncoated:

1. Latex
MPI INT 3.1N
Primer: Intermediate: Topcoat:
N/A N/A MPI 42
System DFT: Per Manufacturer

Surface preparation, number of
coats, and primer in accordance with manufacturer's instructions.
Topcoat: Coating to match adjacent surfaces.

DIVISION 4: INTERIOR CONCRETE MASONRY UNITS PAINT TABLE

A. New Concrete masonry:

1. Institutional Low Odor / Low VOC Latex
New; MPI INT 4.2E-G5 (Semigloss)
Filler Primer: Intermediate: Topcoat:
MPI 4 N/A MPI 147 MPI 147
System DFT: 4 mils

B. New Concrete masonry units in **building** unless otherwise specified:

1. Waterborne Light Industrial Coating
MPI INT 4.2K-G5 (Semigloss)
Filler: Primer: Intermediate: Topcoat:
MPI 4 N/A MPI 153 MPI 153
System DFT: 11 mils

Fill all holes in masonry surface

DIVISION 5: INTERIOR METAL, FERROUS AND NON-FERROUS PAINT TABLE

INTERIOR STEEL / FERROUS SURFACES

- A. Metal, Mechanical, Electrical, Surfaces adjacent to
painted surfaces (Match surrounding finish), exposed copper piping, and
miscellaneous metal items not otherwise specified except floors, hot metal
surfaces, and new prefinished equipment:

