

1 **ADDENDUM NO. 1** (Rev 01/2023)  
2 ISSUE DATE: **05/22/2023**  
3

4  
5 RE: **WISPIC PARKING LOT RECONSTRUCTION**  
6 **UNIVERSITY OF WISCONSIN MADISON**  
7 **MADISON, WISCONSIN**  
8

9 Division Project No. **0456-2205**  
10

11 BID SUBMISSION DUE by 1:30 P.M., BID OPENING for GPC BIDDERS: 2:00 P.M., Wednesday,  
12 May 31, 2023  
13

14 FROM: **Ayres Associates**  
15 **20975 Swenson Drive, Suite 200**  
16 **Waukesha, WI 53186**  
17 **Phone: 262-523-4488**  
18

19  
20  
21 TO: Prospective Bidders  
22

23 This addendum forms a part of the Contract Documents and modifies the original Contract Documents dated **May**  
24 **1, 2023** as noted below. Acknowledge receipt of this Addendum by inserting the number and issue date of this  
25 addendum in the blank space provided on the Bid Form. Failure to do so may subject the Bidder to  
26 disqualification.  
27

28 This Addendum consists of 2 **pages** and the attached documents **Table of Contents, GPC Instructions to**  
29 **Bidders, Bid Form, Specification Section 03 30 00 – Cast-In-Place Concrete, Specification Section 31 23**  
30 **16.16 – Structural Excavation for Minor Structures, C2.1 – Demo Plan (West), C3.0 – Paving Plan West,**  
31 **C3.1 – Paving Plan East.**  
32

33 CHANGES TO BIDDING REQUIREMENTS:  
34

35 **Table of Contents**

- 36 1. Structural Excavation for Minor Structures (Section 31 23 16.16) revised from 5 pages to 4 pages.  
37 2. Cast-In-Place Concrete (Section 03 30 00) revised from 16 pages to 17 pages.  
38

39 **GPC Instructions to Bidders**

- 40 1. Replaced existing sheet B-9 with revised sheet B-9. Added note that Stormfilter is to be installed during Phase  
41 4 and has potential for long lead time.  
42

43 **Bid Form**

- 44 1. Replaced existing sheet C-2 with revised sheet C-2.  
45 2. Added Unit Price for Extra Sidewalk Removal and Replacement  
46 3. Added Unit Price for Extra Curb and Gutter Removal and Replacement  
47

48 CHANGES TO SPECIFICATIONS:  
49

50 **Specification Section 01 91 01 – Commissioning Process**

- 51 1. Removed specification section (includes pages 1-4).  
52

53 **Specification Section 01 91 02 – Commissioning Process**

- 54 1. Removed specification section (includes pages 1-4).  
55  
56  
57  
58  
59

- 1 **Specification Section 03 30 00 – Cast-In-Place Concrete**  
2 1. Replaced existing sheets 1-16 with revised sheets 1-16. Added sheet 17.  
3 2. Removed Protection of Liquid Floor Treatments from Scope Part 3.  
4 3. Added Extra Sidewalk Removal and Replacement Section to Part 3 Execution.  
5 4. Added Extra Curb and Gutter Removal and Replacement Section to Part 3 Execution.  
6

- 7 **Specification Section 31 23 16.16 – Structural Excavation for Minor Structures**  
8 1. Specification section has been added to the specification manual.  
9

10 CHANGES TO DRAWINGS:

11  
12 **Drawing C2.1 – Demo Plan (West)**

- 13 1. Replace existing sheet with revised sheet issued with this Addendum. Sheet updated to remove mulch and  
14 shrubs adjacent to existing light pole in order to install drain pipe to connect roof drains.  
15

16 **Drawing C3.0 – Paving Plan West**

- 17 1. Replace existing sheet with revised sheet issued with this Addendum. Sheet updated to add lawn restoration  
18 in location where mulch and shrubs are removed. Note updated to specify that all lawn restoration impacted by  
19 construction shall be included in the project.  
20

21 **Drawing C3.1 – Paving Plan East**

- 22 1. Replace existing sheet with revised sheet issued with this Addendum. Sheet updated to specify that all lawn  
23 restoration impacted by construction shall be included in the project.  
24

25

26

END OF ADDENDUM

27

28 **Ayres Associates**  
29 **20975 Swenson Drive, Suite 200**  
30 **Waukesha, WI 53186**  
31 **Phone: 262-523-4488**

The University of Wisconsin-Madison  
1860 Van Hise Hall, 1220 Linden Drive  
Madison Wisconsin 53706

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33

|    |  |  |               |
|----|--|--|---------------|
| 1  | <b>TABLE OF CONTENTS GPC BIDDERS</b>                                       | (Rev 11/2022)                                      |               |
| 2  | UW-Madison Project No. <b>0456-2205</b> / UWSA Project No. <b>A-22-005</b> |  |               |
| 3  |  |  |               |
| 4  | VOLUME 1   |  |               |
| 5  | <b>DIVISION 1 – GPC BIDDING AND CONTRACT REQUIREMENTS</b>                  |  | Pages Thru    |
| 6  | TITLE PAGE   |  | 1             |
| 7  | TABLE OF CONTENTS  |  | TC-2          |
| 8  |  |  |               |
| 9  | <b>GPC BIDDING REQUIREMENTS</b>  |  |               |
| 10 | GPC Invitation to Bid  |  | A-2           |
| 11 | GPC Instructions to Bidders  |  | B-9           |
| 12 | Bid Form – General Prime Contractor (GPC)                                  |  | C-3           |
| 13 | General Prime Contractors (GPC) Bid Bond Form                              |  | BB-1          |
| 14 | Designation of Confidential and Proprietary Information Form               |  | 1             |
| 15 | Request for Submittal Approval   |  | 1             |
| 16 | Request for Subcontractors Approval  |  | 1             |
| 17 |  |  |               |
| 18 | <b>CONTRACT FORMS</b>  |  |               |
| 19 | Performance Bond Form  |  | 2             |
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| 21 | A101 Construction Contract as modified by UWSA                             |  |               |
| 22 | Corporate Resolution   |  | 2             |
| 23 |  |  |               |
| 24 | <b>CONDITIONS OF THE CONTRACT</b>  |  |               |
| 25 | A201 General Conditions as modified by UWSA                                |  | GC-106        |
| 26 | A132 Insurance and Bonds   |  | IB-18         |
| 27 | Submittal Log  |  | SL-3          |
| 28 |  |  |               |
| 29 | <b>DIVISION 01</b>   |  |               |
| 30 | General Requirements   |  | GR-16         |
| 31 | 01 74 19 Construction Waste Management                                     |  | 01 74 19-3    |
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| 33 | VOLUME 2   |  |               |
| 34 | <b>DIVISION 02 – EXISTING CONDITIONS</b>                                   |  |               |
| 35 | Section  | Title  | Pages Thru    |
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| 37 | 02 32 00   | Geotechnical Investigation                         | 02 32 00-39   |
| 38 | 02 41 13   | Demolition   | 02 41 13-5    |
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| 40 | <b>DIVISION 03 – CONCRETE</b>  |  |               |
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| 42 | 03 30 00   | Cast-In-Place Concrete                             | 03 30 00-17   |
| 43 |  |  |               |
| 44 | <b>DIVISION 30 – COMMON WORK RESULTS FOR ALL EXTERIOR WORK</b>             |  |               |
| 45 | Section  | Title  | Pages Thru    |
| 46 | 30 05 00   | Common Work Results for All Exterior Work          | 30 05 00-05   |
| 47 |  |  |               |
| 48 | <b>DIVISION 31 – EARTHWORK</b>   |  |               |
| 49 | Section  | Title  | Pages Thru    |
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| 51 | 31 13 00   | Selective Tree and Shrub Removal and Transplanting | 31 13 00-4    |
| 52 | 31 13 16   | Selective Tree and Shrub Protection and Trimming   | 31 13 16-8    |
| 53 | 31 20 00   | Earthmoving  | 31 20 00-6    |
| 54 | 31 22 16.15  | Roadway Subgrade Preparation                       | 31 22 16.15-4 |

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| 1  | 31 23 16.13                         | Trenching                                  | 31 23 16.13-9 |
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| 6  | DIVISION 32 – EXTERIOR IMPROVEMENTS |  |               |
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| 9  | 32 12 16.13                         | Hot Plant Mix Asphalt Paving               | 32 12 16.13-3 |
| 10 | 32 17 23                            | Pavement Markings                          | 32 17 23-2    |
| 11 | 32 91 13                            | Soil Preparation                           | 32 91 13-4    |
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| 19 | 33 40 00                            | Storm Drainage Utilities                   | 33 40 00-11   |
| 20 |                                     |  |               |
| 21 |                                     |  |               |
| 22 | DRAWINGS - Bound Separately         |  |               |
| 23 |                                     |  |               |
| 24 | Title                               |  | Sheets Thru   |
| 25 | Cover Sheet                         |  | C0.0          |
| 26 | General Notes                       |  | C1.0          |
| 27 | Existing Conditions                 |  | C2.0          |
| 28 | Demo Plan (West)                    |  | C2.1          |
| 29 | Demo Plan (East)                    |  | C2.2          |
| 30 | Paving Plan West                    |  | C3.0          |
| 31 | Paving Plan East                    |  | C3.1          |
| 32 | Phasing Plan                        |  | C3.2          |
| 33 | Erosion Control Plan (West)         |  | C4.0          |
| 34 | Erosion Control Plan (East)         |  | C4.1          |
| 35 | Erosion Control Details             |  | C4.2          |
| 36 | Grading Plan (West)                 |  | C5.0          |
| 37 | Grading Plan (East)                 |  | C5.1          |
| 38 | Drainage Plan                       |  | C5.2          |
| 39 | Utility Plan                        |  | C6.0          |
| 40 | Construction Details                |  | C7.0-C7.1     |
| 41 | Tree Replacement Plan               |  | C8.0          |

1           **Retainage.** Retainage shall occur and be in amounts and on a schedule equal to that in the contract between  
2 (general prime contractor) and the University of Wisconsin System Administration.

3  
4           **22. COMMENCEMENT AND COMPLETION**

5           The successful General Prime Contractor Bidder shall commence work on a date to be specified in a written “Notice to  
6 Proceed” issued by the owner and to fully complete all the work per signed agreement of Substantial Completion no later  
7 than 10/27/2023. Refer also to General Conditions for additional information in regards to time for completion.

8  
9           **The General Prime Contractor must base the Project Schedule on the schedule that the MEP Subcontractors  
10 and General Prime Contractors bid on (in the specifications or bid instructions), unless otherwise agreed to by  
11 the MEP Subcontractor.** These milestones will be incorporated into the master project schedule after the Notice to  
12 Proceed is issued. The schedule must include, but is not limited to, the following milestone categories as they apply to  
13 the project:  
14

| <b>Start Date<br/>(Month/Year)</b> | <b>End Date<br/>(Month/Year)</b> | <b>Schedule Milestones</b>  |
|------------------------------------|----------------------------------|---|
| 7/2023                             | 7/2023                           | Mobilization  |
| 7/2023                             | 8/2023                           | Phase 1   |
| 7/2023                             | 9/2023                           | Phase 2   |
| 8/2023                             | 9/2023                           | Phase 3   |
| 8/2023                             | 10/2023                          | Phase 4   |
| 8/2023                             | 10/2023                          | Stormfilter to be Installed During Phase 4 – Note: Potential for Long Lead Time |
| 10/2023                            | 10/2023                          | Substantial Completion  |

15  
16  
17           **23. WORK BY THE OWNER**  
18           The following work will be accomplished by the Owner or will be let under separate contracts and will not be included  
19 under the General Prime Contract:  
20

21           N/A

22  
23           ASBESTOS ABATEMENT:  
24           See General Requirements, HAZARDOUS SUBSTANCES for regulatory requirements, materials testing results, and  
25 General Prime Contractor’s responsibility regarding ACM. If Asbestos Abatement work is contracted by Owner, GPC  
26 shall coordinate the work of the Asbestos Abatement Contractor (AAC) to ensure construction proceeds efficiently.

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**SINGLE BASE BID - GENERAL PRIME CONTRACTOR**

**ALL WORK**

BASE BID NO 1. ALL WORK required to fully complete the project in accordance with the Contract Documents,  
for the sum of (\$\_\_\_\_\_)

**Enter bid amount in numeric characters only** (Example: \$9,999). See Instructions to Bidders 'Article 16 Submission of Base Bids' for detailed instructions.

UNIT PRICES (listed below are for additions to or deductions from amount of work required under the contract. See Instructions to Bidders 'Article 18 Unit Prices' for detailed instructions.) (Applicable to Base Bid No. 1)

| <u>Item</u>   | <u>Unit Price</u> | <u>in Base Bid</u> |
|---|-------------------|--------------------|
| Excavate Below Subgrade and<br>Replace with Granular Fill<br>(See Section 31 20 00) | \$_____ Per C.Y.  | 1,000 C.Y.         |
| Geotextile Fabric<br>(See Section 31 22 16.15)                                      | \$_____ Per S.Y.  | 1,000 S.Y.         |
| Extra Sidewalk Removal and Replacement<br>(See Section 03 30 00)                    | \$_____ Per S.F.  | 1,000 S.F.         |
| Extra Curb and Gutter Removal and Replacement<br>(See Section 03 30 00)             | \$_____ Per L.F.  | 1,000 L.F.         |

**Base Bid No. 1 includes** the bids from the following successful MEP Subcontractors identified by UWSA for the mechanical, electrical, plumbing, and fire protection divisions of work in this project. The General Prime Contractor shall enter into subcontracts with these MEP Subcontractors:

**Fire Suppression Base Bid No. 2:**

Identified Subcontractor: \_\_\_\_\_

Amount: \_\_\_\_\_

**Plumbing Base Bid No. 3:**

Identified Subcontractor: \_\_\_\_\_

Amount: \_\_\_\_\_

**Heating Ventilating and Air Conditioning Base Bid No. 4:**

Identified Subcontractor: \_\_\_\_\_

Amount: \_\_\_\_\_

**Electrical Base Bid No. 5:**

Identified Subcontractor: \_\_\_\_\_

Amount: \_\_\_\_\_

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**SECTION 03 30 00**  
**CAST-IN-PLACE CONCRETE**  
**BASED ON DFD MASTER SPECIFICATION DATED 8-28-2019**

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**PART 1 - GENERAL**

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**SCOPE**

Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes. The work under this section consists of providing all work, materials, labor equipment and supervision necessary to provide cast in-place concrete as required in these specifications and the drawings.

**PART 1 - GENERAL**

- Scope
- Related Work
- References
- Definitions
- Pre-Installation Meetings
- Submittals
- Quality Assurance
- Mock up
- Delivery, Storage, and Handling
- Field Conditions

**PART 2 - PRODUCTS**

- Form-facing Materials
- Steel Reinforcement
- Reinforcement Accessories
- Concrete Materials
- Admixtures
- Fiber Reinforcement
- Waterstops
- Vapor Retarders
- Floor And Slab Treatments
- Liquid Floor Treatment
- Curing Materials
- Related Materials
- Repair Materials
- Concrete Mixtures, General
- Fabricating Reinforcement
- Concrete Mixing

**PART 3 - EXECUTION**

- Formwork
- Embedded Items
- Removing And Reusing Forms
- Shores And Reshores
- Vapor Retarders
- Steel Reinforcement
- Joints
- Waterstops
- Concrete Placement
- Finishing Formed Surfaces
- Finishing Floors And Slabs
- Quantification of Relative Humidity at 40% of Concrete Thickness
- Quantifying Ph Level
- Miscellaneous Concrete Items

1 Concrete Protecting And Curing  
2 Liquid Floor Treatments  
3 Joint Filling  
4 Concrete Surface Repairs  
5 Field Quality Control  
6 Extra Sidewalk Removal and Replacement  
7 Extra Curb and Gutter Removal and Replacement  
8

## 9 **RELATED WORK**

10 Applicable provisions of Division 1 govern work under this Section.

## 11 **REFERENCES**

12 Incorporated Guides and References

13 American Concrete Institute (ACI):

14 ACI 302.1R – Guide for Concrete Floor and Slab Construction.  
15 ACI 304R – Guide for Measuring, Mixing, Transporting and Placing Concrete.  
16 ACI 304.2R - Placing Concrete by Pumping Methods.  
17 ACI 305R - Hot Weather Concreting.  
18 ACI 309R – Guide for the Consolidation of Concrete.  
19 ACI 347 – Guide to Formwork for Concrete.  
20 ACI SP-66 – ACI Detailing Manual.

21 Specifications

22 American Concrete Institute (ACI):

23 ACI 117 - Specifications for Tolerances for Concrete Construction and Materials.  
24 ACI 301 - Specifications for Structural Concrete.  
25 ACI 303.1 – Specification for Cast-In-Place Architectural Concrete.  
26 ACI 306.1 – Specification for Cold Weather Concreting.  
27 ACI 308.1 – Specification for Curing Concrete.  
28 ACI 315 - Details and Detailing of Concrete Reinforcement.  
29 ACI 318 - Building Code Requirements for Structural Concrete and Commentary.

30 ASTM International (ASTM):

31 ASTM A615 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete  
32 Reinforcement.  
33 ASTM A775 – Standard Specification for Epoxy-Coated Steel Reinforcing Bars.  
34 ASTM C33 – Standard Specification for Concrete Aggregates.  
35 ASTM C94 – Standard Specification for Ready-Mixed Concrete.  
36 ASTM C150 – Standard Specification for Portland Cement.  
37 ASTM C171 – Standard Specification for Sheet Materials for Curing Concrete.  
38 ASTM C260 – Standard Specification for Air-Entraining Admixtures for Concrete.  
39 ASTM C309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing  
40 Concrete.  
41 ASTM C494 – Standard Specification for Chemical Admixtures for Concrete.  
42 ASTM C618 – Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for  
43 use in Concrete.  
44 ASTM C989 – Standard Specification for Slag Cement for Use in Concrete and Mortars.  
45 ASTM C1059 – Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete.  
46 ASTM D1751 – Standard Specification for Preformed Expansion Joint Filler for Concrete Paving  
47 and Structural Construction (Non-extruding and Resilient Bituminous Types).  
48 ASTM D3963 – Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Steel  
49 Reinforcing Bars.  
50  
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1 **DEFINITIONS**

2  
3 Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic  
4 cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

5  
6 W/C Ratio: The ratio by weight of water to cementitious materials.

7  
8 Cured Concrete: The concrete strength at 28 days.

9  
10 Dry Concrete: The measure of concrete at 80% relative humidity at 40% of the concrete slab-on-grade depth.

11  
12 Self-Consolidating Concrete (SCC): a highly workable concrete that can flow through densely reinforced or complex  
13 structural elements under its own weight and adequately fill voids without segregation or excessive bleeding without  
14 the need for vibration.

15  
16 Passing Ability: The ability of SCC to flow through openings such as the spaces between reinforcing bars without  
17 segregation or aggregate blocking.

18  
19 J-Ring Test: Test used to determine the passing ability of SCC, or the degree to which the passage of concrete through  
20 the bars of the J-Ring apparatus is restricted.

21  
22 J-Ring Flow: The distance of lateral flow of concrete using J-Ring in combination with a slump cone.

23  
24 Slump Flow: Test method used to measure the unconfined flow and stability of SCC using a slump cone (upright or  
25 inverted)

26  
27 Slump Flow Spread: The numerical value in inches of flow and stability of SCC using a slump cone (upright or  
28 inverted).

29  
30 Slump Flow Spread: The numerical value in inches of flow determined as the average diameter of the circular deposit  
31 of SCC at the conclusion of the slump flow test.

32  
33 T<sub>50</sub> Value: Time (in seconds) the edge of the concrete mass takes to reach 50 cm (20 inches) diameter from the time  
34 the mold is first raised in the slump flow test.

35  
36 Stability: The ability of a concrete mixture to resist segregation of the paste from the aggregates.

37  
38 Static Segregation (Segregation Factor): Segregation of the mortar from the coarse aggregate that occurs after  
39 placement while the concrete is still in the plastic state.

40  
41 Visual Stability Index (VSI) Rating: An assessment of the homogeneity of concrete based on the visual inspection of  
42 the concrete sample at the end of the slump flow test.

43  
44 **PREINSTALLATION MEETINGS**

45 Prior to submitting design mixtures, contractor shall hold a meeting to review detailed requirements for preparing final  
46 concrete design mixes and to establish procedures for placing, finishing, curing, and protecting concrete to meet  
47 required quality under anticipated conditions. Representatives of each entity directly concerned with cast-in-place  
48 concrete to attend, including the following:

- 49  
50 Contractor's superintendent.  
51 Architect  
52 Project Construction Representative  
53 Testing Laboratory responsible for field quality control.  
54 Ready-mix concrete supplier.  
55 Concrete Subcontractor.

1 Special concrete finish Subcontractor.

2  
3 Minutes of the meeting shall be recorded, typed, reproduced and distributed by Contractor to all parties concerned  
4 within five working days of meeting. Minutes shall include a statement by admixture manufacturer(s) indicating that  
5 proposed mix design and placing can produce concrete quality required by this Section.

6  
7 Contractor shall notify OWNER at least 10 days prior to scheduled date of meeting.

## 8 9 **SUBMITTALS**

10 Product Data: For each type of product.

11  
12 Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials,  
13 Project conditions, weather, test results, or other circumstances warrant adjustments.

14 Indicate amounts of mixing water to be withheld for later addition at Project site.

15  
16 Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement. Include bar  
17 sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps,  
18 mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

19  
20 Material Certificates: For each of the following, signed by manufacturers:

21 Cementitious materials.

22 Admixtures.

23 Steel reinforcement and accessories.

24 Fiber reinforcement.

25 Waterstops.

26 Curing compounds.

27 Bonding agents.

28 Adhesives.

29 Vapor retarders.

30 Semirigid joint filler.

31 Joint-filler strips.

32 Repair materials.

33  
34  
35 Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:  
36 Aggregates

37  
38 Field quality-control reports.

## 39 40 **QUALITY ASSURANCE**

41 Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork  
42 Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

43  
44 Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies  
45 with ASTM C 94/C 94M requirements for production facilities and equipment.

46  
47 Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

48  
49 Testing Agency Qualifications: An independent agency, [ **acceptable to authorities having jurisdiction,** ] qualified  
50 according to ASTM C 1077 and ASTM E 329 for testing indicated.

51  
52 Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to  
53 ACI CP-1 or an equivalent certification program.

54

1 Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete  
2 Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor shall be an ACI-certified Concrete  
3 Laboratory Testing Technician, Grade II.

#### 4 5 **DELIVERY, STORAGE, AND HANDLING**

6 Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. [ **Avoid**  
7 **damaging coatings on steel reinforcement.** ]

#### 8 9 **FIELD CONDITIONS**

10 Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or  
11 reduced strength that could be caused by frost, freezing actions, or low temperatures.

12  
13 When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain  
14 delivered concrete mixture temperature within the temperature range required by ACI 301.

15  
16 Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade  
17 or on subgrade containing frozen materials.

18  
19 Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators  
20 unless otherwise specified and approved in mixture designs.

21  
22 Hot-Weather Placement: Comply with ACI 301 and as follows:

23  
24 Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice  
25 may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing  
26 water. Using liquid nitrogen to cool concrete is Contractor's option.

27  
28 Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly  
29 moist without standing water, soft spots, or dry areas.

## 30 31 32 **PART 2 - PRODUCTS**

### 33 34 35 **FORM-FACING MATERIALS**

36 Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces.

37  
38 Furnish in largest practicable sizes to minimize number of joints.

39  
40 Plywood, metal, or other approved panel materials.

41  
42 Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on  
43 at least two edges and one side for tight fit.

44  
45 Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

46  
47 Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect  
48 concrete surfaces and does not impair subsequent treatments of concrete surfaces.

49  
50 Formulate form-release agent with rust inhibitor for steel form-facing materials.

51  
52 Form Ties: Factory-fabricated, removable or snap-off glass-fiber-reinforced plastic or metal form ties designed to  
53 resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

54  
55 Furnish units that leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.

1 Furnish ties that, when removed, leave holes no larger than 1 inch in diameter in concrete surface.

2  
3 Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

#### 4 5 **STEEL REINFORCEMENT**

6 Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content  
7 not less than **25** percent.

8  
9 Reinforcing Bars: ASTM A 615/A 615M, Grade 60 , deformed and smooth dowels, as shown on the drawings.

10  
11 Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from as-drawn steel wire into  
12 flat sheets.

#### 13 14 **CONCRETE MATERIALS**

15 Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's  
16 plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

17  
18 Cementitious Materials:

19 Portland Cement: ASTM C 150/C 150M, **Type I, Type II, or Type I/II, gray.**

20  
21 Fly Ash: ASTM C 618, **Class F or C.**

22  
23 Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.

24  
25 Blended Hydraulic Cement: ASTM C 595/C 595M, **Type IS, portland blast-furnace slag.**

26  
27 Normal-Weight Aggregates: ASTM C 33/C 33M, **Class 3S** coarse aggregate or better, graded. Provide aggregates  
28 from a single source **with documented service record data of at least 10 years' satisfactory service in similar**  
29 **applications and service conditions using similar aggregates and cementitious materials.**

30  
31 Maximum Coarse-Aggregate Size: **3/4 inch** nominal.

32  
33 Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

#### 34 35 **ADMIXTURES**

36 Admixtures to be used in the concrete mixture shall be submitted for approval as part of the mixture design. No other  
37 admixtures will be allowed except those listed without the Architect's approval.

38  
39 Air-Entraining Admixture: ASTM C 260/C 260M.

40  
41 Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute  
42 water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or  
43 admixtures containing calcium chloride.

44  
45 Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

46  
47 Retarding Admixture: ASTM C 494/C 494M, Type B.

48  
49 Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.

50  
51  
52 Water: ASTM C 94/C 94M **and potable.**

#### 53 54 **CURING MATERIALS**

55 Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

1  
2 Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq.  
3 yd. when dry.

4  
5 Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.  
6 Water: Potable.

7  
8 Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

#### 9 10 **RELATED MATERIALS**

11 Expansion- and Isolation-Joint-Filler Strips: **ASTM D 1751, asphalt-saturated cellulosic fiber or as noted on the**  
12 **detail drawings.**

13  
14 Bonding Agent: ASTM C 1059/C 1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.

15  
16 Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp  
17 surfaces, of class suitable for application temperature and of grade to suit requirements.

#### 18 19 **CONCRETE MIXTURES, GENERAL**

20 Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture  
21 or field test data, or both, according to ACI 301.

22  
23 Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on  
24 laboratory trial mixtures.

25  
26 Cementitious Materials: **Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount**  
27 **of portland cement, which would otherwise be used, by not less than 40 percent. Limit percentage, by weight,**  
28 **of cementitious materials other than portland cement in concrete as follows:**

29  
30 Fly Ash: 25 percent.

31  
32 Combined Fly Ash and Pozzolan: 25 percent.

33  
34 Slag Cement: 50 percent.

35  
36 Combined Fly Ash or Pozzolan and Slag Cement: 50 percent portland cement minimum, with fly ash or  
37 pozzolan not exceeding 25 percent.

38  
39 Silica Fume: 10 percent.

40  
41 Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25  
42 percent and silica fume not exceeding 10 percent.

43  
44 Combined Fly Ash or Pozzolans, Slag Cement, and Silica Fume: 50 percent with fly ash or pozzolans not  
45 exceeding 25 percent and silica fume not exceeding 10 percent.

46  
47 Limit water-soluble, chloride-ion content in hardened concrete to **0.15** percent by weight of cement.

48  
49 Admixtures: Use admixtures according to manufacturer's written instructions.

50  
51 Use **water-reducing** admixture in concrete, as required, for placement and workability.

1 Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other  
2 adverse placement conditions.

3  
4 Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking  
5 structure slabs, concrete required to be watertight, and concrete with a w/c ratio below 0.50.

6  
7 Use corrosion-inhibiting admixture in concrete mixtures where indicated.

8  
9 **CONCRETE MIXTURE SCHEDULE**

10  
11

| 12 Class | 13 Type of Construction   | 14 Min. Comp Strength @ 28 Days (PSI) | 15 Slump Before addn. of HRWR (in. +/- 1 in.) | 16 Max. Agg. Size (in.) | 17 Water Cement Ratio | 18 Air Entrainment % +/- 1½% | 19 Notes     |
|----------|---------------------------|---------------------------------------|---|-------------------------|-----------------------|------------------------------|--------------|
| 20 2b    | 21 Exterior Site concrete | 22 4500                               | 23 3  | 24 0.75                 | 25 0.44               | 26 6.0                       | 27 (2)(4)(6) |
| 28 10    | 29 Utility Concrete       | 30 4500                               | 31 3  | 32 0.75                 | 33 0.48               | 34 6.0                       | 35 (2)(3)    |
| 36 10a   | 37 Utility Concrete       | 38 4500                               | 39 See SCC requirements below                 |                         |                       |                              | 40 (7)       |

41 Notes:

- 42 (1) Use a maximum of 30% replacement of portland cement with ground granulated blast-furnace slag and fly ash at a 1:1 ratio, up to 350 pounds per cubic yard, with a maximum 25% fly ash. If fly ash is used alone, limit the maximum replacement to 25%.
- 43 (2) High-Range, Water-Reducing Admixture may be used in mixture.

44 **FABRICATING REINFORCEMENT**

45 Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

46 **CONCRETE MIXING**

47 Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M [ **and ASTM C 1116/C 1116M** ], and furnish batch ticket information.

48 When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

49 Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

50 For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.

51 For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd..

1 Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name  
2 and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate  
3 location of final deposit in structure.  
4  
5

### 6 **PART 3 - EXECUTION**

#### 7 **FORMWORK INSTALLATION**

8 Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and  
9 dynamic loads, and construction loads that might be applied, until structure can support such loads.  
10

11 Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position  
12 indicated, within tolerance limits of ACI 117.

13 Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

14 **Class A, 1/8 inch** for smooth-formed finished surfaces.  
15

16 **Class B, 1/4 inch** for rough-formed finished surfaces.  
17

18 Construct forms tight enough to prevent loss of concrete mortar.  
19

20 Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking  
21 plates where stripping may damage cast-concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5  
22 horizontal to 1 vertical.  
23

24 Install keyways, reglets, recesses, and the like, for easy removal.  
25

26 Do not use rust-stained steel form-facing material.  
27

28 Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished  
29 concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type  
30 screeds.  
31

32 Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible.  
33

34 Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate  
35 temporary openings in forms at inconspicuous locations.  
36

37 **Chamfer** exterior corners and edges of permanently exposed concrete.  
38

39 Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work.  
40

41 Determine sizes and locations from trades providing such items.  
42

43 Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before  
44 placing concrete.  
45

46 Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper  
47 alignment.  
48

49 Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before  
50 placing reinforcement.  
51

1  
2 **EMBEDDED ITEM INSTALLATION**

3 Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or  
4 supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished  
5 with items to be embedded.

6  
7 Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5  
8 of AISC 303.

9  
10 Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame  
11 at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

12  
13 Install dovetail anchor slots in concrete structures as indicated.

14  
15 **REMOVING AND REUSING FORMS**

16 General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of  
17 concrete may be removed after cumulatively curing at not less than 50 deg F for **24** hours after placing concrete.  
18 Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations  
19 need to be maintained.

20  
21 Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete  
22 in place until concrete has achieved **at least 70 percent of** its 28-day design compressive strength.

23  
24 Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing  
25 shores.

26  
27 Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-  
28 facing material are not acceptable for exposed surfaces. Apply new form-release agent.

29  
30 When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints  
31 to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

32  
33 **VAPOR-RETARDER INSTALLATION**

34 Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's  
35 written instructions.

36  
37 Lap joints 6 inches and seal with manufacturer's recommended tape.

38  
39 Bituminous Vapor Retarders: Place, protect, and repair bituminous vapor retarder according to manufacturer's written  
40 instructions.

41  
42 **STEEL REINFORCEMENT INSTALLATION**

43 General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

44  
45 Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

46  
47 Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with  
48 bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

49  
50 Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

51  
52 Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

53 Install welded-wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap  
54 edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent  
55 continuous laps in either direction. Lace overlaps with wire.



1  
2 Epoxy-Coated Reinforcement: Repair cut and damaged epoxy coatings with epoxy repair coating according to  
3 ASTM D 3963/D 3963M. Use epoxy-coated steel wire ties to fasten epoxy-coated steel reinforcement.

4  
5 Zinc-Coated Reinforcement: Repair cut and damaged zinc coatings with zinc repair material according to  
6 ASTM A 780/A 780M. Use galvanized-steel wire ties to fasten zinc-coated steel reinforcement.

## 7 8 **JOINTS**

9 General: Construct joints true to line with faces perpendicular to surface plane of concrete.

10  
11 Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as  
12 approved by Architect.

13  
14 Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless  
15 otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.

16  
17 Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.

18  
19 Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a  
20 minimum distance of twice the beam width from a beam-girder intersection.

21  
22 Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top  
23 of footings or floor slabs.

24  
25 Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened  
26 concrete surfaces.

27  
28 Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially  
29 hardened concrete surfaces.

30  
31 Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as  
32 indicated. Construct contraction joints for a depth equal to at least **one-Third** of concrete thickness as follows:

33 Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to  
34 a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes.

35  
36 Eliminate groover tool marks on concrete surfaces.

37  
38 Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-  
39 rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action does not tear, abrade, or otherwise  
40 damage surface and before concrete develops random contraction cracks.

41  
42 Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical  
43 surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

44  
45 Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless  
46 otherwise indicated.

47  
48 Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete  
49 surface where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.

50  
51 Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip  
52 sections together.

53  
54 Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-  
55 half of dowel length to prevent concrete bonding to one side of joint.

1  
2 **CONCRETE PLACEMENT**

3 Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that  
4 required inspections are completed.  
5

6 Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.  
7 Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.  
8

9 Do not add water to concrete after adding high-range water-reducing admixtures to mixture.  
10

11 Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on  
12 concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously,  
13 provide construction joints as indicated. Deposit concrete to avoid segregation.  
14

15 Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to  
16 avoid inclined construction joints.  
17

18 Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.  
19

20 Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly  
21 spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert  
22 vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of  
23 vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other  
24 embedded items without causing mixture constituents to segregate.  
25

26 Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints,  
27 until placement of a panel or section is complete.

28 Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement  
29 and other embedded items and into corners.  
30

31 Maintain reinforcement in position on chairs during concrete placement.  
32

33 Screed slab surfaces with a straightedge and strike off to correct elevations.  
34

35 Slope surfaces uniformly to drains where required.  
36

37 Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before  
38 excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing  
39 operations.  
40

41 **FINISHING FORMED SURFACES**  
42

43 Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and  
44 symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other  
45 projections that exceed specified limits on formed-surface irregularities.  
46

47 Apply to concrete surfaces **exposed to public view, or to be covered with a coating or covering material**  
48 **applied directly to concrete.**  
49

50  
51 Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed  
52 surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface  
53 treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

1  
2 **FINISHING SLABS**

3 General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for  
4 concrete surfaces. Do not wet concrete surfaces.  
5

6 Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-  
7 driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface  
8 is left with a uniform, smooth, granular texture.  
9

10 Apply float finish to surfaces **to receive trowel finish.**

11  
12  
13 Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

14  
15 Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom  
16 perpendicular to main traffic route. Coordinate required final finish with Architect before application.  
17

18 **MISCELLANEOUS CONCRETE ITEM INSTALLATION**

19 Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise  
20 indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous  
21 concrete filling indicated or required to complete the Work.  
22

23 Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling  
24 surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.  
25

26 **CONCRETE PROTECTING AND CURING**

27 General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with  
28 ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.  
29

30 Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause  
31 moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's  
32 written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.  
33

34 Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar  
35 surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of  
36 curing period, continue curing for remainder of curing period.  
37

38 Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and  
39 slabs, concrete floor toppings, and other surfaces.  
40

41 Cure concrete according to ACI 308.1, by one or a combination of the following methods:  
42

43 Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:  
44 Water.

45  
46 Continuous water-fog spray.

47  
48 Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and  
49 edges with 12-inch lap over adjacent absorptive covers.  
50

51 Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing  
52 concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by  
53 waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during  
54 curing period, using cover material and waterproof tape.  
55

1 Curing Compound: Apply uniformly in continuous operation by power spray or roller according to  
2 manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial  
3 application. Maintain continuity of coating and repair damage during curing period.  
4

#### 5 **CONCRETE SURFACE REPAIRS**

6 Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that  
7 cannot be repaired and patched to Architect's approval.  
8

9 Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate  
10 passing a No. 16 sieve, using only enough water for handling and placing.  
11

12 Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles,  
13 honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot  
14 be removed by cleaning.  
15

16 Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any  
17 dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete  
18 surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact  
19 with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs  
20 secured in place with bonding agent.  
21

22 Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement  
23 so that, when dry, patching mortar matches surrounding color. Patch a test area at inconspicuous locations to  
24 verify mixture and color match before proceeding with patching.  
25

26 Compact mortar in place and strike off slightly higher than surrounding surface.  
27

28 Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as  
29 determined by Architect.  
30

31 Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface  
32 tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope  
33 and smoothness; use a sloped template.  
34

35 Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock  
36 pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely  
37 through unreinforced sections regardless of width, and other objectionable conditions.  
38

39 After concrete has cured at least 14 days, correct high areas by grinding.  
40

41 Correct localized low areas during or immediately after completing surface finishing operations by cutting  
42 out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.  
43

44 Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and  
45 apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth,  
46 uniform, plane, and level surface. Feather edges to match adjacent floor elevations.  
47

48 Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a  
49 minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair  
50 topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and  
51 level surface.  
52

53 Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and  
54 replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement  
55 with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and

1 apply bonding agent. Mix patching concrete of same materials and mixture as original concrete, except  
2 without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same  
3 manner as adjacent concrete.  
4

5 Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks  
6 and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete  
7 surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching  
8 mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.  
9

10 Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.  
11 Repair materials and installation not specified above may be used, subject to Architect's approval.  
12

### 13 **FIELD QUALITY CONTROL**

14  
15 Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit  
16 reports.  
17

18 Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be  
19 performed according to the following requirements:  
20

21 Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5  
22 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.  
23

24 Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each  
25 concrete mixture placed each day.  
26

27 When frequency of testing provides fewer than five compressive-strength tests for each concrete  
28 mixture, testing shall be conducted from at least five randomly selected batches or from each batch  
29 if fewer than five are used.

30 Petrographic Analysis:

31 One test for each day's pour. Perform additional tests when concrete consistency appears to change. Analysis  
32 shall include the following:

- 33 1. Water/Cement ratio and porosity distribution
- 34 2. Air content and distribution

35  
36 Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for  
37 each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.  
38

39 For SCC; test slump flow in accordance with ASTM C1611. Cone can be used either upright or inverted.  
40 Same procedure shall be followed throughout project.  
41

42 For SCC; tester shall record the Visual Stability Index (VSI)  
43

44 Air Content: ASTM C 231/C 231M, pressure method, for normal-weight concrete; [**ASTM C 173/C 173M,**  
45 **volumetric method, for structural lightweight concrete;**] one test for each composite sample, but not less than one  
46 test for each day's pour of each concrete mixture.  
47

48 Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below or 80  
49 deg F and above, and one test for each composite sample.  
50

51 Unit Weight: ASTM C 567/C 567M, fresh unit weight of structural lightweight concrete; one test for each composite  
52 sample, but not less than one test for each day's pour of each concrete mixture.  
53

54 Compression Test Specimens: ASTM C 31/C 31M.  
55

1 Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.

2  
3 Cast and field cure two sets of two standard cylinder specimens for each composite sample.

4  
5 Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one  
6 set of two specimens at 28 days.

7  
8 Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.

9  
10 A compressive-strength test shall be the average compressive strength from a set of two specimens obtained  
11 from same composite sample and tested at age indicated.

12  
13 When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor  
14 shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.

15  
16 Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength  
17 tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified  
18 compressive strength by more than 500 psi.

19  
20 Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing.  
21 Reports of compressive-strength tests shall contain Project identification name and number, date of concrete  
22 placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive  
23 strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for  
24 both 7- and 28-day tests.

25  
26 Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that  
27 slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.

28  
29 Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying  
30 with ASTM C 42/C 42M or by other methods as directed by Architect.

31  
32 Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or  
33 additional work with specified requirements.

34 Correct deficiencies in the Work that test reports and inspections indicate do not comply with the  
35 Contract Documents.

36  
37 Measure floor and slab flatness and levelness according to ASTM E 1155 within **48** hours of finishing.

### 38 39 **EXTRA SIDEWALK REMOVAL AND REPLACEMENT**

40  
41 Extra sidewalk removal shall be completed only when directed by the Project Representative. The Con-  
42 tractor shall not be compensated for any unauthorized sidewalk removal and replacement. Measure and  
43 document sidewalk removal and replacement areas in consultation with Project Representative.

44  
45 Remove sidewalk and base specified by A/E or DFD Project Representative using equipment.

46  
47 Sidewalk areas shall be backfilled with 6" of thick aggregate base, as noted in Construction Details, and  
48 compacted to 95% modified proctor density. Sidewalk to be replaced as noted in Construction Details.

49  
50 Sidewalk removal and replacement work shall include all materials, labor, equipment and supervision  
51 necessary to remove the sidewalk and base and replaced with new concrete sidewalk. Sidewalk shall be  
52 measured in its original position. The cost of the extra sidewalk removal and replacement is incidental to  
53 the unit price item for Extra Sidewalk Removal and Replacement.

1  
2 **EXTRA CURB AND GUTTER REMOVAL AND REPLACEMENT**  
3

4 Extra curb and gutter removal shall be completed only when directed by the Project Representative. The  
5 Contractor shall not be compensated for any unauthorized curb and gutter removal and replacement.  
6 Measure and document curb and gutter removal and replacement areas in consultation with Project Re-  
7 presentative.

8  
9 Remove curb and gutter and base specified by A/E or DFD Project Representative using equipment.

10  
11 Curb and gutter areas shall be backfilled with 6" of thick aggregate base, as noted in Construction Details,  
12 and compacted to 95% modified proctor density. Curb and gutter to be replaced as noted in Construction  
13 Details.

14  
15 Curb and gutter removal and replacement work shall include all materials, labor, equipment and supervi-  
16 sion necessary to remove the curb and gutter and base and replaced with new concrete curb and gutter.  
17 Curb and gutter shall be measured in its original position. The cost of the extra curb and gutter removal  
18 and replacement is incidental to the unit price item for Extra Curb and Gutter Removal and Replacement.  
19

20  
21  
END OF SECTION

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**SECTION 31 23 16.16**  
**STRUCTURAL EXCAVATION FOR MINOR STRUCTURES**  
**BASED ON DFD MASTER SPECIFICATION DATED 09/01/2015**

**PART 1 - GENERAL**

**SCOPE**

The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to complete trenching for utilities and other work, as required in these specifications, on the drawings and as otherwise deemed necessary to complete the work. Included are the following topics:

**PART 1 - GENERAL**

- Scope
- Related Work
- Reference Standards
- Quality Assurance

**PART 2 - MATERIALS**

- Granular Fill
- Structural Fill

**PART 3 - EXECUTION**

- Preparation
- Dewatering
- Excavation
- Bearing Surface Approval
- Construction of Foundations, Footings and Slabs
- Backfill and Compaction
- Restoration

**RELATED WORK**

Applicable provisions of Division 1 govern work under this Section.

Related work specified elsewhere:

- Section 30 05 00 – Common Work Results For All Exterior Improvements
- Section 31 20 00 – Earthmoving
- Section 31 23 16.13 – Trenching
- Section 31 25 00 – Erosion Control

**REFERENCE STANDARDS**

American Society for Testing and Materials (ASTM):

- D422-63 Standard Test Method for Particle Size Analysis of Soils
- D4318 Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils
- D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup>)
- D1140 Standard Test Methods for Determining the Amount of Material Finer than 75- $\mu$ m (No. 200) Sieve in Soils by Washing
- D1557 Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup>)
- D2922 Standard Test Methods for Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth)
- D3017 Standard Test Method for Water Content of Soil and Rock In-Place by Nuclear Methods (Shallow Depth)



- 1 D4253 Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a
- 2 Vibratory Table
- 3 D6938 Standard Test Method for In-Place Density and Water Content of Soil and Soil-
- 4 Aggregate by Nuclear Methods (Shallow Depth)
- 5 D6913 Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve
- 6 Analysis
- 7 E329 Standard Specification for Agencies Engaged in Construction Inspection, Testing, or
- 8 Special Inspection
- 9

10 **QUALITY ASSURANCE**

11 The Contractor’s construction materials testing personnel shall complete material testing as outlined in

12 Table 31 23 16.16 -1.

13 *Table 31 23 16.16 -1*

| Material  | Test Required   | Test/Sample Frequency                            |
|---|---|--|
| <b>Granular or Structural Backfill</b> <sup>(1)</sup> | <i>ASTM D422-63 Standard Test Method for Particle Size Analysis of Soils</i>  | <i>0 tests: 0-500 cy<br/>1 test: 500-3000 cy</i> |
|   | <i>ASTM D1140 Standard Test Methods for Amount of Material in Soils Finer than No. 200 (75-µm) Sieve in Soils by Washing</i>                          | “  |
| <b>Granular or Structural Backfill</b>                | <i>ASTM D6938 Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)</i> | <i>0 tests: 0-500 cy<br/>1 test: 500-3000 cy</i> |

14 (1) Tests shall meet the requirements for gradation as listed in WisDOT Section 209.2 and 210.2.

15

16

17

18

19 **PART 2 - MATERIALS**

20

21 **GRANULAR FILL**

22

23 Clean material meeting the requirements of “Grade 1” or “Grade 2” granular backfill as defined in

24 WisDOT Section 209.2.1.

25

26 **STRUCTURAL FILL**

27

28 Clean material meeting the requirements of “Structure Backfill” as defined in WisDOT Section

29 210.2.1.

30

31

32 **PART 3 - EXECUTION**

33

34 **PREPARATION**

35

36 Review drawings and prepare work plan and schedule. Coordinate any necessary interruptions in utility

37 service with DFD Project Representative, in accordance with other specification sections.

38

39 Contact Diggers Hotline. Locate and protect utilities, structures, pavement, trees, landscaping, benchmarks

40 and other features in the work area.

41

42 Layout work according to drawings. Establish and transfer lines and grades as necessary to complete the

43 work.

44

45 Remove topsoil from work area in accordance with Section 31 20 00 – Earthwork. Sawcut and remove

46 pavement from work area in accordance with Section 02 41 13 – Demolition.

47

1 Support existing buildings, utilities and structures as necessary prior to beginning building excavation.

2

3 Grade area surrounding excavation to drain water away from excavation.

4

5 **DEWATERING**

6

7 Dewatering shall be completed in accordance with Section 31 23 19 – Dewatering.

8

9 **EXCAVATION**

10

11 Excavate to elevations and dimensions necessary to complete construction. Excavations shall be  
12 sufficiently deep to provide for foundations, footings, slabs, and any required base material.

13

14 Do not excavate material from under the 45 degree bearing splay beneath existing foundations or footings.

15

16 Notify DFD Project Representative if correction of unauthorized excavation or over-excavation is  
17 necessary. Said excavations will be corrected based on recommendations of DFD Project Representative or  
18 DFD’s geotechnical consultant. Contractor will be responsible for all costs associated with correcting these  
19 excavations, including fees charged by DFD’s geotechnical consultant.

20

21 Segregate the various materials excavated. Reserve material meeting the requirements of backfill for the  
22 project location. Excavated material that does not meet the requirements of backfill, and excess excavated  
23 material, shall be removed from the site and disposed by the contractor unless directed otherwise by other  
24 specification sections or the DFD Project Representative.

25

26 Locate bedding, backfill and spoil piles in accordance with OSHA requirements, and so that it does not  
27 interfere with public travel, adjacent landowners or other construction activities.

28

29 **BEARING SURFACE REVIEW**

30

31 Prior to over-excavating below the proposed bearing surface grade, or modifying bearing surface soil,  
32 contact DFD Project Representative to schedule inspection. Provide minimum of 24 hours confirmed  
33 notice.

34

35 Provide smooth soil surface at bearing surface grade, unless otherwise required by site-specific  
36 geotechnical reports. Hand trim excavation, remove loose material, lumped subsoil, rock and boulders  
37 from the bearing surface.

38

39 Once the bearing surface grade is established, protect the soils from becoming saturated, frozen, or  
40 adversely altered. Do not allow soils from the sidewall of the excavation to spall and fall onto the bearing  
41 surface.

42

43 **CONSTRUCTION OF FOUNDATIONS, FOOTINGS AND SLABS**

44

45 Construct foundations, footings and slabs in accordance with the drawings and pertinent specification  
46 sections.

47

48 Do not allow excavation sidewall soils to spall into excavation.

49

50 Do not allow water to collect in excavation.

51

52 Protect base of excavation from freezing.

53

54 Install waterproofing and foundation drainage system in accordance with drawings.

55

56

1 **BACKFILL AND COMPACTION**

2  
3 Remove all forms, bracing, staking and other construction materials from the excavation prior to initiating  
4 backfilling.

5  
6 Excavation shall be reasonably free of water prior to beginning backfilling. Do not place material on  
7 frozen surfaces or use frozen material.

8  
9 Backfill excavation using the material specified on Table 31 23 16.16 - 2, or as shown on the drawings.

10  
11 Compact fill material as required by Table 31 23 16.16 - 2 for the given use.

12  
13 Moisture condition backfill material as necessary to achieve density required for given use.

14  
15 Place and compact material to minimize settlement and avoid damage to structures, pipes, utility lines and  
16 other features. Hand-place and compact material as necessary.

17  
18 Place backfill simultaneously on both sides of structures.

19  
20 Backfill trenches to elevations shown on the drawings; allow for placement of base course, pavements, and  
21 topsoil as required by the drawings and other Contract Documents. Where final restoration will be delayed,  
22 backfill excavation to existing grade to provide a safe, free-draining surface.

23  
24 It the responsibility of the Contractor to provide all necessary compaction equipment and other grading  
25 equipment that may be required to obtain the specified density. Vibratory plate or tamping type walk  
26 behind compactors will be required whenever backfill is placed adjacent to structures, pipes, utility lines  
27 and other features.

28  
29 Flooding or jetting of backfill material for compaction purposes is not allowed.

30  
31 *Table 31 23 16.16 -2*

| Location   | Required Material | Maximum Compacted Lift Thickness | Minimum Proctor Compaction | Minimum Relative Density <sup>(a)</sup> |
|--|-------------------|----------------------------------|----------------------------|---|
| Areas Beneath Footings, Floor Slabs, or Structures                 | Structural Fill   | 6"                               | 95% Modified               | 70%                                     |
| Footing, Foundation and Structure Backfill                         | Structural Fill   | 6"                               | 95% Modified               | 70%                                     |
| Areas Beneath Existing or Proposed Pavement (Roads, Drives, Walks) | Granular Fill     | 8"                               | 90% Modified               | 60%                                     |
| Turf Areas   | Earth Fill        | 12"                              | 85 % Modified              | 50%                                     |

32 (a) Minimum relative density as determined by ASTM D-4253-00 for coarse-grained soils with less than 15% by mass passing the  
33 No. 200 sieve. Applicable only when minimum proctor compaction cannot be achieved.

34  
35 **RESTORATION**

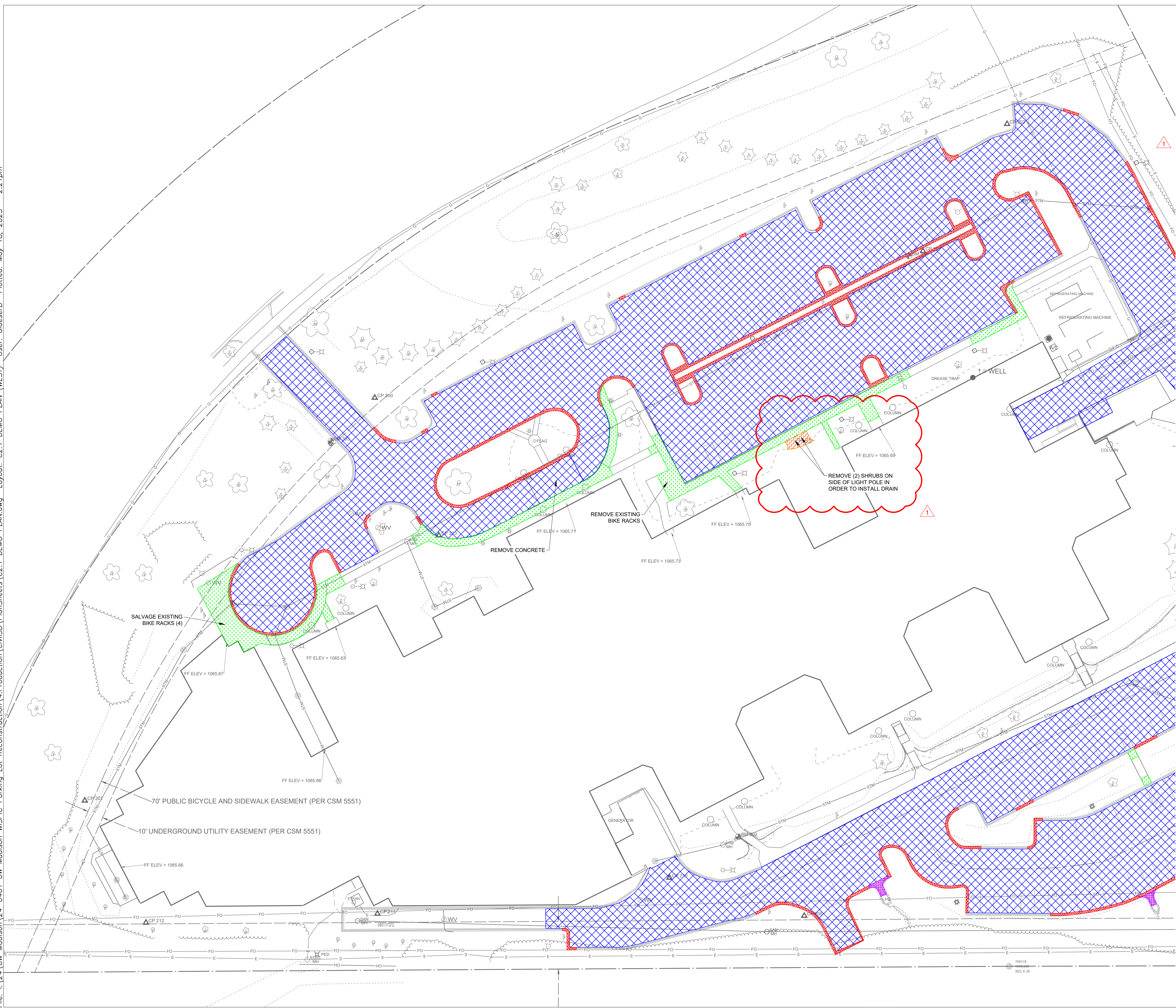
36  
37 Restore structure excavation to proposed grades and surfaces as soon as practicable after backfilling.

38  
39 Remove excess backfill and spoil material from the site as soon as possible after backfilling is complete,  
40 but no later than 2 calendar days after backfilling is complete.

41  
42 Thoroughly clean all drainage ways, roads, parking lots sidewalks and paved surfaces and remove and  
43 dispose all debris and mud.

44  
45 **END OF SECTION**

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### KEY NOTES

- REMOVE EXISTING PARKING LOT (INCLUDES SUBGRADE AND STRIPING)
- REMOVE EXISTING CURB AND GUTTER (INCLUDES SUBGRADE)
- REMOVE EXISTING SIDEWALK (INCLUDES SUBGRADE)
- REMOVE EXISTING CONCRETE SPILLWAY. REGRADE TO MATCH EXISTING TOPOGRAPHY. RESTORE WITH SCREENED TOPSOIL, GRASS SEED, FERTILIZER, AND EROSION CONTROL MAT.
- REMOVE EXISTING MULCH. REGRADE TO MATCH EXISTING TOPOGRAPHY. RESTORE WITH SCREENED TOPSOIL, GRASS SEED, FERTILIZER, AND EROSION CONTROL MAT.

ALL PAVEMENT AND CURB AND GUTTER SHALL BE REMOVED AT THE NEAREST JOINT OR SAWCUT WITH A CLEAN EDGE. THE LENGTH OF REMAINING CURB OR PAVEMENT SHALL NOT BE LESS THAN 5 FEET.

### DEMOLITION NOTES

1. THE CONTRACTOR SHALL INCLUDE IN THE BID THE COST OF REMOVING ANY EXISTING SITE FEATURES AND APPURTENANCES NECESSARY TO ACCOMPLISH THE CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS. THE CONTRACTOR SHALL ALSO INCLUDE IN THE BID THE COST NECESSARY TO RESTORE SUCH ITEMS IF THEY ARE SCHEDULED TO REMAIN AS PART OF THE FINAL SITE IMPROVEMENTS. REFER TO PLANS TO DETERMINE EXCAVATION, DEMOLITION AND TO DETERMINE THE LOCATION OF THE PROPOSED SITE IMPROVEMENTS.
2. UNLESS SPECIFICALLY NOTED TO BE SAVED / STOCKPILED (R&S) OR REUSED / RELOCATED (R&R), ALL SITE FEATURES CALLED FOR REMOVAL (REM) SHALL BE REMOVED WITH THEIR BASE MATERIAL, ETC. TRANSPORTED FROM THE SITE TO BE DISPOSED OF IN A LAWFUL MANNER AT AN ACCEPTABLE DISPOSAL SITE AND AT NO COST TO THE OWNER.
3. ALL EXISTING SITE FEATURES TO REMAIN SHALL BE PROTECTED THROUGHOUT THE CONSTRUCTION PERIOD. ANY FEATURES DAMAGED DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST.
4. DURING EARTHWORK OPERATIONS, CONTRACTOR SHALL TAKE CARE TO NOT DISTURB EXISTING MATERIALS TO REMAIN. OUTSIDE THE LIMITS OF EXCAVATION AND BACKFILL AND SHALL TAKE WHATEVER MEASURES NECESSARY, AT THE CONTRACTOR'S EXPENSE, TO PREVENT ANY EXCAVATED MATERIAL FROM COLLAPSING. ALL BACKFILL MATERIALS SHALL BE PLACED AND COMPACTED AS SPECIFIED TO THE SUBGRADE REQUIRED FOR THE INSTALLATION OF THE REMAINDER OF THE CONTRACT WORK.
5. ALL ITEMS CALLED FOR REMOVAL SHALL BE REMOVED TO FULL DEPTH.
6. ALL CONCRETE SIDEWALK, CURB AND GUTTER, AND PAVEMENT TO BE REMOVED SHALL BE SAWCUT AT THE NEAREST JOINT. THE MINIMUM LENGTH OF CONCRETE SIDEWALK TO REMAIN BETWEEN REMOVALS SHALL BE 10 FEET LONG. THE MINIMUM LENGTH OF CURB AND GUTTER TO REMAIN BETWEEN REMOVALS SHALL BE 10 FEET LONG.
7. TREES DESIGNATED FOR REMOVAL SHALL BE TAGGED BY CONTRACTOR AND APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
8. THE STORAGE OF MATERIALS AND EQUIPMENT WILL BE PERMITTED AT LOCATIONS DESIGNATED BY OWNER OR OWNER'S REPRESENTATIVE. PROTECTION OF STORED MATERIALS AND EQUIPMENT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. STRIP & STORE EXISTING TOPSOIL FOR LATER REUSE WHERE APPROPRIATE WITH APPROPRIATE EROSION AND SEDIMENT CONTROLS.
10. EXISTING SIDEWALKS SHALL REMAIN OPEN AND PROTECTED. CONTRACTOR RESPONSIBLE FOR PEDESTRIAN SAFETY. ANY SIDEWALK TO BE CLOSED REQUIRE CITY PERMIT PRIOR TO CLOSURE.

**AYRES**  
20975 SWENSON DR.  
SUITE 200  
WAUKESHA, WI 53186

**BID DOCUMENT  
PLANS**

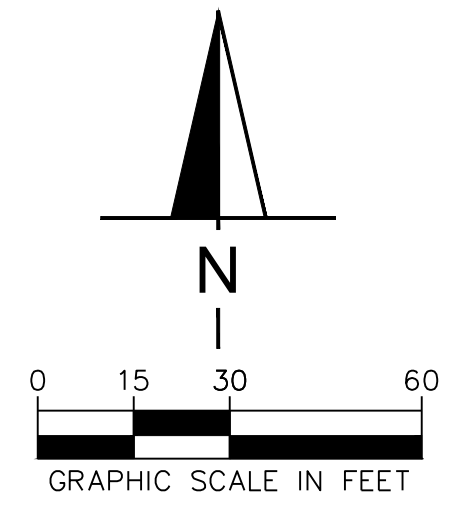
| Revision                     | Date      |
|------------------------------|-----------|
| 15% SUBMITTAL                | 8/9/2022  |
| 60% DESIGN DEVELOPMENT PLANS | 9/19/2022 |
| 95% PLANS                    | 3/15/2023 |
| 100% PLANS                   | 4/14/2023 |
| BID DOCUMENTS                | 5/1/2023  |
| ADDENDUM NO. 1               | 5/22/2023 |

NOT FOR  
CONSTRUCTION

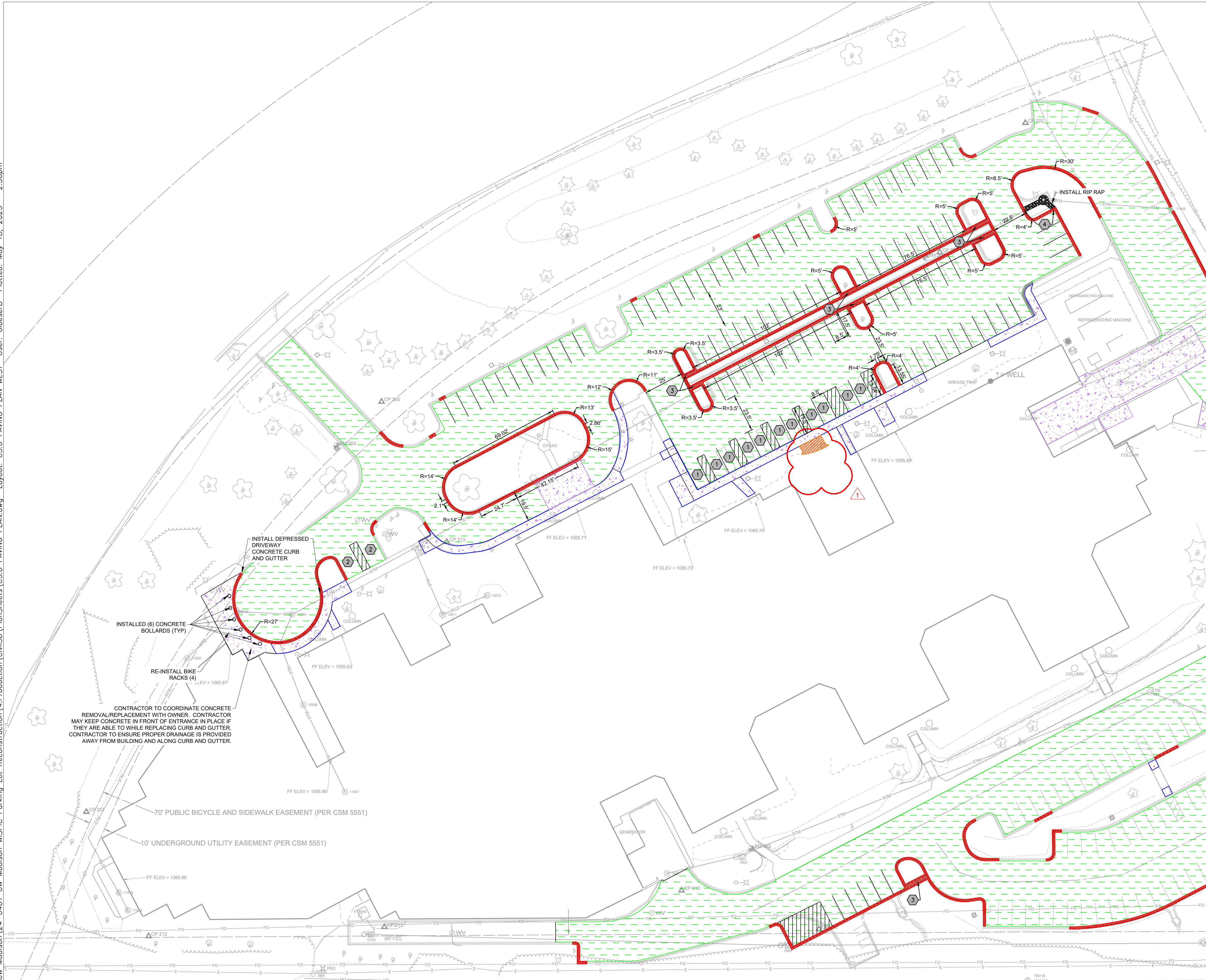
WISPIC PARKING LOT RECONSTRUCTION  
CITY OF MADISON, WI  
**DEMO PLAN (WEST)**

Drawn By: BMG  
Checked By: SEM  
Date: 5/1/2023  
Project No. 24-040100  
Sheet Number

C2.1



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### PAVING AND CURB LEGEND

|  |   |
|--|---|
|  | ASPHALT PAVEMENT<br>SEE CONSTRUCTION DETAILS FOR PAVEMENT SECTION                                   |
|  | CONCRETE PAVEMENT<br>SEE CONSTRUCTION DETAILS FOR PAVEMENT SECTION                                  |
|  | CONCRETE SIDEWALK<br>SEE CONSTRUCTION DETAILS FOR TYPICAL SECTION                                   |
|  | CONCRETE CURB AND GUTTER<br>SEE CONSTRUCTION DETAILS FOR TYPICAL SECTION                            |
|  | LAWN RESTORATION<br>SEE SPECIFICATIONS FOR TOPSOIL REQUIREMENTS. ALL RESTORATION IS TO INCLUDE SOD. |
|  | ACCESSIBLE PARKING STALL  |
|  | VAN ACCESSIBLE PARKING STALL  |
|  | CONCRETE CURB DRAINAGE WAY  |
|  | CONCRETE CURB & GUTTER DEPRESSION   |

### GENERAL NOTES

- ALL DIMENSIONS REFER TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
- BUILDING DIMENSIONS ARE TO THE OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED.
- RADII ADJACENT TO PARKING STALL AND NOT DIMENSIONED ON THIS PLAN SHALL BE 3-FEET, TYPICAL.
- CONTRACTOR TO CREATE CLEAN SAWCUT LINE AT ALL JOINTS WITH NEW/EXISTING PAVEMENT CONNECTIONS.
- ADA ACCESSIBLE PARKING STALLS SHALL INCLUDE ALL NECESSARY PAVEMENT MARKINGS AND SIGNAGE AS SHOWN ON DETAIL.
- ALL LAWN RESTORATION IMPACTED BY CONSTRUCTION SHALL BE RESTORED WITH TOPSOIL AND SOD AS NOTED IN THE SPECIFICATIONS.

**AYRES**  
 20975 SWENSON DR.  
 SUITE 200  
 WAUKESHA, WI 53186

## BID DOCUMENT PLANS

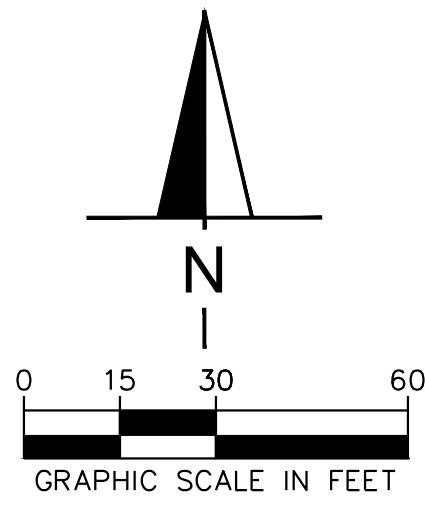
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| 15% SUBMITTAL                | 8/9/2022  |
| 60% DESIGN DEVELOPMENT PLANS | 9/19/2022 |
| 95% PLANS                    | 3/15/2023 |
| 100% PLANS                   | 4/14/2023 |
| BID DOCUMENTS                | 5/11/2023 |
| ADDENDUM NO. 1               | 5/22/2023 |

NOT FOR  
CONSTRUCTION

WISPIC PARKING LOT RECONSTRUCTION  
 CITY OF MADISON, WI  
**PAVING PLAN WEST**

Drawn By: BMG  
 Checked By: SEM  
 Date: 5/11/2023  
 Project No. 24-040100

Sheet Number  
C3.0



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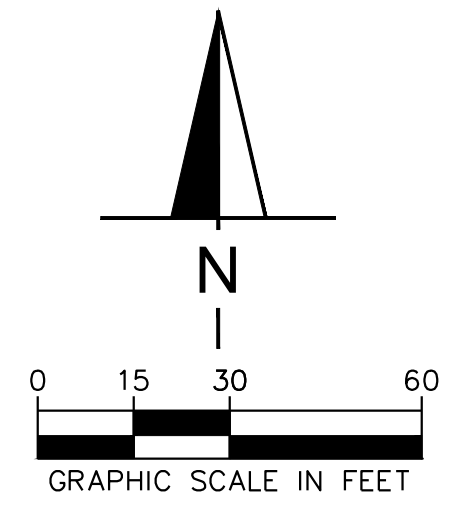


### PAVING AND CURB LEGEND

|  |   |
|--|---|
|  | ASPHALT PAVEMENT<br>SEE CONSTRUCTION DETAILS FOR PAVEMENT SECTION                                   |
|  | CONCRETE PAVEMENT<br>SEE CONSTRUCTION DETAILS FOR PAVEMENT SECTION                                  |
|  | CONCRETE SIDEWALK<br>SEE CONSTRUCTION DETAILS FOR TYPICAL SECTION                                   |
|  | CONCRETE CURB AND GUTTER<br>SEE CONSTRUCTION DETAILS FOR TYPICAL SECTION                            |
|  | LAWN RESTORATION<br>SEE SPECIFICATIONS FOR TOPSOIL REQUIREMENTS. ALL RESTORATION IS TO INCLUDE SOD. |
|  | ACCESSIBLE PARKING STALL  |
|  | VAN ACCESSIBLE PARKING STALL  |
|  | CONCRETE CURB DRAINAGE WAY  |
|  | CONCRETE CURB & GUTTER DEPRESSION   |

### GENERAL NOTES

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- BUILDING DIMENSIONS ARE TO THE OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED.
- RADI ADJACENT TO PARKING STALL AND NOT DIMENSIONED ON THIS PLAN SHALL BE 3-FEET, TYPICAL.
- CONTRACTOR TO CREATE CLEAN SAWCUT LINE AT ALL JOINTS WITH NEW/EXISTING PAVEMENT CONNECTIONS.
- ADA ACCESSIBLE PARKING STALLS SHALL INCLUDE ALL NECESSARY PAVEMENT MARKINGS AND SIGNAGE AS SHOWN ON DETAIL.
- ALL LAWN RESTORATION IMPACTED BY CONSTRUCTION SHALL BE RESTORED WITH TOPSOIL AND SOD AS NOTED IN THE SPECIFICATIONS.



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## BID DOCUMENT PLANS

| Revision                     | Date      |
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| 15% SUBMITTAL                | 8/9/2022  |
| 60% DESIGN DEVELOPMENT PLANS | 9/19/2022 |
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| 100% PLANS                   | 4/14/2023 |
| BID DOCUMENTS                | 5/1/2023  |
| ADDENDUM NO. 1               | 5/22/2023 |

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CONSTRUCTION

WISPIC PARKING LOT RECONSTRUCTION  
CITY OF MADISON, WI  
PAVING PLAN EAST

Drawn By: **BMG**  
Checked By: **SEM**  
Date: **5/1/2023**  
Project No. **24-040100**

Sheet Number  
**C3.1**