SPECIFICATIONS MANUAL

EISENHOWER DRIVE
STREET RECONSTRUCTION

For The

VILLAGE OF KIMBERLY
OUTAGAMIE COUNTY, WISCONSIN

MARCH 9, 2021

McM. No. K0001-09-20-00811

BDW:car

McMAHON
ENGINEERS ARCHITECTS
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Prepared By:

McMAHON
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ADVERTISEMENT FOR BIDS

VILLAGE OF KIMBERLY
Outagamie County, Wisconsin

OWNER - The Village of Kimberly acting through its Village Board, hereby gives notice that sealed Bids will be received in the Village Municipal Complex for the following described project.

PROJECT – This project is funded through the Wisconsin Local Roads Improvement Program (LRIP). The work shall consist of the reconstruction of approximately 4,200 S.Y. of removal and replacement of an 8-inch non-reinforced concrete pavement with an 8-inch doweled concrete pavement. The project also includes an alternate bid for new concrete sidewalk.

Bids will be received on the following Contract:

Contract No. K0001-9-20-00811 EISENHOWER DRIVE STREET RECONSTRUCTION

TIME - Sealed Bids will be received until 10:00 a.m., local time, on Wednesday, March 24, 2021, in the Village Municipal Complex, at which time and place all Bids will be publicly opened and read aloud.

BIDS - All Bids shall be addressed to Danielle Block, Administrator, Village of Kimberly, 515 W Kimberly Avenue, Kimberly, Wisconsin 54136. Bids shall be sealed and shall have the name and address of the Bidder and the Contract for which the Bid is being submitted on the outside of the envelope. All Bidders shall Bid in accordance with and upon the Bid Forms included in the Contract Documents.

EXAMINATION OF BIDDING DOCUMENTS - The Project Documents are on file for inspection at the offices of McMahon Associates, Inc., 1445 McMahon Drive, Neenah, Wisconsin 54956.

PROCUREMENT OF BIDDING DOCUMENTS - In order to be a 'Plan Holder' or 'Bidder', each firm or organization shall either download Bidding Documents from the McMahon Associates, Inc. website (www.mcmgrp.com) utilizing QuestCDN eBidDoc™ or by obtaining a hard copy as designated in this Advertisement For Bids.

Complete digital Bidding Documents are available at www.mcmgrp.com or www.questcdn.com. Digital Bidding Documents may be downloaded for a non-refundable **$35.00** by inputting **Quest Project No. 7647068** on the website's Project Search page. On-line bid submission is available for this project for a non-refundable **$45.00**. Contact QuestCDN.com at 952-233-1632 or info@questcdn.com for assistance in free membership registration, downloading, and working with this digital project information.

An optional 'paper' set of Bidding Documents is also available for a non-refundable **$60.00 (approximate cost)** plus applicable sales tax and shipping. Contact **Blue Print Service Company** for more information on paper Bidding Documents and payment options available. Full-size Drawings are available upon request at an additional cost. Neither the Owner nor McMahon Associates, Inc. shall be held responsible for the scale of downloaded Drawings. Printed Drawings obtained from Blue Print Service Company shall be considered to be scalable.

Blue Print Service Company
2350 West Pershing Street; Suite A
Appleton, WI 54914
920-733-4539 - Telephone
920-733-1438 - Fax
bps@blueprintservice.com - Email

Blue Print Service Company
2201 South Oneida Street, Suite 8
Green Bay, WI 54304
920-494-4539 - Telephone
920-494-4551 - Fax
bps@blueprintservice.com - Email

BID SECURITY - No Bid shall be received unless accompanied by a Certified Check or satisfactory Bid Bond payable to the Village of Kimberly in an amount not less than **5%** of the maximum Bid as a guarantee that, if the Bid is accepted, the Bidder will execute and file the Contract, Performance/Payment Bonds and Insurance Certification, as required by the Contract Documents, within **15-days** after the Notice of Award.

BID REJECTION - The OWNER reserves the right to reject any and all Bids, waive any informalities in Bidding or to accept the Bid or Bids which best serves the interests of the Village of Kimberly.

WITHDRAWAL OF BIDS - No Bid shall be withdrawn for a period of **60-days** after the scheduled opening without the consent of the OWNER.

PROOF OF RESPONSIBILITY - A Proof Of Responsibility (Pre-Qualification) Form for all Contracts in excess of $10,000 must be filed in the office of McMahon Associates, Inc., Attn: Brad Werner, PO Box 1025, Neenah, Wisconsin 54957-1025 not later than **five (5) calendar days** prior to the date of receiving Bids, and shall show sufficient ability, equipment and experience to properly perform the Contract. The Village of Kimberly's decision as to qualifications shall be final.

GOVERNING LAWS & REGULATIONS - The Contract letting shall be subject to the provisions of Sections 66.0901, 66.0903 and 779.14 of the Wisconsin Statutes.

Published by the authority of the Village of Kimberly acting through its Village Board.

VILLAGE OF KIMBERLY | Outagamie County, Wisconsin

Danielle Block, Administrator

Run: Times Villager
Email: sales@timesvillager.com

Dates: March 10, 2021
March 17, 2021

SECTION 00 21 13.00

INSTRUCTIONS TO BIDDERS

1. Applicability

1.1 These Instructions to Bidders shall apply to all Contracts to be awarded for the work covered by these Contract Documents.

2. Contracts

2.1 The Contracts to be awarded for work covered by these Contract Documents are described in the Advertisement For Bids and Division 1 - General Requirements.

3. Documents

3.1 In order to be a 'Plan Holder' or 'Bidder', each firm or organization shall either download Bidding Documents from the McMahon Associates, Inc. website (www.mcmgrp.com) utilizing QuestCDN eBidDoc™ or by obtaining a hard copy as designated in the Advertisement For Bids.

3.2 Complete digital Bidding Documents are available at www.mcmgrp.com or www.questcdn.com. Digital Bidding Documents may be downloaded for a non-refundable **$35.00** by inputting **Quest Project No. 7647068** on the website's Project Search page. On-line bid submission is available for this project for a non-refundable **$45.00**. Contact QuestCDN.com at 952-233-1632 or info@questcdn.com for assistance in free membership registration, downloading, and working with this digital project information.

3.3 An optional 'paper' set of Bidding Documents is also available for a non-refundable **$60.00 (approximate cost)** plus applicable sales tax and shipping. Contact **Blue Print Service Company** for more information on paper Bidding Documents and payment options available. Full-size Drawings are available upon request at an additional cost. Neither the OWNER nor McMahon Associates, Inc. shall be held responsible for the scale of downloaded Drawings. Printed Drawings obtained from Blue Print Service Company shall be considered to be scalable.

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920-494-4539 - Telephone
920-494-4551 - Fax
bps@blueprintservice.com - Email

4. Examination Of Contract Documents & Site

4.1 Before submitting a Bid, each Bidder must: a) examine the Contract Documents thoroughly, b) visit the site to familiarize themselves with local conditions that may in any manner affect performance of the work, c) familiarize themselves with Federal, State and local laws, ordinances, rules and regulations affecting performance of the work; and d) carefully correlate their observations with the requirements of the Contract Documents.

4.2 In order to be a 'Plan Holder' or 'Bidder', each firm or organization shall either download Bidding Documents from the McMahon Associates, Inc. website (www.mcmgrp.com) utilizing QuestCDN eBidDoc™ or by obtaining a hard copy as designated in the Advertisement For Bids.

4.3 The submission of a Bid will constitute an incontrovertible representation by the Bidder that they have complied with every requirement of this Article 4.

5. Pre-Bid Meeting & Project Walk-Through – Not Applicable

6. Interpretations

6.1 All questions about the meaning or intent of the Contract Documents shall be submitted to the ENGINEER in writing. Replies will be issued by Addenda. Questions received less than 5-days prior to the date for opening of Bids will not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7. Bid Form

7.1 The Bid Form (Section 00 41 00.00) is included in the Contract Documents. The Bid Form shall be completed in ink or by typewriter. The Bid Price for each item on the form must be in writing and in figures, and in case of conflict, the former shall apply.

7.2 On-line bidding is available for Bidders. Bidders are encouraged to participate in this process. QuestCDN help desk is available for questions at (952) 233-1632.

At the discretion of the Bidder, a hard copy bid may be turned in. In the event of a discrepancy between the electronically submitted bid and a hard copy bid; the hard copy bid will take precedence.

Hard copy bids may utilize the electronically produced bid schedule.

A scanned copy of the Bid Bond is acceptable if using on-line bidding for the bid opening. A hard copy (i.e. sealed original) shall be provided upon request.

7.3 Where Unit Prices are listed, each of these items must be filled in. All computations on Unit Price Bids will be checked by the ENGINEER, and corrections made where an error is found. The corrected figures shall be used to determine the total of that Bid.

7.4 The furnished Bid Form must be used. All Bid Forms pages must be provided in the Bid. The Bidder shall acknowledge the receipt of all Addenda issued in the space provided in the Bid Form.

7.5 Each Bid must be accompanied by proper Bid Security and any other information required by the Bid Form and/or these Instructions to Bidders.

7.6 Bidders, when signing the Bid Form, shall meet the following requirements:

7.6.1 Corporation - Executed in the corporate name and signed by the president, vice president or other authorized agent, with the corporate seal affixed and attested by the secretary. The corporate address and state in which incorporated must be shown below the signature.

7.6.2 Firms or Partnerships - Executed in the partnership name and signed by a partner or authorized agent. Title and the official address of the partnership must be shown below the signature.

7.6.3 Individuals - Executed and signed by the individual Bidder or agent. Bids, which are signed by an attorney- in-fact for individuals, firms, partnerships or joint ventures, shall be accompanied by a power-of-attorney evidencing authority to sign the Bid.

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

8. Bid & Contract Security

8.1 A Certified Check, Bank Cashier's Check or satisfactory Bid Bond in the amount stated in the Advertisement For Bids payable to the OWNER, shall accompany each Bid as a guarantee, that if the Bid is accepted, the Bidder will execute and file the Contract, Performance/Payment Bonds and Certification Of Insurance, as required by the Contract Documents, within **15-days** after the Notice of Award of Contract by the OWNER.

8.2 The Bidder to whom a Contract is awarded shall be required to furnish Performance / Payment Bonds as set forth in Article 6 of the General Conditions. The Bonds shall be executed on forms furnished in the Contract Documents by a surety company licensed to do business in the State of Wisconsin and acceptable as surety to the OWNER. Each bond shall be accompanied by a "Power-of-Attorney" authorizing the attorney-in-fact to bind the Surety Company and certified to include the date of the Bond.

8.3 If the Bidder fails to execute the Contract, furnish the Performance/Payment Bonds and the Certification Of Insurance, as required by the Contract Documents, the amount of the Check or Bid Bond submitted with the Bid shall be forfeited as Liquidated Damages.

9. Return Of Bid Security

9.1 The Bid Security of any Bidder, whom the OWNER believes to have a reasonable opportunity of receiving the award, may be retained by the OWNER until the successful Bidder files the executed Contract, Contract Security and Certification Of Insurance with the OWNER in accordance with the Contract Documents.

10. Time of Completion

10.1 The Contract shall be considered completed when all work called for by the Contract Documents has been completed and accepted by the OWNER.

11. Submission of Bids

11.1 Hard Copy Bids

11.1.1 Bids shall be submitted at the time and place indicated in the Advertisement For Bids. Bids shall be in an opaque, sealed envelope and shall be marked with the Bidder's name and address, the name of the OWNER, the Project Title, the Contract Name and Number, or names and numbers for which the Bid is presented.

11.1.2 The Bid Forms (Section 00 41 00.00) shall be submitted in their entirety, along with accompanying Bid Security and any other documentation required.

11.2 On-Line Bids

11.2.1 At their discretion CONTRACTOR's shall submit either a Hard Copy Bid, as described in 11.1, or an On-Line Bid.

11.2.2 The On-Line Bid shall be prepared and uploaded prior to the date and time established in the Advertisement For Bids [Invitation To Bid] utilizing the vBID™ system provided by QuestCDN for this project.

11.2.3 The On-Line Bid shall include the numeric bid for the proposed cost utilizing the electronic Bid Form provided, Bid Security and any other documentation required.

12. Unit Prices

12.1 Unit Prices are required in the Bid Form. The Bidder shall Bid on all units listed. The OWNER reserves the right to use these Unit Prices should extra work be necessary, or to proceed with extra work as stated in the General Conditions.

13. Combination of Bids – Not Applicable

14. Withdrawal of Bids

14.1 Bids may be withdrawn at any time prior to the time of Bid Opening. Any Bid withdrawn prior to the Bid Opening may not be resubmitted. No Bid may be withdrawn after the Bid Opening for the period of time indicated in the Advertisement For Bids, except as permitted under Section 66.29(5) Wisconsin State Statutes.

15. Minimum Wage – Not Applicable

16. Subcontractors

16.1 Bidders are required to list their proposed Subcontractors in the space provided in the Bid Form in accordance with the latest requirements of Section 66.29(7), Wisconsin Statutes.

16.2 The OWNER reserves the right to reject the use of any proposed Subcontractor without increasing the Bid Prices.

16.3 The Bidder shall not be required to employ any Subcontractor against whom they have reasonable objections.

17. **Major Equipment Items** – Not Applicable

18. **Equipment Data** – Not Applicable

19. **Substitutions**

19.1 The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.

19.2 No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the ENGINEER at least 10-days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted, and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the work, including changes in the work of other Contracts that incorporation of the proposed substitution would require shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The ENGINEER's decision of approval or disapproval of the proposed substitution shall be final.

19.3 No substitutions will be considered after the Contract Award, unless specifically provided in the Contract Documents.

20. **Qualifications Of Bidder**

20.1 The OWNER may make such investigations as deemed necessary to determine the ability of the Bidder to perform the work and the Bidder shall furnish to the OWNER all such information and data as may be requested for this purpose. The OWNER reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the OWNER that such Bidder is properly qualified to carry out the obligations of the Contract and complete the work as described by the Contract Documents. Conditional Bids shall not be accepted.

20.2 Before a Contract is awarded, the Bidder to whom an award is contemplated may be required to submit the following information:

20.2.1 The address of and description of the Bidder's plant or permanent place of business.

20.2.2 An itemized list of the Bidder's plant and equipment.

20.2.3 A Financial Statement of the Bidder indicating financial resources to meet any obligations arising from the work.

20.2.4 A list of projects similar in nature, which have been satisfactorily constructed by the Bidder.

20.2.5 A listing of technical experience of personnel guaranteed to be employed in responsible charge of the work.

20.2.6 Such additional information as will satisfy the OWNER that the Bidder is adequately prepared to fulfill the Contract.

20.3 Similar information may be required from any proposed Subcontractor or Equipment Manufacturer, should the OWNER feel that such information is necessary to determine which Bid will be in the best interest of the OWNER.

21. Right To Accept Or Reject Bids

21.1 The OWNER reserves the right to reject any or all Bids, to waive any irregularities or informalities in the Bids, to disregard all non-conforming or conditional Bids and to accept any Bid, which will best serve the interests of the OWNER, all subject to the requirements of applicable Federal procurement regulations.

21.2 A Bid which has not been prepared in accordance with these instructions or which does not contain an adequate and reasonable Bid, or Unit Price for each item in the Bid Form, may be considered irregular and subject to rejection.

21.3 Errors in extension of Unit Prices will be corrected, providing the Unit Price is legible and found to be in compliance with the Specifications. The total Bid will be adjusted in accordance with the corrected extensions.

22. Award Of Contract

22.1 The Bid opening shall be as stated in the Advertisement For Bids. No awards shall be made until the Bids opened can be compared, tabulated and reviewed by the OWNER. Contract award shall be by OWNER action, and the Bidder to whom the award will be made will be notified by the OWNER at the earliest possible date.

22.2 Contract(s) shall be awarded to the lowest responsive, responsible Bidder. On Unit Price Contracts, the low Bidder will be determined by the total of the Unit Prices extended by the estimated number of units indicated in the Bid Form. On Lump Sum Contracts, the low Bid shall be the low Base Bid and any combination of accepted Alternate Bids.

22.3 The OWNER shall compare Bids on the following basis:

22.3.1 The lowest total of Base Bid items for each individual Contract.

22.3.2 The total of individual Bids for each Contract versus any combination of combined Bids and individual Bids depending upon Bids received.

22.4 The OWNER reserves the right to give responsible weight to:

22.4.1 Cost of operation, maintenance and repairs, and rate of depreciation.

22.4.2 The probability of the Contract being carried to a successful completion within the time specified, with the means, methods and equipment the Bidder proposes to use.

22.4.3 The extent of the Bidder's experience with work of the nature involved.

22.5 The OWNER reserves the right to award the Contract(s) to the lowest individual Bidder or any combination of Bidders, whichever may be to the OWNER'S best interest.

23. Governing Laws

23.1 The Bidder shall herewith take notice that all State of Wisconsin Statutes, Municipal Ordinances and regulations, and the rules and regulations of all authorities having jurisdiction over the construction of this project shall apply to all Contracts throughout, and they shall be deemed to be included in all Contracts as though written out in full and if referred to, shall be interpreted to mean the most recent on record regardless of the designation used in the Contract Documents.

23.2 All work under these Contract Documents shall be in accordance with the requirements of the Rules of the Wisconsin Department of Safety & Professional Services (DSPS).

23.3 The Bidder shall investigate the statutory requirements for payment of **Sales Taxes**, in particular, Sec. 77.54(9m), Wisconsin Statutes, and shall include the cost of tax payments in the Bid prices in the Bid Form, when applicable.

END OF SECTION

SECTION 00 41 00.00

BID FORM

PROJECT: **Contract No. K0001-09-20-00811**

EISENHOWER DRIVE
STREET RECONSTRUCTION
For the
VILLAGE OF KIMBERLY
Outagamie County, Wisconsin

TIME: Bids to be received until **10:00 a.m.**, local time.

DATE: **March 24, 2021**.

ADDRESS: Danielle Block, Administrator
VILLAGE OF KIMBERLY
515 W Kimberly Avenue
Kimberly, WI 54136

STATEMENT OF UNDERSTANDING:

Having carefully examined the site of the proposed work; being fully informed of the conditions to be met in the prosecution and completion of this work; having read and examined the Contract Documents and Drawings applicable to this work; agreeing to be bound accordingly; the undersigned proposes to furnish all necessary labor, materials and equipment to complete the construction indicated on the Drawings and described in the Specifications to include all described incidentals and complete project restoration for the price listed. The CONTRACTOR's Bid price shall include all applicable taxes.

ADDENDA ACKNOWLEDGMENT:

We have procured and examined the written Addenda issued prior to Bidding. These Addenda are numbered _____, _____, _____, _____, _____. We further understand that failure to fully list the numbers of all published Addenda may be cause for the OWNER to reject this Bid.

ON-LINE BIDDING:

On-line bid submission is available (non-refundable fee **$45.00**) for this project. Bidders are encouraged to participate; however, it is optional and at the discretion of the Bidder to provide a bid on-line via QuestCDN's v-Bid system. Instructions are provided on the Project Information on the QuestCDN website or by calling 952-233-1632.

BASE BID

Item	Quantity / Unit	Description	Unit Price	Total
1.	1 lump sum Per L.S.	Mobilization and Bonding	$	$
		(words)	(figures)	(total)
2.	500 cu. yd. Per C.Y.	Excavation Below Subgrade (EBS)	$	$
		(words)	(figures)	(total)
3.	4,245 sq. yd. Per S.Y.	Remove and Replace 8 Inch Doweled Concrete Pavement	$	$
		(words)	(figures)	(total)
4.	117 lin. ft. Per L.F.	Remove and Replace 30 Inch Curb and Gutter	$	$
		(words)	(figures)	(total)
5.	455 lin. ft. Per L.F.	6 Inch Integral Curb Head	$	$
		(words)	(figures)	(total)
6.	78 lin. ft. Per L.F.	Remove and Replace 18 Inch Curb and Gutter	$	$
		(words)	(figures)	(total)
7.	520 sq. ft. Per S.F.	New 6 Inch Concrete Apron / Sidewalk / Driveway with Base Course	$	$
		(words)	(figures)	(total)
8.	2,600 lin. ft. Per L.F.	Full Depth Sawcut Concrete Pavement	$	$
		(words)	(figures)	(total)
9.	850 each Per Ea.	#6 Epoxy Coated Tie Bar Drilled and Set	$	$
		(words)	(figures)	(total)

BASE BID

Item	Quantity / Unit	Description	Unit Price	Total
10.	50 each Per Ea.	Epoxy Coated Dowel Bar Drilled and Set	$	$
		(words)	(figures)	(total)
11.	100 sq. yd. Per S.Y.	4½ Inch Driveway Asphalt	$	$
		(words)	(figures)	(total)
12.	250 sq. yd. Per S.Y.	3 Inch Pulverized Topsoil, Seed Mix #4 and E-Mat	$	$
		(words)	(figures)	(total)
13.	338 lin. ft. Per L.F.	4 Inch Dashed Lane Epoxy Pavement Marking	$	$
		(words)	(figures)	(total)
14.	6 each Per Ea.	Directional Arrow Epoxy Pavement Marking	$	$
		(words)	(figures)	(total)
15.	3 each Per Ea.	“Only” Epoxy Pavement Marking	$	$
		(words)	(figures)	(total)
16.	1 lump sum Per L.S.	Traffic Control / Detour Signage	$	$
		(words)	(figures)	(total)
17.	65 lin. ft. Per L.F.	18 Inch Stop Bar Epoxy Pavement Marking	$	$
		(words)	(figures)	(total)
18.	200 lin. ft. Per L.F.	8 Inch White Channelization Epoxy Pavement Marking	$	$
		(words)	(figures)	(total)

BASE BID

Item	Quantity / Unit	Description	Unit Price	Total
19.	1 lump sum Per L.S.	Remove and Replace Inlet with Salvaged Casting		$
		(words)	(figures)	(total)
20.	1 lump sum Per L.S.	12 Inch PVC Storm Sewer Pipe with Bend	$	$
		(words)	(figures)	(total)
21.	8 each Per Ea.	10 Foot Drain Tile Tap and Placement		$
		(words)	(figures)	(total)
22.	6 each Per Ea.	Inlet Protection	$	$
		(words)	(figures)	(total)
23.	6 each Per Ea.	Final Adjust Inlet		$
		(words)	(figures)	(total)
24.	2 each Per Ea.	Sanitary Manhole Adjustment and Chimney Seal	$	$
		(words)	(figures)	(total)
25.	2 each Per Ea.	Storm Manhole Adjustment	$	$
		(words)	(figures)	(total)
		TOTAL (Items 1. through 25., inclusive)		

SUPPLEMENTAL BID A – CONCRETE SIDEWALK

Item	Quantity / Unit	Description	Unit Price	Total
A-1	1 lump sum Per L.S.	Unclassified Excavation	$	$
		(words)	(figures)	(total)
A-2	960 sq. yd. Per S.Y.	6 Inch Microfiber Sidewalk with 6 Inch Base Course	$	$
		(words)	(figures)	(total)
A-3	40 sq. ft. Per S.F.	Yellow Detectable Warning Field	$	$
		(words)	(figures)	(total)
A-4	150 sq. ft. Per S.F.	Yellow Radial Detectable Warning Field	$	$
		(words)	(figures)	(total)
A-5	700 sq. yd. Per S.Y.	3 Inch Topsoil, Seed Mix #4, and E-Mat	$	$
		(words)	(figures)	(total)
A-6	750 lin. ft. Per L.F.	1 Foot Wide Planting Strip	$	$
		(words)	(figures)	(total)
A-7	340 lin. ft. Per L.F.	6 Inch Wide Crosswalk Epoxy Pavement Marking	$	$
		(words)	(figures)	(total)
A-8	1 lump sum Per L.S.	Eisenhower Drive /Truman East-West Epoxy Crosswalk 24 Inch Bars	$	$
		(words)	(figures)	(total)
A-9	1 lump sum Per L.S.	Tree and Stump Removal	$	$

(words) (figures) (total)

SUPPLEMENTAL BID A – CONCRETE SIDEWALK

Item	Quantity / Unit	Description	Unit Price	Total
A-10	30 lin. ft. Per L.F.	Pedestrian Curb	$	$
		(words)	(figures)	(total)
		TOTAL SUPPLEMENTAL BID A (Items A-1 through A-10, inclusive)		

SUPPLEMENTAL BID B – CURB AND GUTTER

Item	Quantity / Unit	Description	Unit Price	Total
B-1	2,225 lin. ft. Per L.F.	Remove and Replace 30 Inch Curb and Gutter	$	$
		(words)	(figures)	(total)
		TOTAL SUPPLEMENTAL BID B (Item B-1)		

SUBCONTRACTOR TABULATION:

Each Bidder shall enter the names of the Subcontractors proposed to employ and the type of work they are to perform in the spaces provided below. Failure to complete this tabulation may be cause for the rejection of the Bid.

Subcontractor	Type of Work

STARTING & COMPLETION:

If awarded Contract K0004-09-20-00811, the Bidder agrees to commence work at the site within _____ consecutive calendar days after date of formal Notice to Proceed. The Bidder further agrees to complete all work to the point of final acceptance by the OWNER, and to the point of Final Completion by **October 1, 2021.**

LIQUIDATED DAMAGES:

The CONTRACTOR further agrees to pay Liquidated Damages for each consecutive calendar day after the date of final completion that the work is not complete and to the satisfaction of the OWNER and ENGINEER. The amount of Liquidated Damages will be equal to the amount of monetary damage the OWNER is sustaining as a result of the project not being complete, which will include all professional and administrative costs.

In the alternative, at the option of the OWNER, the OWNER may invoke Liquidated Damages in the amount of One Thousand & no/100 Dollars ($1,000.00) per day for each unexcused day of delay by the CONTRACTOR. The alternative shall be at the sole option and discretion of the OWNER.

BID SECURITY:

Accompanying this Bid is a _____ (Certified Check, Bid bond, etc.)

in the amount of _____ & no/100 Dollars ($_____).
(words) (figures)
as required by the Advertisement For Bids.

If awarded this Contract, the Payment/Performance Bonds required by the Contract Documents will be provided by:

_____.
(name of surety)

_____ _____
(city) (state)

_____ _____
(agent) (telephone)

CONTRACTOR CERTIFICATION:

I hereby certify that all statements herein are made on behalf of _____ _____, *(name of corporation, partnership or person submitting Bid)* a corporation organized and existing under the law of the State of _____, a partnership consisting of _____ _____, an individual trading as _____, of the City of _____, State of _____, that I have examined and carefully prepared this Bid Form from the Drawings and Specifications, and have checked the same in detail before submitting this Bid Form; that I have full authority to make such statements and submit this Bid Form in (its) (their) behalf; and that said statements are true and correct.

COMPANY NAME: _____

Authorized Signature: _____

Title (if applicable): _____

Street Address: _____

P.O. Box: _____

City / State / Zip Code: _____

CONTACT NAME: _____

Telephone Number: _____

Fax Number: _____

E-Mail Address: _____

Sworn and subscribed to before me this _____day of _____, 20 ___.

_____
(Notary Public)

_____ County, _____(State)

My commission expires: _____ [Stamp / Seal]

(Bidders should not add any conditions or qualifying statements to this proposal as the proposal may be declared irregular as being not responsive to the Advertisement For Bids.)

SECTION 00 45 43.00

CORPORATION CERTIFICATE

If the CONTRACTOR is a Corporation, the following Certificate should be executed in accordance with the instructions below.

I, _____, certify that I am the Secretary of the Corporation named as CONTRACTOR hereinabove: that _____, who
(name of person executing the Contract)

signed the Contract on behalf of the CONTRACTOR, was then

_____ of said Corporation;
(title)

that said Contract was duly signed for and in behalf of said Corporation by authority of its governing body, and is within the scope of its corporate powers.

_____
Secretary

1. If the Contract is signed by the Secretary of the Corporation, the above Certificate should be executed by some other Officer of the Corporation, under the Corporate Seal. In lieu of the Certificate, there may be attached to the Contract copies of the records of the Corporation as will show the official character and authority of the Officers signing, duly certified by the Secretary or Assistant Secretary under the Corporate Seal to be true copies.

   The full name and business address of the CONTRACTOR should be inserted and the Contract should be signed with the official signature. Please have the name of the signing party or parties typewritten or printed under all signatures to the Contract.

2. Or, if the CONTRACTOR should be operating as a Partnership, a Partner should sign the Contract. If the Contract is not signed by a Partner, there should be attached to the Contract a duly authenticated Power-Of-Attorney evidencing the signers' authority to sign such Contract for and on behalf of the Partnership.

3. Or, if the CONTRACTOR is an Individual, the trade name (if the CONTRACTOR is operating under a trade name) should be indicated in the Contract and the Contract should be signed by such individual. If signed by one other than the CONTRACTOR, there should be attached to the Contract a duly authenticated Power-Of-Attorney evidencing the signer's authority to execute such Contract for and on behalf of the CONTRACTOR.

SECTION 00 51 00.00

NOTICE OF AWARD

Dated: _____

To: _____(Contractor)
_____
_____
_____

Contract No. _____

Project: _____
_____
_____

You are notified that your Bid, dated _____, for the above Contract has been considered. You are the apparent successful Bidder and have been awarded a Contract for _____
_____.

The Contract Price of your Contract is _____Dollars ($ _____).

You must comply with the following conditions precedent within **15-days** of the date of this Notice of Award, that is by _____.

1. You must deliver to the OWNER three (3) fully executed counterparts of the Agreement including all the Contract Documents.
2. You must deliver with the executed Agreement the Contract Security (bonds), as specified in the Instructions to Bidders, General Conditions (Paragraph 6.01) and Supplementary Conditions.
3. You must deliver Insurance Certification complying with the General Conditions and Supplementary Conditions of the Contract Documents.

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

One (1) fully signed counterpart of the Agreement, with the Contract Documents attached, will be returned to you within 15-days after you comply with the above noted conditions.

OWNER:

_____
(authorized signature)

_____
(title)

Witness: _____

SECTION 00 52 00.00

FORM OF AGREEMENT
BETWEEN OWNER & CONTRACTOR

THIS AGREEMENT is dated as of the _____ day of _____ in the year 20 _____ by and between:

_____
(hereinafter call OWNER) and

_____
(hereinafter called CONTRACTOR)

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

Article 1 WORK

1.1. CONTRACTOR shall complete all work as specified or indicated in the Contract Documents. The work is generally described as follows:

Contract No. _____
Specification Title: _____
_____

1.2. The project for which the work under the Contract Documents may be the whole or only a part is generally described as follows:

Contract No. _____
Contract Title: _____
_____

Article 2 ENGINEER

2.1. The Project has been designed by McMahon Associates, Inc., who is hereinafter called ENGINEER, and who will assume all duties and responsibilities and will have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the work in accordance with the Contract Documents.

Article 3 CONTRACT TIME

3.1. The work shall be Substantially Complete within _____ days after the date when the Contract Time commences to run, as provided in the Bid Form, and completed to the point of final acceptance by the OWNER, ready for final payment in accordance with Paragraph 15.06 of the General Conditions, and to the point of Final Completion by _____ _____ .

3.2. Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the work is not complete within the time specified in Paragraph 3.1., above, plus any extensions thereof allowed in accordance with Article 11 of the General Conditions. Should the Contract not be completed in the prescribed time allotment, the OWNER shall document the damages actually caused by the untimely completion of the work. Damages shall be deducted from the Contract by the OWNER after the project has been completed.

3.3. In the alternative, at the option of the OWNER, the OWNER may invoke Liquidated Damages in the amount of _____ & no/100 Dollars ($_____) per day for each unexcused day of delay by the CONTRACTOR. The alternative shall be at the sole option and discretion of the OWNER.

Article 4 CONTRACT PRICE

4.1. OWNER shall pay CONTRACTOR for performance of the work in accordance with the Contract Documents in current funds as follows:

Contract: _____

_____(words) & ____/100 Dollars
($ _____ (figures)

Article 5 PAYMENT PROCEDURES

5.1. CONTRACTOR shall submit Applications For Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by ENGINEER, as provided in the General Conditions.

5.2. Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications For Payment as recommended by ENGINEER, on or about the last day of each month during construction, as provided below. All progress payments will be on the basis of the progress of the work measured by the Schedule Of Values provided for in Paragraph 15.01 of the General Conditions.

5.2.1. The amount of retainage with regard to progress payments will be 5% until 50% of the work is completed. At 50% completion, further partial payments will be made in full to the CONTRACTOR, and no additional amounts will be retained until the ENGINEER certifies that the project is not proceeding satisfactorily, but amounts previously retained will not be paid to the CONTRACTOR. At 50% completion or any time thereafter, when the progress of the work is not satisfactory, the OWNER may increase the retainage, but in no event may the retainage exceed 10% of the value of the work completed. Upon Substantial Completion, the OWNER may make additional payments retaining an amount sufficient to cover the estimated cost of the work yet to be completed.

5.3. Final Payment. 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 ENGINEER, as provided in said Paragraph 15.06.

Article 6 INTEREST

6.1. All moneys not paid when due hereunder shall bear interest at the legal rate established by the State Law (State Law of the project site) as applicable to money judgments.

Article 7 CONTRACTOR's REPRESENTATIONS

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

7.1.1. CONTRACTOR has familiarized themselves with the nature and extent of the Contract Documents, work, locality, and with all local conditions and Federal, State and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the work.

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

Article 8 CONTRACT DOCUMENTS

8.1. The Contract Documents, which comprise the entire Agreement between OWNER and CONTRACTOR, are attached to this Agreement, made a part hereof and consist of the following:

8.1.1. Specifications bearing the title:

_____
_____
_____

and consisting of _____ divisions, as listed in table of contents thereof.

8.1.2. Drawings, consisting of a cover sheet and sheets numbered _____ through _____, inclusive with each sheet bearing the following general title:

_____
_____
_____

8.1.3. Addenda, numbered ___ through _____, inclusive.

8.1.4. CONTRACTOR's Bid (Pages 00 41 00.00-1 through 00 41 00.00-_____ _____, inclusive).

8.1.5. Exhibits to this Agreement (Corporation Certificate, Page 00 45 43.00-1, if applicable).

8.1.6. Notice Of Award (Page 00 51 00.00-1).

8.1.7. This Form Of Agreement Between Owner & Contractor (Pages 00 52 00.00-1 through 00 52 00.00-___, inclusive).

8.1.8. Notice To Proceed (Page 00 55 00.00-1)

8.1.9. Performance / Payment Bonds (Section 00 61 00.00).

8.1.10. Application For Payment (Page 00 62 76.01-1), Certificate of Payment (00 62 76.02-1), and Change Order (Page 00 63 63.00-1), inclusive.

8.1.11. Standard General Conditions (Pages 00 72 00.00-1 through 00 72 00.00-70, inclusive).

8.1.12. Supplementary Conditions (Pages 00 73 00.00-1 through 00 73 00.00-___, inclusive).

8.1.13. Any modification, including change orders, duly delivered after execution of Agreement.

8.2. There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be altered, amended or repealed by a modification (as defined in Article 1 of the General Conditions).

Article 9 MISCELLANEOUS

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

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

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

9.4 CONTRACTOR further acknowledges having reviewed Section 7.18, *Indemnification* (page 39) of the Standard General Conditions of the Construction Contract and consulting with counsel, if necessary, in order to fully understand the legal rights and obligations created therein.

Article 10 OTHER PROVISIONS

10.1. IN WITNESS WHEREOF, the parties have signed this Agreement in triplicate. One (1) counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

This Agreement will be effective on _____, 20 ___.

OWNER:

By: _____
(authorized signature)

_____
Title

[Corporate Seal]

Attest: _____

Address for giving notices:

_____
_____
_____
_____

CONTRACTOR:

By: _____
(authorized signature)

_____
Title

[Corporate Seal]

Attest: _____

Address for giving notices:

_____
_____
_____
_____

Approved as to form:

_____
Attorney For The OWNER

SECTION 00 55 00.00

NOTICE TO PROCEED

Dated: _____

To: _____(Contractor)
_____
_____
_____

Contract No. _____

Project: _____
_____
_____

You are notified that the Contract Time under the above Contract will commence to run on _____, 20 ___. By that date, you are to start performing the work and your other obligations under the Contract Documents.

The dates of Substantial Completion and Final Completion are set forth in the agreement; they are _____ _____ and _____, 20 ___, respectively.

Before you may start any work at the site, you must deliver to the OWNER (with copies to ENGINEER) Certificates Of Insurance, which you are required to purchase and maintain in accordance with the Contract Documents.

Work at the site must be started by _____, 20 ___, as indicated in the Contract Documents.

OWNER:

_____
(authorized signature)

_____
(title)

Witness: _____

SECTION 00 61 00.00

CONSTRUCTION PERFORMANCE BOND / PAYMENT BOND

Prepared By
Engineers Joint Contract Documents Committee
EJCDC C-610 / C-615 - 2018 Edition

PERFORMANCE BOND

Contractor	**Surety**
Name:	Name:
Address *(principal place of business)*:	Address *(principal place of business)*:
Owner	**Contract**
Name:	Description *(name and location)*:
Mailing address *(principal place of business)*:	Contract Price:
	Effective Date of Contract:

Bond

Bond Amount:

Date of Bond:

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
_____	_____
(Full formal name of Contractor)	*(Full formal name of Surety) (corporate seal)*
By: _____	By: _____
(Signature)	*(Signature)(Attach Power of Attorney)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title: _____	Title: _____
Attest: _____	Attest: _____
(Signature)	*(Signature)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title: _____	Title: _____

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:

    3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;

    3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

    3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

    5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

    5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

    5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

    5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

   7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

   7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

   7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.

12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

    14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

    14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

    14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

    14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

    14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

16. Modifications to this Bond are as follows: **[Describe modification or enter "None"]**

PAYMENT BOND

Contractor	**Surety**
Name:	Name:
Address *(principal place of business)*:	Address *(principal place of business)*:
Owner	**Contract**
Name:	Description *(name and location)*:
Mailing address *(principal place of business)*:	Contract Price:
	Effective Date of Contract:

Bond

Bond Amount:

Date of Bond:

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
_____	_____
(Full formal name of Contractor)	*(Full formal name of Surety) (corporate seal)*
By: _____	By: _____
(Signature)	*(Signature)(Attach Power of Attorney)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title: _____	Title: _____
Attest: _____	Attest: _____
(Signature)	*(Signature)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title: _____	Title: _____

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. The Surety's obligations to a Claimant under this Bond will arise after the following:

    5.1. Claimants who do not have a direct contract with the Contractor

        5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

        5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).

    5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

    7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

    7.2. Pay or arrange for payment of any undisputed amounts.

    7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

    16.1. *Claim*—A written statement by the Claimant including at a minimum:

        16.1.1. The name of the Claimant;

        16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;

        16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;

        16.1.4. A brief description of the labor, materials, or equipment furnished;

16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;

16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;

16.1.7. The total amount of previous payments received by the Claimant; and

16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

18. Modifications to this Bond are as follows: **[Describe modification or enter "None"]**

McMAHON
ENGINEERS \ ARCHITECTS

McMahon Associates, Inc.
1445 McMahon Drive P.O. Box 1025
Neenah, WI 54956 Neenah, WI 54957-1025

Telephone: (920)751-4200
FAX: (920)751-4284

APPLICATION FOR PAYMENT

(Owner)

PROJECT: _____
CONTRACTOR _____
Contract No. _____
Project No. _____
Application No. _____
Application Date _____
Period From _____ To _____

Application Is Made For Payment In Connection With The Above Contract.
The following documents are attached:

- ☐ Schedule Of Values
- ☐ Schedule Of Unit Prices
- ☐ Inventory Of Stored Materials

The Present Status Of The Account For This Contract Is As Follows:

Original Contract	$	Completed To Date	$
Net Change Orders	$	Retainage_____%	$
Current Contract Amount	**$**	Subtotal	**$**
		Previous Applications	$

Amount Due This Application: $_____

The undersigned Contractor hereby swears, under penalty of perjury, that (1 All previous progress payments received from the Owner, on account of work performed under the Contract referred to above, have been applied by the undersigned to discharge in full all obligations of the undersigned incurred in connection with work covered by prior Applications For Payment under said Contract, being Applications For Payment numbered 1 through _____ inclusive; and 2) All materials and equipment incorporated in said project or otherwise listed in or covered by this Application For Payment are free and clear of all liens, claims, security interests and encumbrances.

Dated _____ 20 ____ _____
(contractor)

By _____
(name & title)

COUNTY OF
STATE OF } ss

Before me on this _____ day of _____ 20 ____ personally appeared _____ _____ known to me, who being duly sworn, did depose and say that he/she is the _____ _____ of the Contractor above mentioned; that he/she
(title)
executed the above Application For Payment and statement on behalf of said Contractor; and that all of the statements contained therein are true, correct and complete.

My Commission Expires: _____ _____
(Notary Public)

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Telephone: (920)751-4200
FAX: (920)751-4284

CERTIFICATE FOR PAYMENT

(Owner)

Contract No. _____
Project File No. _____
Certificate No. _____
Issue Date: _____
Project: _____

This Is To Certify That, In Accordance With The Contract Documents Dated: (Date Of Contract Agreement)

(Contractor)

Is Entitled To **(Partial) (Final)** Payment For Work Performed Through: (Date Noted On Application For Payment)

☐ Contractor's Application For Payment Attached.
☐ Itemized Cost Breakdown Attached.

Original Contract	$	Completed To Date	$
Net Change Orders	$	Retainage_____%	$
Current Contract Amount	**$**	Subtotal	**$**
		Previously Certified	$

Amount Due This Payment: $

Certified By:
McMahon Associates, Inc.
Neenah, Wisconsin

_____
(Authorized Signature)

McMAHON
ENGINEERS \ ARCHITECTS

McMahon Associates, Inc.
1445 McMahon Drive P.O. Box 1025
Neenah, WI 54956 Neenah, WI 54957-1025

Telephone: (920)751-4200
FAX: (920)751-4284

CHANGE ORDER

(Contractor)	Contract No.	
	Project File No.	
	Change Order No.	
	Issue Date:	
	Project:	

You Are Directed To Make The Changes Noted Below In The Subject Contract:

	(Description)	(amount)
	TOTAL	**(Total Amount)**

The Changes Result In The Following Adjustments:

	CONTRACT PRICE	TIME
Prior To This Change Order	$	days
Adjustments Per This Change Order	$	days
Current Contract Status	$	days

Recommended:	Accepted:	Authorized:
McMahon Associates, Inc.	**CONTRACTOR**	**OWNER**
Neenah, Wisconsin		
By:	By:	By:
Date:	Date:	Date:

☐ OWNER Copy
☐ CONTRACTOR Copy
☐ ENGINEER Copy (Contract Copy)
☐ FILE COPY

Four Copies Should Accompany This Change Order
Execute And Return To ENGINEER For Distribution

SECTION 00 72 00.00

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By
Engineers Joint Contract Documents Committee

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By

EJCDC®
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

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NOTE: EJCDC publications may be purchased at www.ejcdc.org, or from any of the sponsoring organizations above.

GUIDELINES FOR USE OF EJCDC® C-700, STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

1.0 PURPOSE AND INTENDED USE OF THE DOCUMENT

EJCDC® C-700, Standard General Conditions of the Construction Contract (2018), is the foundation document for the EJCDC Construction Series. The General Conditions define the basic rights, responsibilities, risk allocations, and contractual relationship of the Owner and Contractor, and establish how the Contract is to be administered.

2.0 OTHER DOCUMENTS

EJCDC documents are intended to be used as a system and changes in one EJCDC document may require a corresponding change in other documents. Other EJCDC documents may also serve as a reference to provide insight or guidance for the preparation of this document.

These General Conditions have been prepared for use with either EJCDC® C-520, Agreement Between Owner and Contractor for Construction Contract (Stipulated Price), or EJCDC® C-525, Agreement Between Owner and Contractor for Construction Contract (Cost-Plus-Fee) (2018 Editions). The provisions of the General Conditions and the Agreement are interrelated, and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC® C-800, Supplementary Conditions of the Construction Contract (2018).

The full EJCDC Construction series of documents is discussed in the EJCDC® C-001, Commentary on the 2018 EJCDC Construction Documents (2018).

3.0 ORGANIZATION OF INFORMATION

All parties involved in a construction project benefit significantly from a standardized approach in the location of subject matter throughout the documents. Experience confirms the danger of addressing the same subject matter in more than one location; doing so frequently leads to confusion and unanticipated legal consequences. Careful attention should be given to the guidance provided in EJCDC® N-122/AIA® A521, Uniform Location of Subject Matter (2012 Edition) when preparing documents. EJCDC® N-122/AIA® A521 is available at no charge from the EJCDC website, www.ejcdc.org, and from the websites of EJCDC's sponsoring organizations.

If CSI MasterFormat™ is used for organizing the Project Manual, consult CSI MasterFormat™ for the appropriate document number (e.g., under 00 11 00, Advertisements and Invitations), and accordingly number the document and its pages.

4.0 EDITING THIS DOCUMENT

Remove these Guidelines for Use. Some users may also prefer to remove the two cover pages.

Although it is permissible to revise the Standard EJCDC Text of C-700 (the content beginning at page 1 and continuing to the end), it is common practice to leave the Standard EJCDC Text of C-700 intact and unaltered, with modifications and supplementation of C-700's provisions set forth in EJCDC® C-800, Supplementary Conditions of the Construction Contract (2018). If the Standard Text itself is revised, the

user must comply with the terms of the License Agreement, Paragraph 4.0, Document-Specific Provisions, concerning the tracking or highlighting of revisions. The following is a summary of the relevant License Agreement provisions:

1. The term "Standard EJCDC Text" for C-700 refers to all text prepared by EJCDC in the main body of the document. Document covers, logos, footers, instructions, or copyright notices are not Standard EJCDC Text for this purpose.
2. During the drafting or negotiating process for C-700, it is important that the two contracting parties are both aware of any changes that have been made to the Standard EJCDC Text. Thus, if a draft or version of C-700 purports to be or appears to be an EJCDC document, the user must plainly show all changes to the Standard EJCDC Text, using "Track Changes" (redline/strikeout), highlighting, or other means of clearly indicating additions and deletions.
3. If C-700 has been revised or altered and is subsequently presented to third parties (such as potential bidders, grant agencies, lenders, or sureties) as an EJCDC document, then the changes to the Standard EJCDC Text must be shown, or the third parties must receive access to a version that shows the changes.
4. Once the document is ready to be finalized (and if applicable executed by the contracting parties), it is no longer necessary to continue to show changes to the Standard EJCDC Text. The user may produce a final version of the document in a format in which all changes are accepted, and the document at that point does not need to include any "Track Changes," redline/strikeout, highlighting, or other indication of additions and deletions to the Standard EJCDC Text.

5.0 LICENSE AGREEMENT

This document is subject to the terms and conditions of the **License Agreement, 2018 EJCDC® Construction Series Documents**. A copy of the License Agreement was furnished at the time of purchase of this document, and is available for review at www.ejcdc.org and the websites of EJCDC's sponsoring organizations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

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

2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*

a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.

c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.

d. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.

23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.

    a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.

    b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.

    c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.

28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

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

32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.

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

35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.

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

37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

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

39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

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

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.

44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

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

46. *Technical Data*

    a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

    b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

    c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

48. *Unit Price Work*—Work to be paid for on the basis of unit prices.

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

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*: The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day*: The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

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

1. does not conform to the Contract Documents;

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

3. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).

E. *Furnish, Install, Perform, Provide*

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

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

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

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. *Contract Price or Contract Times*: References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term "or both" is not expressed.

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

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).

B. *Evidence of Contractor's Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.

C. *Evidence of Owner's Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:

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

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.

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

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

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

4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

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

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will 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.

G. Nothing in the Contract Documents creates:

1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or

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

3.02 *Reference Standards*

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

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

2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

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

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

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

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

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

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

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

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

2. Abnormal weather conditions;

3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and

4. Acts of war or terrorism.

D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.

2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.

3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:

1. The circumstances that form the basis for the requested adjustment;

2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;

3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;

4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and

5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

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

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

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

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

C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

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

5.03 *Subsurface and Physical Conditions*

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

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;

2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and

3. Technical Data contained in such reports and drawings.

B. *Underground Facilities*: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

C. *Reliance by Contractor on Technical Data*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

D. *Limitations of Other Data and Documents*: Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

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

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

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

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

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;

2. is of such a nature as to require a change in the Drawings or Specifications;

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

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

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

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

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

c. Contractor failed to give the written notice required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

C. *Engineer's Review*: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;

3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and

4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

c. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

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

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;

2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

of construction to be employed by Contractor, and safety precautions and programs incident thereto;

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

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

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.

H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.

F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.

D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.

F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

H. Contractor shall require:

1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and

2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.

I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.

K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.

N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

A. *Required Insurance*: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.

B. *General Provisions*: The policies of insurance required by this Paragraph 6.03 as supplemented must:

1. include at least the specific coverages required;

2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;

3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;

4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and

5. include all necessary endorsements to support the stated requirements.

C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:

1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;

2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;

3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and

5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.

B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.

C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.

D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

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

B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.

C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

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

7.05 *"Or Equals"*

A. *Contractor's Request; Governing Criteria*: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

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

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

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

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

4) is not objectionable to Owner.

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

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

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

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

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

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

    a. will certify that the proposed substitute item will:

        1) perform adequately the functions and achieve the results called for by the general design;

        2) be similar in substance to the item specified; and

        3) be suited to the same use as the item specified.

    b. will state:

        1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;

        2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

        3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

    c. will identify:

        1) all variations of the proposed substitute item from the item specified; and

        2) available engineering, sales, maintenance, repair, and replacement services.

    d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

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

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

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.

E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

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

K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

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

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

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

7.09 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

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

7.11 *Laws and Regulations*

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

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

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

7.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

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

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

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

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.

H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).

J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

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

7.15 *Emergencies*

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

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

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

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*

a. Contractor shall submit the number of Samples required in the Specifications.

b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.

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

C. *Engineer's Review of Shop Drawings and Samples*

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

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

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

2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

   a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.

   b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

   c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *Contractor's General Warranty and Guarantee*

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

B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.

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

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

2. normal wear and tear under normal usage.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

1. Observations by Engineer;

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

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

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

5. Any review and approval of a Shop Drawing or Sample submittal;

6. The issuance of a notice of acceptability by Engineer;

7. The end of the correction period established in Paragraph 15.08;

8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.

E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

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

B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:

1. Checking for conformance with the requirements of this Paragraph 7.19;

2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and

3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.

D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

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

F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. An itemization of the specific matters to be covered by such authority and responsibility; and

3. The extent of such authority and responsibilities.

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

8.03 *Legal Relationships*

A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

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

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

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

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

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

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.

B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

A. Engineer has the authority to reject Work in accordance with Article 14.

B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.

C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.

D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

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

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

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

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

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

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

2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will be determined as follows:
   1. A mutually acceptable fixed fee; or
   2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
      a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
      b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
      c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
      d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
      e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
      f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content*: Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.

2. *Supporting Data*: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.

    a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.

    b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

    The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review*: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.

4. *Engineer's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

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

ARTICLE 12—CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and

4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:

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

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

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

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

5. Other costs consisting of the following:

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

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.

2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.

3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.

3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

6. Expenses incurred in preparing and advancing Claims.

7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.

b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:

1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.

C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;

3. by manufacturers of equipment furnished under the Contract Documents;

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

   b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

    a. to supervise, direct, or control the Work;

    b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;

    c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;

    d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or

    e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

    a. the Work is defective, requiring correction or replacement;

    b. the Contract Price has been reduced by Change Orders;

    c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

    d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

    e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

    a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. The Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. The Contract Price has been reduced by Change Orders;

i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;

j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or

l. Other items entitle Owner to a set-off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

2. The final Application for Payment must be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents;

   b. consent of the surety, if any, to final payment;

   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

d. a list of all duly pending Change Proposals and Claims; and

e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Final Application and Recommendation of Payment*: If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Notice of Acceptability*: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.

D. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

E. *Final Payment Becomes Due*: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such adjacent areas;
2. correct such defective Work;
3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.

B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.

C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or

4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and

2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;

2. agree with the other party to submit the dispute to another dispute resolution process; or

3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business;

2. by registered or certified mail, postage prepaid, to the recipient's place of business; or

3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party 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.

18.09 *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.

18.10 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SECTION 00 73 00.00

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC Document No. C-700, 2018 Edition). All provisions, which are not so amended or supplemented, remain in full force and effect. The terms and terminology used in these Supplementary Conditions have the meanings stated in the General Conditions.

SC 2.02 ***Copies fo Documents***

Delete Paragraph 2.02.A of the General Conditions in its entirety, and insert the following in its place:

2.02. A. OWNER shall furnish to CONTRACTOR up to three (3) printed or hard copies of the Drawings and Project Manual, and one (1) set in electronic format. Additional copies will be furnished upon request at the cost of reproduction.

SC 3.06 ***Electronic Data***

Add the following new Paragraph 3.06.A. immediately after Paragraph 3.05.B.:

3.06. A. Data, including Project Drawings and Specification Manuals, will be made available to CONTRACTOR in electronic media format, which may be relied upon by CONTRACTOR. Upon Contract award, up to three (3) hard copies of the Project Drawings and Specification Manuals will be made available to the CONTRACTOR, and relied upon by the CONTRACTOR.

SC 4.01 ***Commencement of Contract Time; Notice to Proceed***

Delete Paragraph 4.01.A. of the General Conditions in its entirety, and insert the following in its place:

4.01. A. The Contract Time will commence to run on the day indicated in the Notice to Proceed. If the Notice to Proceed is not issued within 90-days from the date of the Notice of Award, then the Contract is considered null and void.

SC 5.03 ***Subsurface and Physical Conditions***

Delete Paragraph 5.03.A. of the General Conditions in its entirety, and insert the following:

5.03. A. No Reports of explorations or tests of subsurface conditions at or contiguous to the site, or Drawings of physical conditions relating to existing surface or subsurface structures at the site, are known to OWNER.

SC 5.06 ***Hazardous Environmental Conditions at Site***

Delete Paragraphs 5.06.A. and 5.06.B. of the General Conditions in their entirety, and insert the following:

5.06. A. No Reports or Drawings related to Hazardous Environmental Conditions (HEC) at the Site are known to the OWNER.

B. Not Used.

SC 6.03 ***Contractor's Insurance***

Add the following new paragraphs immediately after Paragraph 6.03.C.5.:

6.03. C. 6. **Two separate** certificates must be issued; one listing the OWNER as Certificate Holder, and one listing the ENGINEER as Certificate Holder:

7. The OWNER's Certificate should list the OWNER as an additional insured under the General Liability policy.

8. The ENGINEER's Certificate should list McMahon Associates, Inc. as an additional insured under the General Liability policy

Add the following new paragraph immediately after Paragraph 6.03.C.:

6.03. D. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Worker's Compensation, and related coverages under Paragraph 6.03.A. of the General Conditions:

a.	State:	Statutory
b.	Applicable Federal (e.g. Longshoreman's):	Statutory
c.	Employer's Liability:	$1,000,000

2. CONTRACTOR's Commercial General Liability under Paragraphs 6.03.A. of the General Conditions, which shall include completed operations and product liability coverages, and eliminate the exclusion with respect to property under the care, custody and control of CONTRACTOR:

a. Bodily Injury

$1,000,000	Each Occurrence
$2,000,000	Annual Aggregate, Products & Completed Operations

b. Property Damage

$500,000	Each Occurrence
$2,000,000	Annual Aggregate

c. Property Damage Liability will provide Explosion, Collapse and Underground coverages where applicable.

d. Personal Injury with employment exclusion deleted
$1,000,000 Annual Aggregate

e. Umbrella Liability
$2,000,000 Annual Aggregate

3. Comprehensive Automobile Liability

a. Bodily Injury
$1,000,000 Each Occurrence
$2,000,000 Annual Aggregate

b. Property Damage
$500,000 Each Occurrence

c. Umbrella Liability
$2,000,000 Annual Aggregate

4. Contractual Liability Endorsement

a. Bodily Injury
$2,000,000 Each Occurrence

b. Property Damage
$500,000 Each Occurrence
$1,000,000 Annual Aggregate

SC 7.02 ***Supervision and Superintendence***

Add the following new paragraph 7.02.C. immediately after Paragraph 7.02.B:

7.02. C. It shall be the CONTRACTOR's sole responsibility to select and implement the means, methods, techniques, sequences and procedures of construction that will prevent moisture infiltration, and to provide adequate ventilation to allow for the dissipation of any moisture that might accumulate within the work. The Drawings and Specifications are not intended to depict each and every detail required by the CONTRACTOR in their performance of the work. Means and methods are the responsibility of the CONTRACTOR. Therefore, the CONTRACTOR is in the responsible position to verify that work performed by the CONTRACTOR is completed to prevent moisture infiltration and maintain an environment reasonably free of moisture.

SC 7.10 ***Taxes***

Add the following new Paragraph 7.10.B. immediately after Paragraph 7.10.A:

7.10. B. OWNER is exempt from payment of sales and compensating use taxes of the State of Wisconsin and of cities and counties thereof on all materials to be incorporated into the Work.

1. OWNER will furnish the required certificates of tax exemption to CONTRACTOR for use in the purchase of supplies and materials to be incorporated into the Work.

2. OWNER'S exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by CONTRACTOR, or to supplies or materials not incorporated into the Work.

SC 9.13 ***Maintenance***

Add a new Paragraph 9.13.A. to the General Conditions, which shall read as follows:

9.13. A. The OWNER shall be responsible for maintenance of the project, or portions of the project, which have been completed and turned over to the OWNER, for the OWNER's use. All projects are subject to wear and tear, and environmental and man-made exposures. All projects require regular and frequent monitoring and maintenance to prevent damage and deterioration. Such monitoring and maintenance is the sole responsibility of the OWNER. The ENGINEER shall have no responsibility for monitoring or maintenance of such issues or resulting damages.

SC 10.03 ***Resident Project Representative***

Add the following new paragraphs 10.03.C. and 10.03.D. immediately after Paragraph 10.03.B:

10.03. C. The Resident Project Representative (RPR) will be ENGINEER's employee or agent at the Site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding RPR's actions. RPR's dealings in matters pertaining to the Work in general shall be with ENGINEER / ARCHITECT and CONTRACTOR. RPR's dealings with Subcontractors shall be through or with the full knowledge and approval of CONTRACTOR. The RPR shall:

1. *Schedules*: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.

2. *Conferences and Meetings*: Attend meetings with CONTRACTOR, such as Preconstruction Conferences, Progress Meetings, Job Conferences and other project-related meetings.

3. *Liaison*:

   a. Serve as ENGINEER's liaison with CONTRACTOR, working principally through CONTRACTOR's Authorized Representative, assist in providing information regarding the intent of the Contract Documents.

   b. Assist ENGINEER in serving as OWNER's liaison with CONTRACTOR when CONTRACTOR's operations affect OWNER'S on-site operations.

   c. Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.

4. *Interpretation of Contract Documents*: Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed, and transmit to CONTRACTOR clarifications and interpretations as issued by ENGINEER.

5. *Modifications*: Consider and evaluate CONTRACTOR'S suggestions for modifications in Drawings or Specifications, and report such suggestions, together with RPR's recommendations, to ENGINEER.

6. *Review of Work and Rejection of Defective Work*:

   a. Conduct on-site observations of CONTRACTOR's work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.

   b. Report to ENGINEER whenever RPR believes that any part of CONTRACTOR's work in progress will not produce a completed Project that conforms generally to the Contract Documents or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise ENGINEER of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

7. *Inspections, Tests, and System Startups*:

   a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate OWNER's personnel, and that CONTRACTOR maintains adequate records thereof.

   b. Observe, record, and report to ENGINEER appropriate details relative to the test procedures and systems start-ups.

8. *Records*:

a. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all CONTRACTORS, Subcontractors, and major Suppliers of materials and equipment.

b. Maintain records for use in preparing Project documentation.

9. *Reports*:

a. Furnish to ENGINEER periodic reports as required of progress of the Work and of CONTRACTOR's compliance with the progress schedule and schedule of Shop Drawing and Sample submittals.

b. Recommend to ENGINEER proposed Change Orders, Work Change Directives, and Field Orders.

c. Immediately, notify ENGINEER of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, damage to property by fire or other causes, or the discovery of any Hazardous Environmental Condition.

10. *Payment Requests*: Review Applications for Payment with CONTRACTOR for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

11. *Completion*:

a. Participate in a Substantial Completion review, assist in the determination of Substantial Completion and the preparation of lists of items to be completed or corrected.

b. Participate in a final review in the company of ENGINEER, OWNER, and CONTRACTOR, and prepare a final list of items to be completed and deficiencies to be remedied.

c. Observe whether all items on the final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance and issuance of the Notice of Acceptability of the Work.

10.03. D. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Exceed limitations of ENGINEER's authority as set forth in the Contract Documents.

3. Undertake any of the responsibilities of CONTRACTOR, Subcontractors, Suppliers, or CONTRACTOR's Superintendent.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of CONTRACTOR's work unless such advice or directions are specifically required by the Contract Documents.

5. Advise on, issue directions regarding, or assume control over safety practices, precautions, and programs in connection with the activities or operations of OWNER or CONTRACTOR.

6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by ENGINEER.

7. Accept Shop Drawing or Sample submittals.

8. Authorize OWNER to occupy the Project in whole or in part.

SC 14.08 ***Period of Limitation***

Add a new Paragraph 14.08 after Paragraph 14.07.D of the General Conditions, which shall read as follows:

SC 14.08 Period of Limitation

14.08. A. Nothing contained in this Article 14 shall establish a period of limitation with respect to any other obligation, which the CONTRACTOR has under the Contract Documents.

B. The establishment of time periods herein relates only to the specific obligation of the CONTRACTOR to correct the work and has no relationship to the time within which the CONTRACTOR'S obligations under the Contract Documents may be enforced, nor to the time within which proceedings may be commenced with respect to this obligation.

SC 15.01 ***Progress Payments***

Delete Paragraph 15.01.B.4. of the General Conditions in its entirety, and insert the following in its place:

15.01. B.4. The amount of retainage with regard to progress payments will be 5% until 50% of the work is completed. At 50% completion, further partial payments will be made in full to the CONTRACTOR and no additional amounts will be retained unless the ENGINEER certifies that the project is not proceeding satisfactorily, but amounts previously retained will not be paid to the CONTRACTOR. At 50% completion or any time thereafter, when the progress of the work is not satisfactory, the OWNER may increase the retainage, but in no event may the retainage exceed 10% of the value of the work completed. Upon substantial

completion, the OWNER may make additional payments retaining an amount sufficient to cover the estimated cost of the work yet to be completed.

SC 15.03 ***Substantial Completion***

Add the following new Paragraph 15.03.D.1. immediately after Paragraph 15.03.D:

15.03. D.1. The OWNER shall be responsible for maintenance of the project, or portions of the project, which have been completed and turned over to the OWNER, for the OWNER's use. All projects are subject to wear and tear, and environmental and man-made exposures. All projects require regular and frequent monitoring and maintenance to prevent damage and deterioration. Such monitoring and maintenance is the sole responsibility of the OWNER. The ENGINEER shall have no responsibility for monitoring or maintenance of such issues or resulting damages.

END OF SECTION

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01 11 00.00	SUMMARY OF PROJECT
SECTION 01 26 00.00	CHANGE ORDER PROCEDURES
SECTION 01 29 00.00	APPLICATIONS FOR PAYMENT
SECTION 01 31 00.00	COORDINATION & MEETINGS
SECTION 01 33 00.00	SUBMITTALS
SECTION 01 42 00.00	REFERENCE STANDARDS
SECTION 01 45 00.00	QUALITY CONTROL
SECTION 01 50 00.00	CONSTRUCTION FACILITIES & TEMPORARY CONTROLS
SECTION 01 57 00.00	TEMPORARY CONTROLS
SECTION 01 60 00.00	PRODUCT REQUIREMENTS
SECTION 01 77 00.00	CONTRACT CLOSE-OUT

SECTION 01 11 00.00

SUMMARY OF PROJECT

PART 1 - GENERAL

1.1. PROJECT WORK COVERED BY CONTRACT DOCUMENTS

A. This project is funded through the Wisconsin Local Roads Improvement Program (LRIP). The work shall consist of the reconstruction of approximately 4,200 S.Y. of removal and replacement of an 8-inch non-reinforced concrete pavement with an 8-inch doweled concrete pavement. The project also includes an alternate bid for new concrete sidewalk.

B. The following Contract will be Bid for this project:

1. Contract K0001-9-20-00811 EISENHOWER DRIVE STREET RECONSTRUCTION

1.2. CONTRACTS

A. Perform work of each Prime Contract on a Unit Price Basis Contract with the OWNER.

1.3. ALTERNATE BIDS

A. There are no Alternate Bids.

1.4. CONTRACTOR's USE OF SITE & PREMISES

A. Refer to Paragraph 5.02 in the General Conditions.

1. Confine construction equipment, the storage of materials and equipment, and the operations of workers, to the construction limits shown on the Drawings, to areas permitted by law, ordinance, permits or the requirements of the Contract Documents. Do not unreasonably encumber the premise with construction equipment or other material or equipment.

2. During the progress of the work, keep the premises free from accumulation of waste materials, rubbish and other debris resulting from the work. At the completion of the work, remove all waste materials, rubbish and debris from construction equipment and machinery and surplus materials, and leave the site clean and ready for occupancy by the OWNER. Restore to their original condition those portions of the site not designated for alteration by the Contract Documents.

3. Do not load nor permit any part of any structure to be loaded in any manner that will endanger the structure. Do not subject any part of the work or adjacent property to stresses or pressures that will endanger it. This requirement includes, but is not limited to, the CONTRACTOR's pile driving and surcharge activities.

1.5. WORK SEQUENCE

A. Develop Work Sequence to complete the project in an orderly and expeditious manner.

B. CONTRACTOR is responsible for the Construction Schedule, means and methods, as they relate to coordination of construction with delivery of equipment. Include any associated cost in the Bid.

1.6. PARTIAL OWNER OCCUPANCY

A. Terms of Occupancy:

1. The OWNER may, from time to time, occupy any portion of the project as the work in connection therewith is completed to such a degree as will permit the use of the project for the purpose intended. The OWNER will, prior to such partial occupancy or use, give notice to the CONTRACTOR thereof, and such occupancy will be upon the following terms:

a. The 1-year correction period specified will not begin to run until the final acceptance of all work under the Contract.

b. The occupancy or use of any part of the project does not constitute an acceptance of work performed in accordance with the Contract or relieve the CONTRACTOR's liability to perform any work required by the Contract, but not completed at the time of said occupancy. Also, refer to the General Conditions of the Contract.

c. The CONTRACTOR is relieved of all maintenance costs on the building or equipment occupied or used under this Contract.

d. The CONTRACTOR is not responsible for wear and tear or damage resulting from such occupancy.

e. The OWNER assumes risk of loss with respect to any building occupied by the OWNER under the terms of this Contract; provided the CONTRACTOR assumes full responsibility for loss or damage traceable to the CONTRACTOR's fault or negligence in the performance of their Contract.

f. The CONTRACTOR is not required to furnish heat, light, power and water used by the OWNER during such occupancy without proper remuneration thereof.

1.7. DEFINITIONS

A. ‘CONTRACTOR’ means the General Contractor or their subcontractors.

B. ‘Provide’ means furnished and installed by the CONTRACTOR.

C. ‘Obtain’ means acquire and pay for.

D. ‘Demolish’ means disconnect and remove materials from site. Demolished materials are the property of the CONTRACTOR.

E. ‘Salvage’ means remove and reinstall, or remove and turn over to the OWNER at a location designated on-site.

F. ‘Install’ means to place in position for service or use.

G. ‘Furnish’ means to supply.

H. ‘Abandon’ means disconnect and leave in place after transferring contents to OWNER approved tankage/vessel/process on-site.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

SECTION 01 26 00.00

CHANGE ORDER PROCEDURES

PART 1 - GENERAL

1.1 SUBMITTALS

A. Submit name of the individual authorized to receive change documents and be responsible for informing others in CONTRACTOR's employ or Subcontractors of changes to the Work.

B. Change Order Forms: Form provided by ENGINEER.

1.2 DOCUMENTATION OF CHANGE IN CONTRACT SUM / PRICE & CONTRACT TIME

A. Maintain detailed records of Work done on a time and material or force account basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.

B. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.

C. On request, provide additional data to support computations:

1. Quantities of products, labor and equipment.

2. Taxes, insurance and bonds.

3. Overhead and profit.

4. Justification for any change in Contract time.

5. Credit for deletions from contract, similarly documented.

D. Support each claim for additional costs and for Work done on a time and material or force account basis, with additional information:

1. Origin and date of claim.

2. Dates and times Work was performed, and by whom.

3. Time records and wage rates paid.

4. Invoices and receipts for products, equipment and subcontracts, similarly documented.

1.3 CHANGE PROCEDURES

A. Refer to General Conditions.

B. ENGINEER will advise of minor changes in the Work not involving an adjustment to contract sum/price or contract time as authorized by EJCDC C-700 (2018), Paragraph 11.04 by issuing a written field order.

C. ENGINEER may issue a proposal request or notice of change, which includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications and a change in Contract Time for executing the change. CONTRACTOR will prepare and submit an estimate within 10-days.

D. CONTRACTOR may propose a change by submitting a request for change to the ENGINEER, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum / Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other CONTRACTORS.

E. All Change Order related Work shall be started and completed only after formal approval by the OWNER. Any Work completed by the CONTRACTOR without formal approval, constitutes Work for which the OWNER is not required to pay.

1.4 CONSTRUCTION CHANGE AUTHORIZATION

A. ENGINEER may issue a document (such as a Work Change Directive) instructing the CONTRACTOR to proceed with a change in the Work, for subsequent inclusion in a Change Order.

B. The document will describe changes in the Work and will designate method of determining any change in Contract Sum/Price or Contract Time.

C. Promptly execute the change in Work.

1.5 STIPULATED SUM CHANGE ORDER

A. Based upon proposal request and CONTRACTOR's price quotation or CONTRACTOR's request for a Change Order, as recommended by ENGINEER.

1.6 UNIT PRICE CHANGE ORDER

A. For pre-determined Unit Prices and quantities, the Change Order will be executed on a Unit Price Basis.

B. For unit costs or quantities of units of Work which are not pre-determined, execute Work under a Construction Change Authorization or Work Change Directive.

C. Changes in Contract Sum / Price or Contract Time will be computed as specified for Time & Material or Force Account Change Order.

1.7 TIME & MATERIAL OR FORCE ACCOUNT CHANGE ORDER

A. Submit itemized account and supporting data after completion of change, within time limits indicated in the conditions of the Contract.

B. ENGINEER will determine the change allowable in Contract Sum/Price and Contract Time, as provided in the Contract Documents.

C. Maintain detailed records of Work done on Time & Material or Force Account basis.

D. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

1.8 EXECUTION OF CHANGE ORDERS

A. Execution of Change Orders: ENGINEER will issue Change Orders for signatures of parties, as provided in the General Conditions of the Contract.

1.9 CORRELATION OF CONTRACTOR SUBMITTALS

A. Promptly revise Schedule Of Values and Application For Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum / Price.

B. Promptly revise Progress Schedules to reflect any change in Contract Time, revise sub-schedules to adjust time for other items of Work affected by the change and resubmit.

C. Promptly enter changes in Project Record Documents.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

SECTION 01 29 00.00

APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.1. FORMAT

A. Use the Application for Payment form provided by ENGINEER in the Contract Documents, including continuation sheets when required.

B. For each listed item in the Schedule of Values or the Bid Sheets, provide a column for listing: Item Number; Description of Work; Scheduled Value; Previous Applications; Work in Place and Stored Materials under this Application; Authorized Change Orders; Total Completed and Stored to Date of Application; Percentage of Completion; Balance to Finish; and Retainage.

1.2. PREPARATION OF APPLICATIONS

A. Refer to General Conditions for basic provisions regarding CONTRACTOR(s) Applications for Payment.

B. Prepare Applications for Payment based upon one of the following:

1. The percentage of completion of items enumerated in the Schedule of Values, required in Division 1, Section 01 20 01.00 - Contract Considerations.

2. The Unit Price Schedule.

3. Attach a copy of the Schedule of Values or the Unit Price Schedule to each Application for Payment.

C. Incomplete or inadequate submittals will be returned to the CONTRACTOR. Provide the Schedule of Values or Unit Price Schedule and Application for Payment in a neatly typed and professional manner.

D. Execute certification by signature of authorized officer.

E. Provide an updated Construction Schedule and lien waivers with each Application for Payment.

F. Provide Record Drawings prior to submitting final Application for Payment.

G. List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original item of work.

H. Prepare Application for Final Payment in accordance with Division 1, Section 01 77 00.00 - Contract Close-Out.

1.3. SUBMITTAL PROCEDURES

A. Submit three (3) copies of each Application for Payment for work on this project to the ENGINEER no later than the tenth (10^{th}) day of the month. Include all work completed as of the last day of the previous month. Submit one (1) additional copy directly to the ENGINEER's On-Site Representative.

B. Payment Period: Submit at intervals as stipulated in the Agreement.

1.4. SUBSTANTIATING DATA

A. Submit data justifying dollar amounts in question when ENGINEER requires substantiating information.

B. Provide one (1) copy of data with cover letter for each copy of submittal. Show Application number and date, and line item by number and description.

1.5. UNIT PRICES

A. When Unit Prices constitute the basis for payment for work performed on this project, payment will be made at the Unit Prices Bid for the actual number of units constructed. Make measurements or other determinations necessary to fix the number of units constructed in a manner acceptable to the OWNER and the ENGINEER.

B. For Lump Sum bid projects, use the Unit Prices when increasing or decreasing the amount of work called for on the Drawings and in this Specification. Use Unit Prices only after the Bidding.

1.6. PAYMENT FOR STORED EQUIPMENT

A. CONTRACTOR may apply for payment for equipment that has not been delivered to the job site, but is in storage, provided a Storage Agreement has been executed with the OWNER.

B. The 'Storage Agreement' follows this Section.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

STORAGE AGREEMENT

SPECIAL PROCEDURE FOR OBTAINING PAYMENT FOR MATERIALS NOT STORED AT THE SITE OF THE WORK

OWNER: _____

Project Name: _____

Contract Number: _____

Due to the limited amount of space available for the storage of materials at the site of the _____ _____ (Project), the Owner will, under the following conditions, approve partial payments for certain materials stored off the premises.

1. Prior Approval. The Contractor shall obtain the approval of the Owner before making any arrangements to obtain a certification for payment for materials stored off the site. Materials must be suitable for storage and must be properly packaged.

2. Storage Site. The Contractor shall provide and maintain a suitable storage site and proper storage conditions, which must be approved in advance by the Owner. The site must be within the State of _____.

3. Storage Conditions. The material covered by the Request for Certification for Partial Payment must be stored above grade and must be properly protected at all times against weather, heat, cold, moisture and other hazards as the material may require. The storage conditions must be approved by the Owner. All protection must be provided by the Contractor at their own expense and must be maintained throughout the storage period.

   Material must not be commingled with other similar material but must be stored by itself and must be plainly labeled "Owner."

   It must be stored so that it can be readily inspected, measured and counted at all times by the Owner's representatives.

4. Bill of Sale. Request for Certification for Partial Payment for materials stored under the above conditions must be accompanied by a Bill of Sale, properly identifying the material and transferring ownership of the materials to the Owner. The Bill of Sale must be accompanied by an inventory of the stored material together with a description of the storage site by street number and city, or by legal description of the premises.

5. Insurance. The Contractor shall provide and maintain Builder's Risk, Fire and Extended Coverage Insurance on the stored material in the amount of 100% of the value thereof, under the same conditions as for material stored on the site of the project. Unless specifically exempted by the Owner, the Contractor shall provide insurance against loss by theft or vandalism, and the Owner shall be named the beneficiary under the policy, as trustee for all concerned.

6. Responsibility. The Contractor agrees that in accepting partial payment for the stored materials, the Contractor is, in no way, relieved of responsibility for the safe storage of the material and its safe transportation to and installation in the work, or for furnishing and installing the material in strict accordance with plans and specifications.

The Contractor also agrees that acceptance by the Owner of a Bill of Sale for the material does not imply acceptance of the material, which shall be subject to final acceptance or rejection up to the time the Contractor's work is completed and finally accepted.

The Contractor also agrees that the usual guarantees covering their work under the Drawings, Specifications and Contract, are in no way impaired as a result of the partial payment and the acceptance of the Bill of Sale.

The Owner accepts no responsibility in connection with the material.

7. Acceptance. The Contractor shall indicate his acceptance of the above conditions by signing and returning one copy of this Storage Agreement, Proof of Insurance, and Bill of Sale.

ACCEPTED:

_____ Contractor

_____ Authorized Signature

_____ Printed or Typed Name

Date _____

STORAGE CONDITIONS APPROVED:

_____ Owner-Authorized Signature

_____ Printed or Typed Name

Date _____

Material Stored: _____

Site: _____

SECTION 01 31 00.00

COORDINATION & MEETINGS

PART 1 - GENERAL

1.1. COORDINATION

A. Develop an overall Project Schedule in conjunction with all Subcontractors. Schedule and coordinate the work of each Subcontractor.

B. Coordinate the work and cooperate with all other trades to facilitate the general progress of the work. Afford all other trades every reasonable opportunity for the installation of their work and for the storage of their material.

C. Perform work in proper sequence in relation to that of other Subcontractors, as required by construction progress.

D. Arrange the work and dispose of the materials so as not to interfere with the work or storage of materials of other CONTRACTORS. Join work to that of others in accordance with the intent of the Drawings and Specifications.

E. Direct Mechanical and Electrical CONTRACTORS to work in cooperation with the General CONTRACTOR, and with each other; and fit their piping, duct work, conduit, etc., into the structures as job conditions demand. All final decisions as to the right-of-way and run of pipe, ducts, etc., will be made by the ENGINEER or their Representative at meetings with responsible representatives of Mechanical Trades CONTRACTORS.

F. Do not endanger any work of another CONTRACTOR. Do not cut or alter such work of any other CONTRACTOR without the consent of the other CONTRACTOR.

G. Keep constant check on the progress of the work, so the particular trade can ensure preparation for installation of that trade's work and not cause delay in the progress of the work.

H. Provide due notice and proper information to other CONTRACTORS of any special provisions necessary for the placing or setting of their work coming in contact with work of other CONTRACTORS. Failing to do so in proper time will result in the CONTRACTOR being held responsible and paying for any and all alterations and repairs necessitated by such neglect.

I. The responsible party will pay any cost caused by defective or ill-timed work.

J. After OWNER occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of OWNER's activities.

K. In finished areas (except as otherwise indicated) conceal pipes, ducts and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

1.2. GRADES, LINES & LEVELS

A. Pipe Line Construction:

1. Primary line and grade will be furnished by the OWNER and will be established by the ENGINEER. In open cut construction, line and grade stakes will be set parallel to the proposed sewer or water main and offset therefrom in a manner that will best serve the CONTRACTOR's work operations, wherever practical. Stakes will be set opposite each sewer appurtenance or water main fitting and change in line and grade. Render whatever assistance may be required by the ENGINEER and arrange work operations in such manner as to avoid interference with the establishment of primary lines and grades. Check the accuracy of line and grade stakes by means of visual and taping checks, and protect and preserve the stakes. Pay the cost of re-staking, due to the CONTRACTOR's negligence. CONTRACTOR is responsible for the correct transfer of all construction lines and grades from the primary line and grade points, and for the correct alignment and grade of the finished structure, based upon the primary line and grade established by the ENGINEER.

B. Street Construction:

1. ENGINEER will furnish primary line and grade parallel to the proposed work and offset therefrom in a manner that will best serve the CONTRACTOR's work operations, wherever practical. Stakes will be set opposite each storm sewer appurtenance and change in line or grade. Provide whatever assistance may be required by the ENGINEER, and arrange work operations in such manner to avoid interference with the establishment of primary lines and grades. Check the accuracy of line and grade stakes by means of visual and taping checks and protect and preserve the stakes. Pay the cost of re-staking, due to the CONTRACTOR's negligence. CONTRACTOR is responsible for the correct transfer of all construction lines and grades from the primary line and grade points, and for the correct alignment and grade of the finished work, based upon the primary line and grade established by the ENGINEER.

2. Provide the necessary facilities such as levels, rulers and line(s) for transferring the grade and line from the ENGINEER's stakes to the work. Preserve primary line and grade stakes. Furnish and set the string lines or grading stakes. Visually check string lines or grading stakes for error in line or grade. Provide string lines fastened to supporting stakes spaced adequately to permit support of the string without distortion or misalignment. Pull string sufficiently tight to remove any noticeable or measurable sag. Transfer elevations from the primary line and grade stakes. Notify ENGINEER immediately if the visual inspection of the string lines or grading stakes discloses an apparent error.

3. If CONTRACTOR elects to use machine control to construct street base, ENGINEER will provide a 2018 Civil 3D corridor drawing file, linework file, and surface file. Convert these files to information compatible with the machine control system in use.

4. ENGINEER will not set red top stakes unless additionally compensated by CONTRACTOR.

1.3. ALTERATION PROJECT PROCEDURES

A. Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.

C. Remove, cut and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to original or specified condition.

D. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes.

E. Where new work abuts or aligns with existing, perform a smooth and even transition. Match patched work to existing adjacent work in texture and appearance.

F. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to ENGINEER.

G. Where a change of plane occurs, submit recommendation for providing a smooth transition for ENGINEER review.

H. Patch or replace portions of existing surfaces, which are damaged, lifted, discolored or showing other imperfections.

I. Finish surfaces as specified in individual product sections.

1.4. CUTTING & PATCHING

A. Each CONTRACTOR is responsible for their own cutting and patching but the work must be performed by Tradespersons experienced in the type of work involved.

B. Submit written request in advance of cutting or altering elements that affects:

1. Structural integrity of element.

2. Integrity of weather exposed or moisture resistant elements.

3. Efficiency, maintenance or safety of element.

4. Visual qualities of sight exposed elements.

5. Work of OWNER or separate CONTRACTOR.

C. Execute cutting, fitting and patching, including excavation and fill, to complete work, and to:

1. Fit the several parts together, to integrate with other work.

2. Uncover work to install or correct ill-timed work.

3. Remove and replace defective and non-conforming work.

4. Remove samples of installed work for testing.

5. Provide openings in elements of work for penetrations of mechanical and electrical work.

D. Execute work by methods, which will avoid damage to other work, and provide proper surfaces to receive patching and finishing.

E. Cut rigid materials using masonry saw or core drill.

F. Restore work with new products in accordance with requirements of Contract Documents.

G. Fit work tight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.

H. Maintain integrity of wall, ceiling or floor construction; completely seal voids.

I. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

J. Identify any hazardous substance or condition exposed during the work to the ENGINEER for decision or remedy.

1.5. PRE-CONSTRUCTION CONFERENCE

A. Attend a Pre-Construction Conference, after the time of Contract award, to discuss the responsibility of each part to the project and to clarify any questions. Include representatives of all CONTRACTORS, including the Superintendents designated for the project, Resident Engineer in charge of observation and principal staff, and representatives of the municipality or governing authority. A representative of the Resident Observation staff will preside over the conference.

B. A suggested format would include, but not be limited to, the following subjects:

1. Presentation of a proposed Construction Schedule by the General CONTRACTOR.

2. Check of required bonds and insurance certifications prior to the Notice to Proceed.

3. Shop Drawing submittal and approval procedure.

4. Chain of command, direction of correspondence and coordinating responsibility between CONTRACTORS.

5. Request for a weekly project meeting for all involved.

6. If a remodel or alteration project, introduction of the plant superintendent and discussion of the need for maintenance of operations through the construction period, accommodations for plant employees and partial OWNER occupancy.

7. Equal opportunity requirements.

8. Laboratory testing of material requirements.

9. Inventory of material stored on-site provisions.

10. Progress estimate and payment procedure.

11. Posting of signs, if applicable.

1.6. PROGRESS MEETINGS

A. Hold progress meetings at regularly scheduled intervals to discuss items that directly affect the progress of the project and to adjust the construction progress schedule (or CPM if required, Network Analysis Schedules) so as to assure timely completion of the project. All CONTRACTORS may be requested to attend.

B. Agenda:

1. Review Minutes of previous meetings.

2. Review of work progress.

3. Field observations, problems and decisions.

4. Identification of problems that impede planned progress.

5. Review of submittals schedule and status of submittals.

6. Review of off-site fabrication and delivery schedules.

7. Maintenance of Progress Schedule.

8. Corrective measures to regain projected schedules.

9. Planned progress during succeeding work period.

10. Coordination of projected progress.

11. Maintenance of quality and work standards.

12. Effect of proposed changes on progress schedule and coordination.

13. Other business relating to work.

1.7. PRE-INSTALLATION CONFERENCES

A. When required in an individual Specification Section, convene a Pre-Installation Conference at work site prior to commencing work of the Section.

B. Require attendance of parties directly affecting, or affected by, work of the specific Section.

C. Notify ENGINEER 4-days in advance of meeting date.

D. Prepare Agenda, preside at Conference, record Minutes and distribute copies within 2-days after Conference to participants, with two (2) copies to ENGINEER.

E. Review conditions of installation, preparation and installation procedures, and coordination with related work.

1.8. JOB SITE ADMINISTRATION

A. CONTRACTOR's Responsibilities:

1. Supervise and direct the work in accordance with the General Conditions.

2. Assure the work is accomplished in conformance with the Contract Documents.

3. Supervise all assembly of materials and all labor to complete the work on the project.

4. Proceed with the work in accordance with the schedule established in such a manner as to ensure completion of the work within the time allotted.

B. ENGINEER's Responsibilities & Authority:

1. Refer to the Standard General Conditions of the Construction Contract.

2. ENGINEER will establish the standards of acceptability for materials and workmanship furnished by the CONTRACTOR.

3. ENGINEER will observe work quality and quantity of the CONTRACTOR according to Contract requirements.

4. ENGINEER will have the authority to recommend to the OWNER rejection of materials or workmanship that does not meet Contract requirements.

5. ENGINEER will act as the OWNER's representative and have authorities, as described in the General Conditions.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

SECTION 01 33 00.00

SUBMITTALS

PART 1 - GENERAL

1.1. CONSTRUCTION PROGRESS SCHEDULES

A. Provide a Construction Progress Schedule. Provide an updated Schedule with each Application For Payment. If an up-dated Schedule has not been submitted, processing of the Application For Payment will be withheld.

B. Show complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates and duration.

C. Indicate estimated percentage of completion for each item of work at each submission.

D. Indicate submittal dates required for Shop Drawings, product data, samples and product delivery dates, including those furnished by OWNER and under Allowances.

1.2. SHOP DRAWINGS, PRODUCT DATA & SAMPLES

A. Shop Drawings:

1. After checking and verifying all field measurements, material requirements, etc., submit to the ENGINEER for review, in accordance with the accepted schedule of Shop Drawing submissions, electronic copies (.pdf format) of all Shop Drawings, checked by and stamped with the approval of the CONTRACTOR and identified as stated below. Provide complete data on the Shop Drawings with respect to dimensions, design criteria, materials of construction and the like to enable the ENGINEER to review the information as required.

2. Submit Shop Drawings for the following materials and equipment as applicable.

a. All pre-assembled or manufactured building components (doors and windows, toilet partitions, hardware, etc.)

b. All heating equipment and accessory items.

c. All electrical equipment, fixtures and controls.

d. All process equipment items, valves, controls, etc.

e. Any other items that the CONTRACTOR feels require review by the ENGINEER.

3. Provide Shop Drawings certified by the CONTRACTOR and/or Manufacturer, bearing the name of the Manufacturer, the name of the project, the name of the CONTRACTOR, and the name of the ENGINEER. Provide Shop Drawings

written in English with English units. All Shop Drawings not containing these provisions may be returned.

B. ENGINEER will review Shop Drawings and samples with reasonable promptness, but the ENGINEERs review is only for conformance with the general, overall design concept of the project. The acceptance of a separate item will not indicate acceptance of the assembly in which the item functions. Make any corrections required by the ENGINEER and return corrected electronic copies (.pdf format) Shop Drawings, and resubmit new samples until noted: 'Make Corrections Noted' or 'Reviewed by ENGINEER'. Direct specific attention in writing on resubmitted Shop Drawings, to revisions other than the corrections called for by the ENGINEER on previous submissions. The required CONTRACTOR's stamp of approval on any Shop Drawing or sample constitutes a representation to the OWNER and ENGINEER that the CONTRACTOR has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers and similar data or they assume full responsibility for doing so, and that they have reviewed each Shop Drawing or sample with the requirements of the work and the Contract Documents.

C. Where a Shop Drawing or sample submission is required by the Specifications, commence no related work until the submission has been reviewed by the ENGINEER. Keep a copy of each reviewed Shop Drawing and each reviewed sample at the site and make available to the ENGINEER.

D. ENGINEER's review of Shop Drawings or samples does not relieve the CONTRACTOR from their responsibility for any deviations from the requirements of the Contract Documents unless the CONTRACTOR has in writing called the ENGINEER's attention to such deviation at the time of submission and the ENGINEER has given written acceptance to the specific deviation. Any review by the ENGINEER does not relieve the CONTRACTOR from responsibility for errors or omissions in the Shop Drawings.

1.3. CONSTRUCTION PHOTOGRAPHS

A. Take site photographs and video prior to start of construction, including any area that may be affected by the CONTRACTOR's work. Include the cost of photographs and video in the Bid.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

SECTION 01 42 00.00

REFERENCE STANDARDS

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

A. Verify any material or operation specified by reference to a Code (Federal, State or local), publication, published specification of a Manufacturer, a society, an association or other published standards, complies with requirements of the listed document, except when more rigid requirements are specified or are required by applicable Codes.

B. Conform to reference standard by date of issue current on date of Contract Documents.

C. Obtain copies of standards when required by Contract Documents.

D. Maintain copy at job site during submittals, planning and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from ENGINEER before proceeding.

F. The contractual relationship of the parties to the Contract will not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.2 ABBREVIATIONS & SYMBOLS

A. In general, abbreviations and symbols will be listed and defined on the Drawings. Symbols will not be used in the Specification text. Since the number of abbreviations which could be used might cover several pages, abbreviations used are defined in that part of the Specifications to which they apply unless the usage is so generally understood that definition is believed unnecessary.

1.3 SCHEDULE OF REFERENCES

AA Aluminum Association
818 Connecticut Avenue, N.W.
Washington, DC 20006

AABC Associated Air Balance Council
1000 Vermont Avenue, N.W.
Washington, DC 20005

AASHTO
American Association of State Highway & Transportation Officials
444 North Capitol Street, N.W.
Washington, DC 20001

ACI American Concrete Institute
Box 19150
Reford Station
Detroit, MI 48219

ADC Air Diffusion Council
230 North Michigan Avenue
Chicago, IL 60601

AGC Associated General Contractors of America
1957 E Street, N.W.
Washington, DC 20006

AI Asphalt Institute
Asphalt Institute Building
College Park, MD 20740

AIA American Institute of Architects
1735 New York Avenue, N.W.
Washington, DC 20006

AISC American Institute of Steel Construction
400 North Michigan Avenue
Eighth Floor
Chicago, IL 60611

AISI American Iron & Steel Institute
1000 16th Street, N.W.
Washington, DC 20036

AITC American Institute of Timber Const.
333 W. Hampden Avenue
Englewood, CO 80110

AMCA Air Movement & Control Association
30 West University Drive
Arlington Heights, IL 60004

ANSI American National Standards Institute
1430 Broadway
New York, NY 10018

APA American Plywood Association
Box 11700
Tacoma, WA 98411

ARI Air-Conditioning & Refrig. Institute
1501 Wilson Boulevard
Arlington, VA 22209

ASHRAE
American Society of Heating,
Refrig. & Air Conditioning Engineers
1791 Tullie Circle, N.E.
Atlanta, GA 30329

ASME American Society of Mech. Engineers
345 East 47th Street
New York, NY 10017

ASPA American Sod Producers Association
4415 West Harrison Street
Hillside, IL 60162

ASTM American Society for Testing & Materials
1916 Race Street
Philadelphia, PA 19103

AWI Architectural Woodwork Institute
2310 South Walter Reed Drive
Arlington, VA 22206

AWPA American Wood-Preservers' Association
7735 Old Georgetown Road
Bethesda, MD 20014

AWS American Welding Society
550 LeJeune Road, N.W.
Miami, FL 33135

AWWA American Water Works Association
6666 West Quincy Avenue
Denver, CO 80235

BIA Brick Institute of America
11490 Commerce Park Drive
Reston, VA 22091

CDA Copper Development Association
57th Floor, Chrysler Building
405 Lexington Avenue
New York, NY 10174

CLFMI Chain Link Fence Mfg. Institute
1101 Connecticut Avenue, N.W.
Washington, DC 20036

CRSI Concrete Reinforcing Steel Institute
933 Plum Grove Road
Schaumburg, IL 60195

DHI Door & Hardware Institute
7711 Old Springhouse Road
McLean, VA 22102

EJCDC Engineers' Joint Contract Documents Comm.
American Consulting Engineers Council
1015 15th Street, N.W.
Washington, DC 20005

EJMA Expansion Joint Manufacturers Assoc.
25 North Broadway
Tarrytown, NY 10591

FGMA Flat Glass Marketing Association
3310 Harrison
White Lakes Professional Building
Topeka, KS 66611

FM Factory Mutual System
1151 Boston-Providence Turnpike
P.O. Box 688
Norwood, MA 02062

FS Federal Specification
General Services Administration
Specifications & Consumer Information
Distribution Section (WFSIS)
Washington Navy Yard, Bldg. 197
Washington, DC 20407

GA Gypsum Association
1603 Orrington Avenue
Evanston, IL 60201

ICBO International Conf. of Building Officials
5360 S. Workman Mill Road
Whittier, CA 90601

IEEE Inst. of Electrical & Electronics Engrs
345 East 47th Street
New York, NY 10017

IMIAC International Masonry Industry
All-Weather Council
International Masonry Institute
815 15th Street, N.W.
Washington, DC 20005

MBMA Metal Building Manufacturer's Assoc.
1230 Keith Building
Cleveland, OH 44115

MFMA Maple Flooring Manufacturers Assoc.
60 Rivere Drive
Northbrook, IL 60062

MIL Military Specification
Naval Publications and Forms Center
5801 Tabor Avenue
Philadelphia, PA 19120

ML/SFA
Metal Lath/Steel Framing Association
221 North LaSalle Street
Chicago, IL 60601

NAAMM
National Association of
Architectural Metal Manufacturers
221 North LaSalle Street
Chicago, IL 60601

NCMA National Concrete Masonry Association
P.O. Box 781
Herndon, VA 22070

NEBB Nat'l Environmental Balancing Bureau
8224 Old Courthouse Road
Vienna, VA 22180

NEMA National Electrical
Manufacturers' Association
2101 'L' Street, N.W.
Washington, DC 20037

NFPA National Fire Protection Association
Battery March Park
Quincy, MA 02269

NFPA National Forest Products Association
1619 Massachusetts Avenue, N.W.
Washington, DC 20036

NSWMA
National Solid Wastes
Management Association
1730 Rhode Island Ave., N.W.
Washington, DC 20036

NTMA National Terrazzo & Mosaic Assoc.
3166 Des Plaines Avenue
Des Plaines, IL 60018

NWMA National Woodwork Manufacturers Assoc.
205 W. Touhy Avenue
Park Ridge, IL 60068

PCA Portland Cement Association
5420 Old Orchard Road
Skokie, IL 60077

PCI Prestressed Concrete Institute
201 North Wells Street
Chicago, IL 60606

PS Product Standard
U. S. Department of Commerce
Washington, DC 20203

RIS Redwood Inspection Service
One Lombard Street
San Francisco, CA 94111

RCSHSB
Red Cedar Shingle &
Handsplit Shake Bureau
515 116th Avenue
Bellevue, WA 98004

SDI Steel Deck Institute
P.O. Box 9506
Canton, OH 44711

SDI Steel Door Institute
712 Lakewood Center North
14600 Detroit Avenue
Cleveland, OH 44107

SIGMA Sealed Insulating Glass Manufacturers
Association
111 East Wacker Drive
Chicago, IL 60601

SJI Steel Joist Institute
1205 48th Avenue North, Suite A
Myrtle Beach, SC 29577

SMACNA
Sheet Metal & Air Conditioning
Contractors' National Association
8224 Old Court House Road
Vienna, VA 22180

SSPC Steel Structures Painting Council
4400 Fifth Avenue
Pittsburgh, PA 15213

TCA Tile Council of America, Inc.
Box 326
Princeton, NJ 08540

UL Underwriters' Laboratories, Inc.
333 Pfingston Road
Northbrook, IL 60062

WCLIB West Coast Lumber Inspection Bureau
6980 S.W. Varns Road
Box 23145
Portland, OR 97223

WWPA Western Wood Products Association
1500 Yeon Building
Portland, OR 97204

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

SECTION 01 45 00.00

QUALITY CONTROL

PART 1 - GENERAL

1.1 QUALITY ASSURANCE / CONTROL OF INSTALLATION

A. Monitor quality control over Suppliers, Manufacturers, products, services, site conditions and workmanship, to produce work of specified quality.

B. Comply fully with Manufacturers' instructions, including each step in sequence.

C. Should Manufacturers' instructions conflict with Contract Documents, request clarification from ENGINEER before proceeding.

D. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, Codes or specified requirements indicate higher standards or more precise workmanship.

E. Perform work by persons qualified to produce workmanship of specified quality.

F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

G. The OWNER, through their Authorized Representative (not the ENGINEER), may direct the order and sequence of the work. If at any time before the commencement or during the progress of the work, the materials and appliances used, or to be used, appear to OWNER's Representative as insufficient or improper for securing the quality of work required, or the required rate of progress, they may order the CONTRACTOR to increase their efficiency or improve the character of their equipment. Conform to such order. Failure of the OWNER's Representative to demand any increase of such efficiency or improvement does not release the CONTRACTOR from their obligation to secure the quality of work or the rate of progress specified.

1.2 REFERENCES

A. Conform to reference standard current on date of Bid Opening.

B. Obtain copies of standards when referenced by Contract Documents.

C. Should specified Reference Standards conflict with contract documents, request clarification for ENGINEER before proceeding.

D. The contractual relationship of the parties to the contract are not altered from the Contract Documents by mention or inference otherwise in any reference document.

1.3 TESTING LABORATORY SERVICES - GENERAL

A. Where the services of Certified Testing Laboratories are required as a part of this Contract, they are specifically noted in the Division where the product, material or result of construction methods are specified. Review the Specifications carefully to determine the extent of the testing required.

B. Within 10-days of issuance of Notice to Proceed, provide to the ENGINEER, as a Submittal, an electronic copy (.pdf) listing the required testing and the name, address and telephone number of the testing laboratory that will perform the tests.

C. CONTRACTOR will pay all costs for testing services not specifically designated as the responsibility of the OWNER.

1.4 TESTS ON CONCRETE

A. Non-Building Construction:

1. Provide all tests of concrete by an approved independent testing and inspection Laboratory at the expense of the CONTRACTOR. Instruct the testing Laboratory to furnish the ENGINEER with an electronic copy (.pdf) of all test reports. Instruct the testing Laboratory to make preliminary 7-day tests of the mix after it has been designed and before the first concrete is poured. Provide not less than one (1) test for each twenty-five (25) cubic yards of concrete for each class of concrete placed, and in any event not less than one (1) test for each day's pour of each class of concrete. Provide not less than two (2) specimens for each test. Make and cure specimens in accordance with current ASTM Specifications C-39, Test For Compressive Strength Of Cylindrical Concrete Specimens and C-31, Making & Curing Concrete Compressive & Flexural Strength Test Specimens In The Field.

2. Provide both 7-day and 28-day tests at the beginning of construction. The standard age of tests is 28-days.

3. If the average strength of the Laboratory control cylinders for any portion of the structure falls below the compressive strength required for the design, the ENGINEER has the right to order a change in the proportions or the water content of the concrete for the remaining portions of the structure.

4. In addition, where there is question as to the quality of the concrete in the structure, ENGINEER may require tests in accordance with Specifications Obtaining & Testing Drilled Cores & Sawed Beams of Concrete (ASTM Designation C-42), or order load tests for that portion of the structure where the questionable concrete has been placed. Provide load test in accordance with Section 202 of the current ACI Building Code for Reinforced Concrete (ACI 318) and criterion of acceptability of the concrete under test provided in these referenced documents. Pay for these tests.

1.5 TESTS ON CONCRETE PIPE

A. ENGINEER will select pipe specimens in the field for testing. Haul the samples selected to the nearest testing laboratory to be tested by the three (3) edge bearing method. Test no

less than 0.5% of the number of pipe in each size of pipe furnished with a minimum, two (2) specimens being furnished. Include the cost of the pipe, cartage and testing and the furnishing of testing certificates in the Bid Price.

1.6 INSPECTION SERVICES

A. This service does not apply to OWNER’s or ENGINEER's field observation, but only covers inspection at the point of manufacture or fabrication. Include such inspection, when required, in the cost of the product as quoted by the Manufacturer or fabricator or the purchaser.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

SECTION 01 50 00.00

CONSTRUCTION FACILITIES & TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 TEMPORARY SANITARY FACILITIES

A. Provide and maintain State Board Of Health approved chemical toilet(s) for the use of all workers of all trades. Place toilet(s) in an inconspicuous place, keep clean, and remove from site at the completion of the project.

B. Do not use OWNER's facilities.

1.2 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas to allow for OWNER's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing buildings.

C. Protect all trees, shrubs, lawns, etc., not specifically designated for removal by the ENGINEER.

D. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

1.3 FENCING

A. New fences are covered in Division 32 - Exterior Improvements.

B. Remove existing fences which interfere with the work. Restore fences to their original condition when the work is done, unless the Contract Documents indicate otherwise.

C. Provide adequate fencing for safety and security purposes. This is the sole responsibility of the General CONTRACTOR.

1.4 BARRICADES & WARNING DEVICES

A. The devices and materials and provisions as specified herein are minimum requirements and do not relieve the CONTRACTOR from compliance with Federal, State and local requirements. Prior to the placement of devices intended to close an alley, street, highway, thoroughfare, traffic lane or public or private way obtain written permission from the authorized official of the municipality and, if applicable, the appropriate county or state highway official or property owner. Notify the Chiefs of the Fire and Police Departments of the municipalities concerned prior to any such closure.

B. Erect and maintain all barricades, guardrail, lights and signs necessary for public safety and convenience. Mark all hazards within the limits of the work or on detour around the

work with well-painted well-maintained barricades, lanterns, torches, flares, reflectors, electric lights, flashers, or caution, warning and directional signs in sufficient quantity and size to adequately protect life and property. Move, change, increase or remove these safeguards as required during the progress of the work to meet changing conditions.

C. Conduct all traffic control operations in accordance with the latest issues of the Manual On Uniform Traffic Control Devices (MUTCD) and the Wisconsin Department Of Transportation Standard Specifications For Highway & Structure Construction.

D. Maintain barricades in rigidly assembled condition. Keep barricades clean and the reflecting strips in good repair so as to be readily discernible at all times.

E. Provide proper provisions for handling of materials for the protection of all traffic and the public. Provide reasonable and satisfactory provisions for travel on sidewalks, cross-walks, streets, roads, railroads and private ways.

F. Comply with Occupational Safety & Health Act (OSHA) requirements issued by the Federal Government and/or adopted by the State and local laws, rules and regulations, as they apply.

G. The OWNER reserves the right to remedy any neglect on the part of the CONTRACTOR regarding the protection of the work and public after 24-hours notice in writing. In case of emergency, the OWNER reserves the right to remedy any neglect without due notice, and, in either case, to deduct the cost of such remedy from any money due or to become due the CONTRACTOR.

1.5 WATER CONTROL

A. Grade site to drain. Maintain excavations free of water. Provide, operate and maintain pumping equipment.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.6 PROTECTION OF INSTALLED WORK

A. Protect installed work and provide special protection as required.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to minimize damage.

C. Provide protective coverings at walls, projections, jambs, sills and soffits of openings.

D. Protect finished floors, stairs and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or Roofing Material Manufacturer.

F. Prohibit traffic from landscaped areas.

1.7 SECURITY

A. The OWNER and ENGINEER are not responsible for security on the site.

B. Provide security guards (if deemed necessary) and take other precautionary measures as deemed necessary to protect persons or property. The CONTRACTOR will be held responsible for loss or injury to persons or property where work is involved.

1.8 ACCESS ROADS

A. Construct and maintain temporary roads accessing public thoroughfares to serve construction area.

B. Extend access roads and relocate as work progress requires. Provide detours necessary for unimpeded traffic flow.

C. Provide and maintain access to fire hydrants, free of obstructions.

D. The OWNER will provide a place of ingress and egress for the CONTRACTOR to the site of the work. If an easement is required, it will be obtained by the OWNER.

E. Permanent access roads and parking areas will be covered in Division 32 - Exterior Improvements.

1.9 PARKING

A. If the site is large enough, the OWNER will permit the CONTRACTOR to park their own and employees' vehicles on the site without charge. If the site is not large enough, the CONTRACTOR will make their own parking arrangements.

B. Designate one (1) parking space for the OWNER and ENGINEER.

1.10 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Remove waste materials, debris and rubbish from site weekly; and dispose off-site.

1.11 REMOVAL OF UTILITIES, FACILITIES & CONTROLS

A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Final Application for Payment.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.12 TEMPORARY FIRST AID FACILITIES

A. Comply with the requirements of the Manual of Accident Prevention in Construction, Associated General Contractors of America, Inc., latest edition, Section 2, First Aid, and have on the site a first aid kit, dust-proof, protected from heat and moisture and containing, as a minimum, the first aid items listed according to the number of employees.

1.13 TEMPORARY FIRE PROTECTION

A. Comply with the requirements of the Manual of Accident Prevention in Construction, Associated General Contractors of America, Inc., latest edition, Section 36, Fire Hazards & Prevention. Do not block access to any fire hydrants, valves, manholes, fire alarm or police call boxes. Post fire department telephone numbers at the job site and keep a fire extinguisher on the job site. Provide a carbon dioxide extinguisher available at the job site.

1.14 POLLUTION CONTROL

A. Comply with all Federal, State and local requirements covering pollution control.

B. If the project is in connection with additions, modifications or alterations to an existing Sewage Treatment Plant, it is the intent of this paragraph to ensure that all incoming wastes receive such treatment so as to be equivalent to the treatment presently being provided. Although the operation of the plant facilities is the responsibility of the OWNER, do not interfere nor otherwise cause conditions, which would make treatment continuity impossible or unreasonably difficult.

C. No by-passing of sewage is to be permitted during any portion of the construction.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

SECTION 01 57 00.00

TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 WATER CONTROL

A. Grade site to drain. Maintain excavations free of water. Provide, operate and maintain pumping equipment.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.2 DUST CONTROL

A. Execute work by methods to minimize raising dust from construction operations.

B. Provide positive means to prevent air-borne dust from dispersing into atmosphere.

1.3 EROSION & SEDIMENT CONTROL

A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

B. Minimize amount of bare soil exposed at one time.

C. Provide temporary measures such as berms, dikes and drains, to control and prevent water flow.

D. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.

E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

F. Provide erosion and sediment control practices in accordance with the Wisconsin Department Of Natural Resources (DNR) Construction Site Best Management Practice Handbook.

1.4 POLLUTION CONTROL

A. Provide methods, means and facilities to prevent contamination of soil, water and atmosphere from discharge of noxious, toxic substances and pollutants produced by construction operations.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

SECTION 01 60 00.00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures and systems forming the work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the work. Products may also include existing materials or components required for reuse.

B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

C. Provide interchangeable components of the same Manufacturer, for similar components.

1.2 QUALITY

A. Unless otherwise specifically provided for in the Specifications, all equipment, materials and articles incorporated in the Work are intended to be new and of the most suitable grade of their representative kinds for the purpose.

B. Quality of Work is the sole responsibility of the CONTRACTOR.

1.3 TRANSPORTATION & HANDLING

A. Except for OWNER procured equipment and materials, furnish all material and equipment to the job site.

B. Unload products received by truck on the site of the work. Pay all handling costs incidental to the installation of products.

C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct and products are undamaged.

D. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement or damage.

1.4 STORAGE & PROTECTION

A. Provide protection against vandalism, rain, wind, storms, cold or heat so as to maintain all work, materials, apparatus, equipment and fixtures incorporated in the work or stored on the site, free from injury or damage. At the end of the day's work, cover all new work likely to be damaged. Store items that require dry storage, such as electrical controls and motors in a dry building and not under tarps.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

SECTION 01 77 00.00

CONTRACT CLOSE-OUT

PART 1 - GENERAL

1.1 CLOSE-OUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, work has been inspected by the CONTRACTOR, and that work is complete in accordance with Contract Documents and ready for OWNER's inspection.

B. Provide submittals to ENGINEER that are required by governing or other authorities.

C. Submit final Application For Payment identifying total adjusted contract sum, previous payments and sum remaining due.

D. OWNER will occupy the work, as specified in Division 1, Section 01 11 00.00 - Summary Of Work.

1.2 PROJECT RECORD DOCUMENTS

A. Maintain on-site, one (1) set of the following record documents; record actual revisions to the work:

1. Contract Drawings.

2. Specifications.

3. Addenda.

4. Change Orders and other modifications to the Contract.

5. Reviewed Shop Drawings, product data and samples.

B. Store record documents separate from documents used for construction.

C. Record information concurrent with construction progress.

D. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

1. Manufacturer's name and product model and number.

2. Product substitutions or alternates utilized.

3. Changes made by Addenda and modifications.

E. Record Documents & Shop Drawings: Legibly mark each item to record actual construction including:

1. Measured depths of foundations in relation to benchmark datum.

2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.

4. Field changes of dimension and detail.

5. Details not on original Contract Drawings.

F. Submit documents to ENGINEER with claim for final Application For Payment.

G. Provide acceptable Record Drawings prior to final Application For Payment.

1.3 GUARANTEES, WARRANTIES & BONDS

A. Comprehensive information concerning guarantees, warranties and bonds is given in the General Conditions.

B. The Specifications may state that the OWNER requires additional bonds beside those required by the General Conditions, such as a bond to be furnished with roofing may be required, etc. Such requirements will be stated in the pertinent division of the Specifications.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

DIVISION 2 - EXISTING CONDITIONS

SECTION 02 32 19.00 EXPLORATORY EXCAVATIONS

SECTION 02 32 19.00

EXPLORATORY EXCAVATIONS

PART 1 - GENERAL

1.1. SECTION INCLUDES

A. Exploratory excavations (such as test pits) and monitoring conducted by the CONTRACTOR before construction begins.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Obtain OWNER's permission to perform exploratory excavations.

B. Perform site exploratory excavations to determine site soil conditions.

3.2 RESTORATION

A. Restore any exploratory excavation area to pre-excavation condition.

END OF SECTION

DIVISION 31 – EARTHWORK

SECTION 31 20 00.00 EARTH WORK
SECTION 31 25 00.00 EROSION AND SEDIMENT CONTROLS

SECTION 31 20 00.00

EARTHWORK

PART 1 - GENERAL

1.1. SUMMARY

A. Section Includes

1. Acceptable methods for the excavating, placing, grading, stabilizing and compacting of earth at the project site.

B. Measurement Procedures

1. Roadway Excavation (Common Excavation, Rock Excavation, & Marsh Excavation)

a. Measure common excavation in cubic yards in their original position, computed by the method of average end areas.

b. Measure rock excavation using vertical measurements for determining end areas within the limits of the roadbed (defined as the shoulder slopes or 1 foot behind the back of curb) extending from the surface of the rock to an elevation 6-inches below the sub-grade or finished surface of the earth grade. Measure boulders and surface stone of one half (½) cubic yard or more in volume individually and the volume computed from average dimensions taken in three (3) directions.

c. Measure marsh excavation in its original position by the average end area method to the extent that a reasonably well defined trench of required cross section is excavated and formed, having relatively stable side slopes and the bottom of which is the bottom of the marsh or satisfactory support for the backfill and embankment.

C. Payment Procedures

1. Pay for earthwork by cubic yard unless otherwise specified in the Contract Documents.

2. Pay for Excavation Below Subgrade (EBS) (undercutting) at the contract unit price for excavation unless otherwise specified in the Contract Documents.

1.2. REFERENCES

A. ASTM D1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3)

B. ASTM D8167 – Standard Test Method for In-Place Bulk Density of Soil and Soil-Aggregate by a Low-Activity Nuclear Method (Shallow Depth)

1.3. SUBMITTALS

A. Furnish OWNER with the proposed source or sources of embankment material to be used at least fifteen (15) working days prior to delivery.

B. Obtain soil samples from the intended embankment material source. Perform a soil analysis through a soil testing laboratory to ensure conformity with the specifications.

C. Do not deliver embankment material to the work site prior to review by the OWNER. Any delay caused by the failure of soil tests to meet these specifications is the sole responsibility of the CONTRACTOR.

PART 2 – PRODUCTS

Not Applicable

PART 3 - EXECUTION

3.1. PROTECTION OF EXISTING STRUCTURES & UTILITIES

A. Protect against damage surfaces and features, including buildings, pavements, trees and shrubs, within and adjacent to the construction easement or right-of-way, which are to be saved as indicated on the drawings or by the ENGINEER.

B. Support and protect existing gas pipes, water pipes, steam pipes, electric and telephone facilities, and other surface or subsurface structures, either of a private or of public ownership, whether or not indicated or shown on the drawings. Perform such work at CONTRACTOR's expense, and according to their own drawings.

C. Contact public utilities for the location of their underground structures such as ducts, mains or services for electric power, gas and telephone. Support above ground poles for electric power, lighting and telephone wires and cables. If the CONTRACTOR damages such utilities or subsurface structures, make settlement with the OWNER(s) of the utility (ies).

3.2. INTERFERENCE OF UNDERGROUND STRUCTURES

A. Notify ENGINEER and OWNER when an unknown underground structure is encountered in the trench or tunnel and because of interference part or all of the structure requires relocation.

B. Notify the ENGINEER and the OWNER of underground structure of CONTRACTOR'S desire to temporarily relocate such structure or to discontinue the service therein, and receive from the OWNER of such underground structure permission for such relocation or discontinuance of service if the relocation is to be made for CONTRACTOR's convenience. Replace structure to original position and condition. Structure OWNER may perform the work in connection with said relocation, discontinuance or replacement at the CONTRACTOR's expense. No extra compensation will be paid for unavoidable delays caused by the interference of existing underground structures.

C. Protect, support, or brace existing underground structures where the excavation of either a trench or tunnel extends under or approaches it.

3.3. WASTE OR EXCESS MATERIAL DISPOSAL

A. Surplus Earth

1. Surplus earth is the CONTRACTOR's property.

2. Haul surplus material to CONTRACTOR procured dump site.

3.4. SITE GRADING

A. Stripping Topsoil

1. Prior to excavation, strip topsoil, if any, to its entire depth.

2. Strip vegetation from stockpiling area.

3. Stripped topsoil.

a. Free from clay, stones, excessive vegetation, and debris.

b. May be used for finished grading.

B. Rough Grading

1. Grade to elevations 4-inches below finished grade for all areas not under proposed walks, paved areas and drives. Grade to finished sub-grade under walks, paved areas and drives.

2. Install sewers, water mains and other utilities prior to rough grading. If fill or backfill settles after grading, ENGINEER may direct that these areas be filled to finish grade.

3. Rough grade to a reasonably smooth, compacted and free from irregular surface changes condition.

C. Finish Grading

1. Where existing grades of lawns or planted areas are not to be changed, or if new grades are less than 4-inches above existing grade, remove enough of the material in place to allow placing of 4-inches of new topsoil, unless existing topsoil to required depth is undisturbed and of equal or greater depth and quality than new topsoil. If the existing topsoil is left in place, place only enough new topsoil to bring the project up to grade. Scarify sub-grade to a depth of 1-inch to assure bonding of topsoil to subsoil.

2. Stockpiled topsoil.

a. Free of stones, tree roots, branches, clay balls, hard lumps, gravel, cinders and other undesirable materials.

3. Grade, rake and roll with a roller weighing not more than 100 nor less than 25 pounds per lineal foot. Do not place topsoil in frozen or muddy conditions.

4. Excess topsoil, if any, is the OWNER's property. Leave stockpiled on site.

3.5. STRUCTURE EXCAVATION, BACKFILLING & COMPACTION

A. General

1. Section includes the acceptable methods of excavating, backfilling and compacting of earth beneath the building structure to a point 5 feet outside the building lines.

2. Submit the following reports from a certified geotechnical testing laboratory directly to the ENGINEER and copy the CONTRACTOR:

a. Analysis of soil materials, whether procured on or off site, and including fill, backfill and borrow materials.

b. Verification of each footing sub-grade.

c. Comprehensive strength of bearing test reports.

d. Compaction test reports.

3. Site Utilities

a. Advise utility companies of excavation activities before starting excavations. Locate and identify underground utilities passing through work area before starting work.

b. If underground utilities are encountered in location other than indicated, immediately advise Utility Company before proceeding. Amend project record documents to show actual utility locations.

c. Protect existing utilities, unless it is being removed.

d. Do not interrupt existing utilities without advance notice to and written approvals from the OWNER.

B. Materials

1. General

a. For each soil material proposed for use as fill or backfill, whether obtained on or off site, classify soil material, develop Proctor curve and perform any other tests required.

b. Obtain approval for each soil material.

2. Structural Fill: Predominantly sand material with 100% passing the 3-inch sieve, 70 to 100% passing the #4 sieve and less than 15% passing the #200 sieve.

3. Native Fill: On site soils approved by Geotechnical Engineer. The moisture contents should be within +/- 3% of the optimum modified proctor moisture content.

4. Office Slab Base Course: 6-inch of manufactured sand or ¾-inch crushed limestone.

C. Excavation

1. General

a. Includes the removal of any material necessary to achieve the required elevations and dimensions of the structures indicated on the drawings. It also includes trenching for utility systems to a point 5 feet beyond the building lines.

b. Extend excavations beyond concrete foundations to allow proper inspections of concrete form work and materials.

c. Strip existing topsoil and soft/wet soils from the entire construction area.

d. Protect the bottom of excavation from frost at all times.

e. No payment will be made for correction of sub-grades improperly protected against damage from freeze-thaw, water accumulation or rutting.

2. Approval of Sub-Grade & Additional Excavation

a. Provide certified Geotechnical Engineering Representative to verify soil bearing pressures of sub-grade. At the direction of the Geotechnical Engineering Representative, remove unsatisfactory soils to an elevation where satisfactory soil is encountered.

b. Where additional excavation is made below slabs-on-grade, restore the proper elevation with compacted structural fill.

c. Where additional excavation is made below footings, restore the proper elevation with compacted structural fill over an area equal to the footing size plus the depth of the additional excavation on each side of the footing.

3. Unnecessary Excavation

a. Do not excavate below the elevations indicated on the drawings, unless so directed by the ENGINEER or the On-Site Geotechnical Engineering Representative.

b. Restore unapproved excavations to the proper elevation with compacted select fill at no expense to the OWNER.

D. Backfill & Fill

1. Backfill

a. Material: Structural Fill.

b. Location

1) Unsatisfactory Soils - Over-excavation of unsatisfactory soils below footings.
2) Foundation Walls - Both sides of interior and exterior walls.
3) Retaining Walls - Both sides.
4) Footings - Above and adjacent to all footings located below slabs or pavement.
5) Pipe Trenches - Above all pipe bedding.

c. After completion of below grade construction and prior to any backfilling, remove all form materials, trash and debris from the excavation.

d. Place backfill in horizontal layers not more than 8-inches in thickness, loose measurement.

e. Compact each layer by hand or machine to the required density.

f. Backfill simultaneously on both sides of foundation walls such that the level of backfill is equal on each side of the foundation wall at all times.

g. Where backfill occurs on one side of a foundation wall, or where final grade is unequal, backfill when floor framing is complete in the case of basement walls or when final concrete strength is reached in the case of retaining walls. Take special care when backfilling to prevent any welding action or eccentric loading against the wall. Exercise care that equipment used in compaction of backfill does not overload the walls. Hand compact backfill immediately adjacent to such walls.

h. Place backfill to the required sub-grade to allow for placement of topsoil or concrete slabs.

2. Fill

a. Material: Native Fill.

b. Location: Where fill is required to raise the grade level of the site.

c. Install fill in horizontal layers not more than 8-inches in thickness, loose measurement.

d. Compact each layer by hand or machine to the required density.

e. Review sub-grade prior to filling operations, as follows:

1) After stripping topsoil, proof roll the building area with a fully loaded tandem axle dump truck or rubber tired vehicle of similar size and weight.

2) Undercut soils that are observed to rut or deflect excessively under the moving load and replace with compacted fill.

3) Verify the proof-rolling and undercutting activities with a qualified representative of a Geotechnical Engineer. Perform these activities during a period of dry weather.

4) Scarify and compact the sub-grade soils to at least 95% modified Proctor for a depth of 6-inches below the surface. Adjust the moisture content of the sub-grade soils as required to facilitate compaction.

3. Slab Sub-base: Provide slab base course below all interior floor slabs and exterior walks. Compact slab base course as specified in the compaction requirements.

E. Compaction Requirements & Testing

1. Equipment: Provide all necessary compaction equipment and other grading equipment to obtain the required compaction.

2. Testing

a. Determine maximum and minimum density of the fill soil in accordance with ASTM test designation D-1557, Modified Effort Test. Determine relative density in accordance with ASTM test designation D-8167.

b. Submit 50-lb. representative samples of the proposed fill material to an independent laboratory for particle size analysis and optimum moisture-maximum density determinations prior to the start of any filling operations.

c. Perform field density tests for determining the compaction of the fill using a qualified testing laboratory in accordance with standard recognized procedures for making such tests. Perform these tests at locations requested by the ENGINEER. Retest failing areas at no additional cost to the OWNER.

3. Compaction Requirements

a. Compact backfill, fill and slab sub-base to 95% modified Proctor maximum dry density per ASTM D-1557.

b. Provide one compaction test for every 50 cubic yards to fill.

3.6. ROADWAY EXCAVATION, EMBANKMENT, BACKFILL & COMPACTION

A. General

1. Consists of the excavation and satisfactory disposal of all materials taken for the construction of the roadway, roadbed, embankments, earth sub-grade and shoulders, intersections, side ditches and dikes, channels and waterways. It also includes the grading of entrances, approaches, parking lots, ditches and channels beyond the right-of-way. Includes the removal and satisfactory disposal of surface and base courses, embankment surcharge, masonry walls, foundations of buildings or other structures that lie within the right-of-way, stone fences, stone piles and surplus and unsuitable materials; the replacement of unsuitable material with satisfactory material; the trimming and finishing of the roadway; and maintaining such work in a finished condition until acceptance.

2. Does not include excavation for structures or other excavation items for which separate and specific methods of measurement and basis of payment are provided elsewhere in the specifications and contract.

B. Classification of Excavation

1. Rock Excavation

   a. Includes:

      1) Hard, solid rock in ledges, bedded deposits and un-stratified masses and conglomerate deposits or any other material so firmly cemented they present the characteristics of solid rock; and the ENGINEER determines it is not practical to excavate and remove same without blasting or using rippers.

      2) Rock boulders having a volume of one cubic yard or more.

   b. Does not include crushed aggregate or asphaltic base or surface courses or concrete base or surface courses.

2. Marsh Excavation

   a. Includes:

      1) Excavation below the original ground level of marshes and swamps underlying proposed embankments, within the limits indicated on the drawings or as determined by the ENGINEER, and necessary or desirable to ensure a stable foundation for embankment or to accelerate the subsidence of unstable material under embankment load.

   b. Does not include old road cores so designated on the drawings to be salvaged and used in the construction of embankments.

3. Common Excavation

a. Includes materials encountered in the performance of the work under roadway excavation other than specific materials that have been classified rock excavation or marsh excavation.

C. Construction

1. General

a. Clear and grub and remove topsoil before ground is broken or embankments are placed.

b. Excavate materials from within the right-of-way. Use excavated material with suitable engineering properties in the work to the extent practicable. Dispose of surplus or unsuitable materials off the project site.

c. Grade entrances, approaches, ditches, and channels beyond the right-of-way.

d. Replace unsuitable material with satisfactory material. Trim and finish the roadway. Maintain the work in a finished condition until acceptance.

2. Preparing Roadway Foundation

a. Remove vegetation taller than one foot before excavating or placing embankment. Remove sod, perishable material, unstable topsoil, muck, peat, and other undesirable material from the roadway foundation. Also remove frozen material unless the OWNER approves otherwise. Dispose of removed materials off the project site.

b. Salvage topsoil from excavation areas and the roadway foundation. Remove excess unstable topsoil from the roadway foundation as Excavation Below Subgrade (EBS).

c. Compact the existing ground within the roadway foundation as necessary to support the embankment and attain the specified embankment density.

d. If placing embankment on side slopes 10 feet high or higher and steeper than one vertical to three horizontal, provide vertically faced horizontal steps or benches in the slopes to support the embankment. Cut or form the steps or benches while placing the embankment.

e. Completely remove pavement, asphaltic surface, and rigid base from within the roadbed slopes and underlying proposed embankments to a minimum depth of 2 feet below the finished grade line or to the depth shown on the plans.

3. Drainage During Construction

a. Maintain the roadway, ditches and channels in a well-drained condition at all times by keeping the excavation areas and embankments sloped to the

approximate section of the ultimate earth grade. Provide temporary drainage until permanent drainage work is completed. Temporary drainage installations are incidental to the construction of the work.

b. If storing salvaged topsoil on the right-of-way during construction, stockpile it to preclude interference with or obstruction of surface drainage.

c. Preserve, protect, and maintain existing tile drains, sewer, and other subsurface drains that should continue in service without change. Repair any damage to these facilities resulting from negligence or carelessness of the CONTRACTOR's operations.

4. Excavation Below Subgrade (EBS)

a. Remove deposits of frost-heave material, unstable silty soils, wet and unstable soil, material salvage from old road cores in marshes, topsoil containing considerable humus or vegetable matter, rocks, or other undesirable foundation material. If possible, slope and drainage to excavation bottoms to prevent water accumulation.

b. Dispose of humus bearing soils and other excavated materials not suitable for embankment construction.

c. Use selected materials from roadway and drainage excavation having suitable engineering properties, borrow, or granular backfill to backfill excavated areas.

5. Grading the Roadway, Intersections, and Entrances

a. Utilize suitable material removed from excavation in the construction of the roadway, as far as practicable. Use excess excavated material in other places as shown on the drawings.

b. Undercut or underfill excavated slopes or areas and embankment slopes or areas, designated to be covered with topsoil or salvaged topsoil, to the necessary depth to provide for the specified amount of topsoil or salvaged topsoil to be placed.

c. Perform excavation to avoid removing or loosening any material outside the required slopes. Replace and thoroughly compact any material removed or loosened to the required cross-section.

d. Grade intersection roads, approaches, entrances, and driveways. Construct intersections and private entrances, trim shoulder and slopes, finish and blade the earth subgrade, and complete the ditches closely following the rough grading.

6. Constructing Ditches, Dikes, and Channels

a. Construct inlets, outlets, swamp, berm and intercepting ditches, dikes or intercepting embankments and channels as shown on the drawings or as directed by the ENGINEER and maintain to the required section until acceptance. Perform in proper sequence with other work to provide adequate drainage and to minimize erosion and siltation.

b. Excavate suitable material from ditches and channels and use in the construction of the roadway and backfilling of abandoned ditches and channels. Dispose of unused excavated material off the project site.

c. Do not place waste or surplus excavation within 3 feet from the edge of the ditch or channel or within such greater distance, as may be required, to ensure stability of the side slopes. Spread waste or surplus material in thin uniform layers neatly leveled and shaped. Remove roots, stumps, logs and other objectionable material in the slopes and bottoms of ditches and channels. Backfill the holes with suitable material. If necessary, provide sufficient opening in spoil banks to allow surface drainage of adjacent lands.

d. Provide suitable outlets or flumes from intercepting ditches to roadway ditches where necessary.

7. Muck or Peat Marshes

a. Complete treatment as soon as practicable in order to obtain maximum settlement prior to proposed base and surface construction.

b. Excavate wet marshes having relatively unstable side slopes beginning at one end and proceed in one direction to the full width across the entire marsh immediately ahead of backfilling.

c. Excavate and backfill to provide the complete removal or displacement of all peat or muck from within lateral limits called for on the drawings or as staked by the ENGINEER, and to the bottom of the marsh or to firm support.

d. Excavate any displaced peat or muck accumulating ahead of the advancing embankment toe to provide removal of or to facilitate displacement of underlying peat or muck.

D. Backfill & Embankments

1. Roadway backfill consists of placing in embankments and in miscellaneous backfills material obtained from roadway excavation or borrow excavation.

2. Materials for Embankment

a. Suitable materials containing no logs, stumps, brush or other perishable material.

b. No frozen lumps of soil are allowed.

c. The top 12-inches of earth embankments are free from stone, broken concrete or other materials that would significantly affect scarifying, compacting and finishing the sub-grade.

3. Remove ice and snow from the ground surface before placing embankment on the ground. Do not place embankment on frozen subgrade. Unless the Contract specifies otherwise, discontinue constructing embankments in the fall or early winter if weather conditions prevail that cause substantial freezing of the materials during placement, except if using materials from rock excavation, or of a granular nature and that contain only minor quantities of silt, clay, loam, or similar materials.

4. Construct embankment starting at the lowest point of the fill, below the grade at the bottom of ravines. Construct the embankment in layers by spreading and leveling the material during placement. Spread individual layers evenly to uniform thickness throughout and approximately parallel with the finished grade for the full width of the embankment, unless directed otherwise. Place the material in layers generally no thicker than 8-inches, to secure the required compaction. On side hills too steep to operate hauling equipment, over low wet ground, in marshes, or if filling in water, provide a single layer, just thick enough to support the hauling equipment while placing subsequent layers.

5. If the material for embankment consists of rock, broken stone, or fragmented material of a size that makes placing in 8-inch layers impracticable, then place the embankment material in layers no thicker than the approximate average size of the larger rocks. Avoid nesting and fill the voids with smaller stones and satisfactory soil or rock fines.

6. Do not compact embankment material if the moisture content causes excessive rutting by the hauling equipment, or excessive displacement or distortion under the compacting equipment. If these conditions exist, allow the materials to dry before compacting. If necessary, accelerate drying the materials by aerating or by using blade graders, harrows, discs, or other appropriate equipment to manipulate the material. If the embankment material does not contain sufficient moisture to compact properly, add water in quantities the ENGINEER deems necessary to aid, accelerate, and secure effective compaction. Compact embankments, outside the roadway foundation, to the degree contemplated for standard compaction. The ENGINEER may allow less compaction outside the roadway foundation if the CONTRACTOR uses unstable soil.

7. Deposit, spread, and level, as specified above, the embankment material in layers generally no thicker than 8-inches before compaction. Compact each layer of the embankment until the compaction equipment achieves no further significant consolidation. Provide the required compaction for each layer before placing any material for a succeeding layer. Route hauling and leveling equipment over the entire area of each layer or fill to compact to the extent practicable during placement. The ENGINEER may require specialized compaction equipment to provide additional compaction if, in the ENGINEER’s opinion, adequate

compaction is not achieved without it. Specialized compaction equipment includes pad foot rollers, pneumatic-tire rollers, vibratory rollers, or other alternate compaction equipment that produces the required results. Obtain the ENGINEER's approval before using alternate compaction equipment.

E. Compaction

1. Compact in accordance with the requirements for standard compaction unless special compaction is called for on the drawings or in the Contract. Do not compact embankment material when the moisture content is such as to cause excessive rutting by the hauling equipment or excessive displacement or distortion under the compacting equipment. Allow materials to dry prior to compacting. Add water to embankment materials with insufficient moisture content.

2. Roadway Excavation Backfill and Embankment

a. Compaction requirements are listed in Table 31 20 00.00-1, located at the end of this Section.

b. Perform the number of compaction tests specified in the Special Provisions, if applicable.

c. Perform proof roll test prior to placement of aggregate base.

3. Crushed Stone Paving

a. Compact crushed stone or aggregate base course to 95% of maximum density in accordance with the requirements of ASTM D 1557, Modified Proctor Test.

b. Perform the number of compaction tests specified in the Special Provisions, if applicable.

c. Perform proof roll test with loaded tandem axle truck prior to project acceptance. All soft areas shall be removed and reconstructed.

F. Tolerances

1. Grade final subgrade and ditches within 0.08 feet of plan elevations.

END OF SECTION

TABLE 31 20 00.00-1

Excavated Area	Percent Compaction Fine-Grained Soil	Percent Compaction Coarse-Grained Soil	Relative Density *
Within 10' of building lines under footings, floor slabs and structures attached to buildings (i.e., walls, stoops, steps); and the upper 4' or a distance twice the trench width, whichever is greater, of any trench located under any concrete or asphalt paved surfaces.	90%	95%	70%
10' beyond building lines under walks, driveways, curbing, concrete or asphalt paving; sub-grade preparation; and the remaining section of any trench located under these paved surfaces.	80%	90%	60%
10' beyond building lines under seeded, sodded and landscaped areas, and any trench located under these areas.	80%	90%	--

Coarse-grained soils are classified as those soils with more than 50% (by weight) larger than the No. 200 mesh sieve and with a plastic index less than 4.

Compaction requirements maximum density shall be determined by AASHTO Designation T99, Method C (Standard Proctor), with replacement of the fraction of material retained in the 3/4-inch sieve with No. 4 to 3/4-inch material.

* Minimum relative density requirements apply to coarse-grained soils and apply only in cases where the percentage compaction requirements are not being reached.

SECTION 31 25 00.00

EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1. SECTION INCLUDES

A. Erosion and sedimentation controls for earthwork operations.

1.2. MEASUREMENT PROCEDURES

A. Measure in the units specified in the Contract Bid Forms.

1.3. PAYMENT PROCEDURES

A. Pay as specified in the Contract Bid Forms.

1.4. REFERENCES

A. Construction Site Erosion & Sediment Control Standards (Conservation Practice Standards) – Wisconsin Department of Natural Resources

1.5. SUBMITTALS

A. Submit the following to the ENGINEER a minimum of 10-days prior to incorporation into the project:

1. Manufacturer's data on erosion control material and devices.

2. Erosion control plan.

PART 2 - PRODUCTS

2.1. MATERIALS

A. Erosion Control

1. Acceptable Materials

a. On Wisconsin Department of Transportation (WisDOT) Erosion Control Product Acceptability List (PAL)

PART 3 - EXECUTION

3.1 CONSTRUCTION

A. Erosion Control

1. Perform erosion control measures to control water pollution, erosion and siltation through the use of intercepting embankments, berms, dikes, dams, silt fences, settling basins, slope paving, ditch checks, rip-rap, mulches, erosion mats, seeding, sodding, plantings and other erosion control devices or methods.

2. Coordinate temporary erosion control measures with permanent erosion control measures to assure economical, effective and continuous erosion control.

3. Submit a detailed plan and schedule of construction operations for accomplishing temporary and permanent erosion control work relating to grubbing, grading, excavation, paving and other work which might create erosion.

4. Minimize the area of erosive land exposed to the elements, and minimize the duration of such exposure.

5. Perform construction in and adjacent to rivers, streams, lakes or other waterways in such a manner as to avoid washing, sloughing or deposition of materials into waterways which would result in undue or avoidable contamination, pollution or siltation of such waterways.

6. Perform grubbing and grading operations in proper sequence with other work to minimize erosion. Construct intercepting ditches or dikes, as soon as practical, after clearing and grubbing operations are completed.

7. Furnish, install, maintain and remove erosion and sediment control facilities in accordance with Wisconsin Department of Natural Resources Technical Standards.

8. Install and maintain erosion control (Best Management Practices) in accordance with applicable permits.

9. Inspect site weekly and within 24-hours following a rainfall of 0.5-inches (in 24-hours) or greater. Prepare and retain inspection forms.

END OF SECTION

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 32 11 23.00 AGGREGATE BASE COURSES

SECTION 32 12 16.00 ASPHALT PAVING

SECTION 32 13 13.00 CONCRETE PAVEMENTS

SECTION 32 16 13.00 CONCRETE CURB & GUTTER

SECTION 32 16 23.00 CONCRETE SIDEWALK & DRIVEWAYS

SECTION 32 17 23.00 PAVEMENT MARKINGS

SECTION 32 19 00.00 PAVEMENT REPAIR & RESURFACING

SECTION 32 92 00.00 LANDSCAPING

SECTION 32 11 23.00

AGGREGATE BASE COURSES

PART 1 - GENERAL

1.1. SUMMARY

A. Section Includes

1. Material requirements, submittals, breaker run stone, testing and placement procedures.

B. Measurement Procedures

1. Measured by the ton, unless specified otherwise in the Contract Documents.

2. For weighed aggregate with a moisture content greater than 7% the ENGINEER shall reduce the ticket weight by the weight of water exceeding 7%.

C. Payment Procedures

1. Paid by the ton, unless specified otherwise in the Contract Documents.

1.2. REFERENCES

A. American Association of State Highway and Transportation Officials (AASHTO)

1. T 2 – Standard Method of Test for Sampling of Aggregates

2. T 11 – Standard Method of Test for Materials Finer Than 75-□m (No. 200) Sieve in Mineral Aggregates by Washing

3. T 27 – Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates

4. T 30 – Standard Method of Test for Mechanical Analysis of Extracted Aggregate

5. T 89 – Standard Method of Test for Determining the Liquid Limit of Soils

6. T 90 – Standard Method of Test for Determining the Plastic Limit and Plasticity Index of Soils

7. T 96 – Standard Method of Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

8. T 99 – Standard Method of Test for Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop

9. T 103 – Standard Method of Test for Soundness of Aggregates by Freezing and Thawing

10. T 104 – Standard Method of Test for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate

11. T 113 – Standard Method of Test for Lightweight Particles in Aggregate

12. T 180 – Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

13. T 191 – Standard Method of Test for Density of Soil In-Place by the Sand-Cone Method

14. T 255 – Standard Method of Test for Total Evaporable Moisture Content of Aggregate by Drying

B. American Society for Testing and Materials (ASTM)

1. D1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3)

2. D5821 – Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate

1.3. SUBMITTALS

A. Samples

1. When requested by the OWNER, submit a representative sample of the aggregate incorporated into the work to a certified testing laboratory to determine the moisture content.

B. Quality Assurance / Control Submittals

1. Submit the following a minimum of 10-days prior to commencement of construction for Base Aggregate Dense and Base Aggregate Open Graded:

a. Test results from an OWNER approved independent certified testing laboratory indicating that any aggregate material incorporated into the work complies with these Contract Specifications. Perform the following tests:

1) Gradation

2) Fracture
   a) 58% for Dense
   b) 90% for Open-Graded

3) Liquid Limit
   a) <=25

4) Plasticity
   a) <=6

b. When requested by the OWNER, submit a representative sample of the aggregate to a certified testing laboratory to determine the moisture content.

PART 2 - PRODUCTS

2.1. MATERIALS

A. Dense-Graded Base

1. General

a. Provide base aggregates from an ENGINEER-approved source.

b. Recycled material may be used for base course if specified in the Contract or approved by the ENGINEER.

c. Lime sludge obtained from the waste product of the paper manufacturing process is not acceptable.

2. Gradation

a. Except for reclaimed asphaltic pavement, conform to the following gradation requirements:

	Percent Passing By Weight		
Sieve Size	**3-Inch**	**1¼-Inch**	**¾-Inch**
3-Inch	90 – 100	--	--
1½-Inch	60 – 85	--	--
1¼-Inch	--	95 – 100	--
1-Inch	--	--	100
¾-Inch	40 – 65	70 – 93	95 -100
No. 4	15 – 40	25 – 63	35 – 70
No. 10	10 – 30	16 – 48	15 – 55
No. 40	5 – 20	8 – 28	10 – 35
No. 200	2.0 – 12.0	2.0 – 12.0[(1) (2)]	5.0 – 15.0[(3)]

[(1)] Limited to a maximum of 8.0% for the base placed between old and new pavement.

[(2)] 8.0 – 15.0% if base is ≥ 50% crushed gravel.

[(3)] 4.0 – 10.0% if base is ≥50% crushed gravel.

b. Unless the Plans or Special Provisions specify otherwise, do the following:

1) Use 1¼-inch in the top 4-inches of base. Use 3-inch base or 1¼-inch base in the lower base layers.

2) Use ¾-inch in shoulders. Always use ¾-inch to match the thickness of the paved shoulder in the unpaved portion of the

shoulder and on exposed shoulder foreslopes. CONTRACTOR may substitute 1¼-inch for ¾-inch elsewhere in shoulders and shoulder foreslopes. If using 1¼-inch, limit the allowable reclaimed asphalt content to 50% or less.

c. Reclaimed asphalt with 100 percent passing a 1¼-inch sieve may be used as 1¼-inch base. ENGINEER will assess gradation primarily by visual observation but may test questionable material at CONTRACTOR's expense.

B. Open-Graded Base

1. General

a. Provide base aggregates from an ENGINEER-approved source.

b. Lime sludge obtained from the waste product of the paper manufacturing process is not acceptable.

2. Gradation

a. Crushed stone or crushed gravel conforming to the following gradation requirements:

Sieve	Percent Passing (by weight)
1-Inch	90 – 100
3/8-Inch	45 – 65
No. 4	15 – 45
No. 10	0 – 20
No. 40	0 – 10
No. 200	0 – 0.5

C. Breaker Run

1. General

a. Provide breaker run (stone or concrete) from an ENGINEER-approved source substantially free of unconsolidated overburden materials, topsoil, organic materials, steel, and other deleterious materials.

2. Gradation

a. Predominately 6-inches or less in at least one dimension.

b. Breaker run acceptability will be based on ENGINEER's visual observation.

D. Select Crushed Material

1. General

a. Use for subgrade correction and improvement.

b. Provide select crushed material from an ENGINEER-approved source substantially free of unconsolidated overburden materials, topsoil, organic materials, steel, and other deleterious materials.

c. Acceptable materials include:

1) Mined or quarried waste rock that is hard, durable, and when processed through a primary crusher, produce a material similar in size and texture to that produced from a quarry face.

2) Crushed concrete substantially free of steel, building materials, or other deleterious material; and when processed through a primary crusher, produce a material similar in size and texture to that produced from a quarry face.

d. Unacceptable materials include deteriorated concrete or other non-durable rock such as sandstone, shale, slate, disintegrated granite, or heavily weathered rock.

2. Gradation

a. Conform to the following gradation:

Sieve	Percent Passing (by weight)
5-Inch	90 – 100
1½-Inch	20 – 50
No. 10	0 - 10

b. Furnish material that has a minimum of 50%, by count, of the number of particles retained on the 1½-inch sieve with at least two fractured faces.

c. Select crushed material acceptability will be based on ENGINEER's visual observation.

E. Pit Run

1. General

a. Use for subgrade correction and improvement.

b. Provide pit run material from an ENGINEER-approved source substantially free of topsoil, organic materials, and other deleterious materials.

c. Acceptable materials include:

1) A homogenous mixture of naturally occurring material that has at least 50% by weight retained on the 1½-inch sieve, with the remaining material composed of sand with a nominal quantity of silt/clay. The maximum size of an individual piece cannot be more than 2/3 of the specified individual layer thickness.

d. Unacceptable materials include non-durable rock such as sandstone, shale, slate, disintegrated granite, or heavily weathered rock.

e. Pit run material acceptability will be based on ENGINEER's visual observation.

PART 3 – EXECUTION

3.1. CONSTRUCTION

A. Preparation of Foundation for Aggregate Base

1. Prepare the foundation by scarifying, blading, leveling, and rolling as required to bring the foundation to the required grade, cross-section, and density. Uniformly compact the foundation to not less than the density for standard compaction of the existing foundation material. Remove any ruts or surface irregularities produced by hauling, other equipment, or other traffic. Correct soft or yielding areas, holes, or other defects that occur. Remove snow or ice, if any, from the foundation before placing the base.

2. Bring the foundation for open-graded base to the required grade and cross-section using a machine specifically for trimming foundations. Use a machine with automatic sensors to trim to the required grade and cross-section.

B. Constructing Base

1. Do not place base on foundations that are soft, spongy, or covered by ice or snow. Do not place base on frozen foundations.

2. Place aggregate in a way that minimizes hauling on the subgrade. Do not use vehicles or operations that damage the subgrade or in-place base. Deposit material in a way that minimizes segregation.

3. Ensure there is adequate moisture in the aggregate during placing, shaping, and compacting to prevent segregation and achieve adequate compaction.

4. Compact base aggregate to 95% of Maximum Modified Proctor Density in accordance with ASTM D-1557.

5. Perform the number of compaction tests specified in the Special Provisions, if applicable.

6. Proof roll using a loaded tandem axle truck. Re-compact any areas showing appreciable displacement either laterally or longitudinally.

C. Tolerances

1. Shape and compact the base surface to within 0.04 feet of plan elevation.

D. Excavation Below Subgrade (EBS)

1. Excavate below subgrade to remove yielding areas as directed by ENGINEER.

2. Payment for EBS will be:

a. Excavation at the contract unit price.

b. Aggregate base at the contract unit price for the type of base aggregate used.

E. Dust Abatement

1. Minimize the dispersion of dust from all base course by applying water or other approved dust control measures as provided by the contract or required by the ENGINEER.

F. Constructing Aggregate Shoulders

1. Construct aggregate shoulders to the elevations and typical sections in the plans, except for minor modifications to conform to other work.

2. Use equipment that does not damage or mar the pavement surface, curb, or appurtenances.

3. Place aggregate directly on the shoulder area between the pavement edge and the outer shoulder limits. Recover uncontaminated material deposited outside of the limits and place within the limits.

4. Do not deposit aggregate on pavement during placement. Do not leave aggregate on the pavement overnight. After placing aggregate shoulder, keep the pavement free of loose aggregate.

5. Spread and compact the aggregate in compacted layers of 6-inches or less.

6. After final compaction, shape the shoulders to remove longitudinal ridges to ensure proper drainage.

3.2. FIELD QUALITY CONTROL

A. Documentation

1. For each load of aggregate base provide a delivery ticket containing the following information:

a. Date.

b. Name of quarry.

c. Project name and location of delivery.

d. Material description.

e. Truck number.

f. Gross weight of vehicle, tare weight of vehicle, and subtraction to obtain net weight.

g. Signature of responsible party representing the CONTRACTOR.

END OF SECTION

SECTION 32 12 16.00

ASPHALT PAVING

PART 1 - GENERAL

1.1. SUMMARY

A. Section Includes

1. Requirements for all types of central plant mixed asphaltic pavements.

B. Measurement Procedures

1. Measure by the ton, unless otherwise specified in the Contract Documents.

2. Weigh at certified weight scales.

C. Payment Procedures

1. Asphaltic concrete mixtures and asphaltic materials for prime and tack coats.

a. Pay by the ton, unless otherwise specified in the Contract Documents.

b. Pay for prime and tack coats within the unit price for hot mix asphalt pavement unless otherwise specified in the Contract.

2. Price includes preparation of foundation, adjusting manholes, inlets, valves and other fixtures, quality management program testing, and submittals, unless otherwise specified in the Contract Documents.

3. Pay one-half the unit price per ton for excess material beyond the allowable yield.

1.2. REFERENCES

A. American Association of State Highway and Transportation Officials (AASHTO)

1. T 2 – Standard Method of Test for Sampling of Aggregates

2. T 11 – Standard Method of Test for Materials Finer Than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing

3. T 27 – Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates

4. T 30 – Standard Method of Test for Mechanical Analysis of Extracted Aggregate

5. T 37 – Standard Method of Test for Sieve Analysis of Mineral Filler for Hot Mix Asphalt

6. T 96 – Standard Method of Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

7. T 103 – Standard Method of Test for Soundness of Aggregates by Freezing and Thawing

8. T 104 – Standard Method of Test for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate

9. T 164 – Standard Method of Test for Quantitative Extraction of Asphalt Binder from Hot Mix Asphalt

10. T 166 – Standard Method of Test for Bulk Specific Gravity (Gmb) of Compacted Hot Mix Asphalt (HMA) Using Saturated Surface-Dry Specimens

11. T 245 – Standard Method of Test for Resistance to Plastic Flow of Asphalt Mixtures Using Marshall Apparatus

B. American Society for Testing and Materials (ASTM)

1. D1559 – Test Method for Resistance of Plastic Flow of Bituminous Mixtures using Marshall Apparatus

2. D2726 – Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Asphalt Mixtures

1.3. DEFINITIONS

A. Asphalt Pavements

1. One or more courses of an asphaltic mixture consisting of asphaltic-coated mineral aggregates constructed on a prepared foundation.

B. Reclaimed Asphaltic Pavement

1. Material resulting from cold milling or crushing existing asphaltic pavement.

C. Acronyms

1. HMA Hot Mix Asphalt

2. PG Performance Graded

3. RAP Reclaimed Asphaltic Pavement

1.4. SUBMITTALS

A. Submit test results from the CONTRACTOR’s Quality Control Program including:

1. Aggregates.

2. Asphaltic Materials.

3. Asphalt Mix Design.

PART 2 - PRODUCTS

2.1. MATERIALS

A. Aggregates

Aggregate Gradation Mater Range and VMA Requirements					
Sieve	**Percent Passing Designated Sieves**				
	Nominal Size				
	No. 1 (37.5 mm)	**No. 2 (25.0 mm)**	**No. 3 (19.0 mm)**	**No. 4 (12.5 mm)**	**No. 5 (9.5 mm)**
50.0 mm	100				
37.5 mm	90 – 100	100			
25.0 mm	90 max.	90 – 100	100		
19.0 mm	—	90 max.	90 – 100	100	
12.5 mm	—	—	90 max.	90 – 100	100
9.5 mm	—	—	—	90 max.	90 – 100
4.75 mm	—	—	—	—	90 max.
2.36 mm	15 – 41	19 – 45	23 – 49	28 – 58	32 – 67
0.60 mm	—	—	—	—	—
75 µm	0 – 6.0	1.0 – 7.0	2.0 – 8.0	2.0 – 10.0	2.0 – 10.0
% Minimum VMA	11.0	12.0	13.0	14.0[(1)]	15.0[(2)]

[(1)] 14.5 for LT and MT mixes.

[(2)] 15.5 for LT and MT mixes.

B. Asphaltic Materials

1. Minimum binder grade: PG 58-28 S

C. Tack Coat

1. Acceptable types: MS-2, SS-1, SS-1h, CSS-1, CSS-1h, QS-1, QS-1h, CQS-1, CQS-1h, or modified emulsified asphalt.

D. Mix Design

1. Meet the following mixture requirements:

Mixture Requirements			
Mixture Type	**LT**	**MT**	**HT**
LA Wear (AASHTO T96)			
100 revolutions (max % loss)	13	13	13
500 revolutions (max % loss)	50	45	45
Soundness (AASHTO T104) (sodium sulfate, max % loss)	12	12	12

Mixture Requirements (continued)			
Mixture Type	**LT**	**MT**	**HT**
Freeze/Thaw (AASHTO T103) (specified counties, max % loss)	18	18	18
Fractured Faces (ASTM D5821 as modified in CMM 8-60) (one face/2face, % by count)	65/___	75 / 60	98 / 90
Flat & Elongated (ASTM D4791) (max %, by weight)	5 (5:1 ratio)	5 (5:1 ratio)	5 (5:1 ratio)
Fine Aggregate Angularity (AASHTO T304, method A, min)	40	43	45
Sand Equivalency (AASHTO T176, min)	40	40	45
Clay Lumps and Friable Particle in Aggregate (AASHTO T112)	< = 1%	< = 1%	< = 1%
Plasticity Index of Material Added o Mix Design as Mineral Filler (AASHTO T89/90)	< = 4	< = 4	< = 4
Gyratory Compaction			
Gyrations for N_{ini}	6	7	8
Gyrations for N_{des}	40	75	100
Gyrations for N_{max}	60	115	160
Air Voids, %Va ($\%G_{mm}$ N_{des})	4.0 (96.0)	4.0 (96.0)	4.0 (96.0)
% G_{mm} N_{ini}	< = 91.5[1]	< = 89.0[1]	< = 89.0
% G_{mm} N_{max}	< = 98.0	< = 98.0	< = 98.0
Dust to Binder Ratio[2] (% passing 0.075/P_{be})	0.6 – 1.2	0.6 – 12.1	0.6 – 1.2
Voids filled with Binder (VFB or VFA, %)	68 – 80[4][5]	65 – 75[3][5]	65 – 75[3][5]
Tensile Strength Ratio (TSR)(AASHTO T283)[6][7]			
No antistripping additive	0.75 min	0.75 min	0.75 min
With antistripping additive	0.80 min	0.80 min	0.80 min
Draindown (AASHTO T305)(%)	___	___	___

[1] The percent maximum density at initial compaction is only a guideline.

[2] For a gradation that passes below the boundaries of the caution zone (ref. AASHTO M323), the dust to binder ratio limits are 0.6 – 1.6.

[3] For no. 5 (9.5 mm) and No. 4 (12.5 mm) nominal maximum size mixtures, the specified VFB range is 70 – 76 percent.

[4] For no. 2 (25.0 mm) nominal maximum size mixes, the specified VFB lower limit is 67 percent.

[5] For No. 1 (37.5 mm) nominal maximum size mixes, the specified VFB lower limit is 67 percent.

[6] WisDOT eliminates freeze-thaw conditioning cycles from the TSR test procedures.

[7] Run TSR at asphalt content corresponding to 3.0% air void regressed design, or 4.5% air void design for SMA, using distilled water for testing.

2.2. SOURCE QUALITY CONTROL

A. Perform the following tests daily:

1. Aggregate gradation.

2. Asphalt content.

3. Bulk specific gravity.

4. Maximum specific gravity.

5. Air voids (Va).

6. Voids in mineral aggregate (VMA).

B. Document observations, inspection records, mixture adjustments, and test results daily.

PART 3 - EXECUTION

3.1. PREPARATION OF FOUNDATION

A. Aggregate Base Course

1. Scarify, shape, trim, and compact the surface of base aggregate where necessary to provide the required cross-sectional contour, a profile free from abrupt changes in elevations and a surface free from pits, hollows, depressions or projections above the normal surface.

2. Shape and trim using long-wheel-base motor graders or sub-grade finishers designed for the purpose.

3. Proof roll existing base aggregate using a loaded tandem axle truck. Remove and reconstruct areas showing appreciable displacement either laterally or longitudinally.

B. Asphaltic Treated Surfaces & Pavements

1. Prepare sections of existing asphaltic surfaces that are to remain in place by removing all localized areas that exhibit a tendency to ravel, shove, bleed or are otherwise unsuitable to serve as a base for the proposed asphaltic resurfacing.

2. Clean all loose material from holes or pits in the existing asphaltic surface and fill with asphaltic surface mixture furnished under the appropriate item of the Contract.

C. Concrete Pavements

1. Remove surplus crack and joint sealing material from the surface of the pavement.

2. Remove protruding joint materials, including fillers and sealers, from joints and cracks to at least the surface of the existing concrete.

3. Completely remove unstable patches of asphaltic materials used to fill localized pits, depressions or badly spalled or disintegrated areas of the old pavement to the underlying concrete. Remove loose concrete or concrete with incipient spalling within or contiguous to such areas.

3.2. CONSTRUCTION

A. Tack Coat

1. Apply tack coat only when the air temperature is 32°F or more, and when the surface of the previously prepared base or existing surface is dry and reasonably free of loose dirt, dust or other foreign matter. Do not apply to surfaces with standing water, when the weather or roadbed conditions are unfavorable, or prior to impending rains.

2. Apply tack coat at the rate of 0.050 to 0.070 gallons per square yard, after dilution.

3. Apply tack coat to approximately that area of the surface that can reasonably be expected to be paved during the same day.

4. Keep tack coat free of contaminants that may affect bond.

B. Transportation & Delivery of Mixtures

1. General

a. Deliver the mixture to the paver receiving hopper at temperatures not lower than 250°F or within 20°F of the recommended plant mix temperature range given in the mixture design.

b. Cover all loads during inclement weather, when the ambient air temperature falls below 65°F, or when the length of haul would cause a loss of mixture temperature greater than 20°F from the designated delivery temperature.

c. Deliver and place mixture during daylight hours, unless artificial light satisfactory to the OWNER is provided.

2. Delivery Tickets

a. Furnish delivery tickets with each load of asphalt pavement containing the following information:

1) Date and time dispatched.

2) Name of asphaltic concrete plant.

3) Project name and location of delivery.

4) Truck number.

5) Type of material (i.e. binder, surface, asphaltic material for driveway or trail).

6) Asphalt grade designation.

7) Gross weight of the vehicle, tare weight of the vehicle and subtraction to obtain the net weight.

8) Signature of responsible party representing the CONTRACTOR.

b. If only a partial load of asphaltic material is used on the project, weigh the truck again with the remaining material to determine the actual weight of the material used. Show this information on the original ticket for that load.

C. Spreading & Finishing Mixture

1. General

a. Place asphaltic mixture only on a prepared, firm and compacted base, foundation course or existing pavement, which is substantially surface-dry and free of loose and foreign material.

b. Reject asphaltic mixture which, in the judgment of the ENGINEER, is not sufficiently mixed or is defective in any manner.

c. Remove and replace material that is loose and broken, mixed with dirt, or is otherwise unacceptable with fresh hot mixture. Also remove and replace areas with excess asphaltic material. Compact replaced mixture immediately flush with the adjacent pavement.

2. Weather Limitations

a. Do not place asphaltic mixture when the air temperature approximately 3 feet above ground at the site of the work, in the shade and away from the effects of artificial heat, is less than 36°F for upper layers or 32°F for lower layers.

b. Do not place asphaltic mixture over frozen sub-grade or base or where the roadbed underlying the foundation or base is temporarily unstable from the effects of frost heaving.

c. Do not place asphaltic mixture when it is raining or snowing. Remove and replace any mixture exposed to rain or snow before final rolling which has, in the judgment of the ENGINEER, been adversely affected. This will be at the CONTRACTOR's expense.

3. Pavers

   a. Ensure the screed or strike-off assembly produces a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture. Use a screed adjustable for the required crown and cross-section of the finished pavement.

   b. Ensure that pavers are equipped with a vibratory screed or strike-off assembly and use vibration at all times during paving. Do not extend the screed with one or more static extensions totaling more than 12-inches at either screed.

   c. Provide pavers with automatic controls for elevation and slope of the screed.

4. Joints

   a. Offset longitudinal joints from the preceding layer by 6-inches with the joint in the top layer at the centerline or lane line location.

   b. When placing an asphaltic mat next to an older asphaltic mat, saw the old mat back on a straight line to provide a butt-joint for the full depth of the new mat.

   c. Clean longitudinal and transverse joints that have become coated with dust. If necessary, paint with hot asphalt cement, cutback or emulsified asphalt to ensure a tightly bonded and sealed joint.

5. Adjusting Manholes, Catch Basins, Inlets & Valves

   a. Adjust manholes, catch basins, inlets, valves and other fixtures to the required alignment and grade. This work includes the repair of the upper-most 12-inches of the existing concrete masonry manhole, catch basin, or inlet structure.

END OF SECTION

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CONCRETE PAVEMENTS

PART 1 – GENERAL

1.1. SUMMARY

A. Section Includes

1. Material requirements, reinforcement, joints, placement procedures, and testing procedures.

B. Measurement Procedures

1. Concrete Pavement

a. Measured by the square yard, unless otherwise specified in the Contract Documents.

b. Fillets for widened sections will be measured as pavement.

c. A measured deduction for fixtures in the pavement will be made if the following exist:

1) The surface area of the fixture is greater than 9 square feet.

2. Reinforcement and dowel basket assemblies are included within concrete pavement. If a separate Bid Item exists for reinforcement or dowel baskets, these will be measured in accordance with the Contract Documents.

C. Payment Procedures

1. Concrete Pavement

a. Pay for concrete pavement by the square yard, unless specified otherwise in the Contract Documents.

b. Price includes:

1) Furnishing, installing, curing and protecting all materials incorporated into the work.

2) Saw cutting, jointing, sealing joints, reinforcement, preparation of the foundation, adjusting fixtures, testing, and required submittals.

2. Reinforcement

a. If a Bid Item exists, pay reinforcement according to the Specifications.

b. If no Bid Item exists, reinforcement is considered part of the concrete pavement. No additional compensation will be provided.

1.2. REFERENCES

A. American Association of State Highway and Transportation Officials (AASHTO)

1. C260 – Standard Specification for Air-Entraining Admixtures for Concrete

2. M31 – Standard Specification for Deformed and Plain Carbon and Low-Alloy Steel Bars for Concrete Reinforcement

3. M43 – Standard Specification for Sizes of Aggregate for Road and Bridge Construction

4. M153 – Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction

5. M213 – Standard Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)

6. T11 – Standard Method of Test for Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing

7. T19 – Standard Method of Test for Bulk Density ("Unit Weight") and Voids in Aggregates

8. T21 – Standard Method of Test for Organic Impurities in Fine Aggregates for Concrete

9. T22 – Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens

10. T23 – Standard Method of Test for Making and Curing Concrete Test Specimens in the Field

11. T24 – Standard Method of Test for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete

12. T27 – Standard Method of Test of Sieve Analysis of Fine and Coarse Aggregate

13. T71 – Standard Method of Test for Effect of Organic Impurities in Fine Aggregate on Strength of Mortar

14. T84 – Standard Method of Test for Specific Gravity and Absorption of Fine Aggregate

15. T85 – Standard Method of Test for Specific Gravity and Absorption of Coarse Aggregate

16. T103 – Standard Method of Test for Soundness of Aggregates by Freezing and Thawing

17. T104 – Standard Method of Test for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate

18. T113 – Standard Method of Test for Lightweight Particles in Aggregate

19. T152 – Standard Method of Test for Air Content of Freshly Mixed Concrete by the Pressure Method

B. American Society for Testing and Materials (ASTM)

1. C150 – Standard Specification for Portland Cement

2. C309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

3. C494 – Standard Specification for Chemical Admixtures for Concrete

4. C1260 – Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)

5. C1567 – Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combination of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)

6. D3542 – Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Bridges

7. D4791 – Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate

8. D6690 – Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

1.3. SUBMITTALS

A. Manufacturer's Certifications

1. Submit the following a minimum of 10 days prior to incorporation into the work for review by the ENGINEER:

a. Certified test analysis for all elements of the specifications both physical and chemical.

b. Certificate of compliance, signed by a responsible company officer, stating all material furnished meets Contract Specifications.

B. Materials

1. Submit the following certifications a minimum of 10 days prior to incorporating a material into the work for review by the ENGINEER:

a. Portland Cement

1) A manufacturer's written certification stating the source, amount, and composition of essential constituents and the composition of the final cement.

b. Reinforcement

1) A manufacturer's certified report of test or analysis showing the reinforcement conforms to the specification.

c. Expansion Joint Filler

1) A manufacturer's written certification stating it conforms to AASHTO M153 or AASHTO M213.

d. Joint Sealer

1) A manufacturer's written certification stating it is a gray sealant complying with ASTM D6690 for non-sagging grade NS, Class 25, traffic area use T, and either single-component Type S, or multi-component Type M.

e. Pre-Formed Elastomeric Compression Joint Sealers

1) A manufacturer's written certification stating it conforms to ASTM D3542.

f. Concrete Curing Compounds

1) A manufacturer's written certification stating Poly-Alpha-Methylstyrene (PAM) liquid curing compound conforms to ASTM C309, Type 2, Class B.

g. Aggregates

1) Sampling and test results according to the following:

a)	Lightweight Pieces in Aggregate	AASHTO T113
b)	Material Finer than No. 200 Sieve	AASHTO T11
c)	Unit Weight of Aggregate	AASHTO T19
d)	Organic Impurities in Sands	AASHTO T21

e)	Sieve Analysis of Aggregates	AASHTO T27
f)	Effect of Organic Impurities in Fine Aggregate	AASHTO T71
g)	Alkali Silica Reactivity of Aggregates	ASTM C1260
h)	Alkali Silica Reactivity of Combinations of Cementitious Materials and Aggregates	ASTM C1567
i)	Freeze-Thaw Soundness of Coarse Aggregate (Procedure B, 16 Cycles, with Methyl Alcohol)	AASHTO T103
j)	Sodium Sulfate Soundness of Coarse Aggregated (R-4, 5 Cycles)	AASHTO T104
k)	Specific Gravity and Absorption of Fine Aggregate	AASHTO T84
l)	Specific Gravity and Absorption of Coarse Aggregate	AASHTO T85
m)	Flat & Elongated Pieces Based on a 3:1 Ratio	ASTM D4791

C. Mix Design

1. Submit a mix design a minimum of 10 days prior to incorporation into the work for review by the ENGINEER.

2. Submit the brand and source for each cement used on the project.

3. Include the following in the mix design:

a. Any necessary adjustments for the specific gravity of the aggregates used.

b. Any necessary adjustments to master limits of the job mix required by the Contract Specifications.

PART 2 – PRODUCTS

2.1. CONCRETE MATERIALS

A. General

1. Concrete must consist of Portland cement, fine aggregate, coarse aggregate, and water proportioned and mixed according to the following:

a. Portland Cement

1) Type I Portland cement; ASTM C150.

2) Type II Portland cement: ASTM C150

3) Type III Portland cement; ASTM C150 for high early strength.

b. Air Entraining Admixtures

1) Conforms to AASHTO C260 for 7- and 28-day compressive and flexural strengths and resistance to freezing and thawing.

c. Retarding and Water Reducing Admixtures

1) Retarding admixtures must conform to ASTM C494, Type B.

2) Water reducing admixtures must conform to ASTM C494 Type A or D.

3) Do not add Type A and D admixtures to the same batch of concrete.

d. Water

1) Acceptable Water

a) Drinking water from municipal water supplies.

b) From other sources meeting the following requirements:

(1) Acidity, maximum of 0.1N NaOH to neutralize 200mL of water: 2mL
(2) Alkalinity, maximum of 0.1N HCL to neutralize 200 mL of water: 15 mL
(3) Maximum sulphate (SO4): 0.05%
(4) Maximum chloride: 0.10%
(5) Maximum total solids:
(a) Organic: 0.04%
(b) Inorganic: 0.15%

c) If utilizing water from non-municipal water supply, test at least 2 quarts of water for conformance with the listed requirements.

e. Aggregates

1) Fine Aggregates

a) Consisting of a combination of sand with fine gravel, crushed gravel, or crushed stoned consisting of hard, strong, durable particles.

b) Do not exceed the following percentages of deleterious materials:

Substance	Percent by Weight
Material Passing the No. 200 Sieve	3.5
Coal	1.0
Clay Lumps	1.0
Shale	1.0
Other Deleterious Substances Like Alkali, Mica, Coated Grains, Soft and Flaky Particles	1.0

c) Do not exceed a total of 3.0% by weight of coal, clay lumps, shale, and other deleterious substances.

d) Acceptable gradation:

Sieve	Percent Passing by Weight
3/8-Inch	100
No. 4	90–100
No. 16	45–85
No. 50	5-30
No. 100	0-10

2) Coarse Aggregates

a) Consisting of clean, hard, durable gravel, crushed gravel, crushed stone, or crushed concrete free of an excess of flat and elongated pieces.

Do not exceed the following percentages of deleterious materials:

Substance	Percent by Weight
Material Passing the No. 200 Sieve	1.5
Coal	1.0
Clay Lumps	0.3
Soft Fragments	5.0
Shale	1.0
Flat & Elongated Pieces Based on a 3:1 Ratio	15
Lightweight Pieces (material having a saturated surface-dry bulk specific gravity of less than 2.45) (AASHTO T113)	5.0

b) Do not exceed a total of 5.0% by weight of coal, clay lumps, shale, and soft fragments.

c) Acceptable physical properties:

(1) Percent wear 50 or less.
(2) Soundness loss 12% or less.
(3) Freeze-thaw average loss 18% or less.

d) Acceptable gradations:

Sieve	Percent Passing by Weight AASHTO M43	
	Size No. 1 AASHTO No. 67	Size No. 2 AASHTO No. 4
2-Inch	-	100
1½-Inch	-	90-100
1-Inch	100	20-55
¾-Inch	90-100	0-15
3/8-Inch	20-55	0-5
No. 4	0-10	-
No. 8	0-5	-

e) Composition of Concrete

(1) Conform to master limits in following chart:

Concrete Grade (2)(3)	Quantities for a Nominal Cubic Yard (1)						
	Cement (lb)	Class C Fly Ash (lb)	Slag (lb)	Weight Total Agg (lb)	Percent Fine Agg(4) (% total agg)	Design Water (gals)	Maximum Water (gals)
A	565	-	-	3120	30-40	27	32
A-FA (5)	395	170	-	3080	30-40	27	32
A-S (5)	395	-	170	3100	30-40	27	32
A-T (5)	395	Total fly ash and slag of 170 (6)		3090	30-40	27	32
C	660	-	-	2980	30-40	30	36
E	823	-	-	2810	50	32	35

(1) A nominal cubic yard has the tabulated weights of cement and aggregate, design mix water, and 6.0% air.
(2) For all grades, use a water-reducing admixture conforming to 501.2.3.3 and 501.3.2.4.4.
(3) For all grades, provide air entrainment as specified in 501.3.2.4.2.
(4) If using crushed stone or crushed concrete coarse aggregate, the ENGINEER may allow up to 45% fine aggregate.
(5) If using less than the tabulated maximum quantities of fly ash or slag, calculate the cement content by reducing the base cement content for the Grade A mix by the weight of fly ash or slag added.
(6) For ternary mixes containing cement, fly ash, and slag, if using less than the tabulated maximum combined quantity of fly ash and slag calculate the cement content by reducing the base cement content for the Grade A mix by the combined weight of fly ash and slag added.

(2) Use concrete Grade A unless specified otherwise in the Specifications.

f) High Early Strength Concrete

(1) If high early strength concrete is required by the specifications or chosen by the CONTRACTOR, it may be supplied with the following:

(a) High early strength cement (Type III).
(b) An additional amount of the same cement used in the original mix conforming to the Grade C or Grade E master limits.

(2) There will be no additional compensation if CONTRACTOR chooses high early strength concrete.

2.2. REINFORCEMENT

A. Provide epoxy coated reinforcement including dowel bars, tie bars, metal chairs, tie wire, and other appurtenances conforming to AASHTO M31.

2.3. EXPANSION JOINT FILLER

A. Conforms to AASHTO M153 or AASHTO M213.

2.4. JOINT SEALER

A. Conforms to ASTM D6690 Type II.

2.5. PRE-FORMED ELASTOMERIC COMPRESSION JOINT SEALERS

A. A manufacturer's written certification stating it conforms to ASTM D3542.

2.6. CONCRETE CURING MATERIALS

A. Poly-Alpha-Methylstyrene (PAM) liquid curing compound conforming to ASTM C309, Type 2, Class B; polyethylene sheeting and burlap.

2.7. EQUIPMENT

A. Acceptable concrete mixing sources:

1. Automatic or Semi-Automatic Batch Plants

2. Ready-Mixed Concrete plants

PART 3 – EXECUTION

3.1. PREPARATION

A. Preparation of Foundation

1. Includes, but is not limited to the following:

a. Repair unstable areas in the base course.

b. Place new base course in order to achieve pavement ready condition.

2. Preparation of Aggregate Base Course

a. Scarify, shape, trim, and compact the surface of base aggregate where necessary to provide the required cross-sectional contour, a profile free from abrupt changes in elevations and a surface free from pits, hollows, depressions or projections above the normal surface.

b. Shape and trim the foundation to the plan required line, grade, and cross section using long-wheel-base motor graders or sub-grade finishers designed for the purpose. Prepare foundation areas by hand or other methods approved by the ENGINEER if machine methods are impractical.

c. Prepare the foundation 1 foot wider on each side of the planned new pavement width (2 feet wider for integral pavement), or as shown on the plans.

d. Proof roll existing base aggregate using a loaded tandem axle truck. Remove and reconstruct areas showing appreciable displacement either laterally or longitudinally.

e. Moisten the foundation with water no less than 6 hours prior to placing the concrete. Provide moist but not saturated foundation at the time of placing concrete.

f. Prepare no less than 300 feet of foundation in advance of concrete placement operations unless approved by the ENGINEER.

B. Saw Cutting

1. Sawcut all pavements to be removed, as shown on the plans, or specified by the ENGINEER.

2. Perform saw cutting according to the following:

a. Place full depth saw cuts as indicated on the plans.

b. Perform saw cutting so that the surface to remain is vertical for its full depth.

C. Adjust Catch Basins, Inlets, Manholes, and Valve Boxes

1. Adjust catch basins, inlets, manholes, valve boxes, and other fixtures to the plan grade and alignment.

2. Catch basin, inlet, and manhole adjustment includes the repair of the uppermost 12-inches of the existing masonry structure.

3.2. CONSTRUCTION

A. Placing Concrete

1. Use self-propelled slip-form paving equipment wherever possible.

2. Slip-Form Paving

a. Advance the paving train at a uniform pace stopping and starting the paver as little as possible. If it is necessary to stop the forward movement of the paver, stop vibrating and tamping immediately, and restart when forward motion resumes.

b. Ensure that concrete is uniformly consolidated, free from honey combed areas, and has a consistent void-free closed surface.

c. Use machine methods to strike-off and consolidate the concrete as much as possible. Keep hand finishing efforts to a minimum to avoid over finishing. Hand-float the surface only as needed to produce a uniform surface and sharp corners. Do not use excess mortar to build up slab edges or round the slab corners.

d. Maintain an edge slump, exclusive of edge rounding, no greater than 3/8 inch at free edges or 1/8 inch where abutting other concrete. Correct excessive edge slump before concrete hardens and adjust operations to reduce edge slump to an acceptable lever. Tool pavement edges to a ¼-inch radius.

3. Formed Placement

a. Deposit concrete as near as possible to its final location. Consolidate uniformly throughout the depth and systematically across the are to produce a dense, homogenous pavement.

b. Strike off with vibrating screeds. Maintain a uniform quantity of concrete in front of the screed sufficient to fill voids or low areas. Do not make more than two (2) passes of the screed on a given area of concrete. Do not vibrate the concrete with the screed in a stationary position.

c. Augment vibrating screeds with internal vibration in front of the screed for placements over 5-inches deep. Insert single spud hand vibrators vertically in a grid pattern just long enough to bring mortar to the surface. Ensure that areas visibly affected by successive vibrator insertions overlap

by 2 to 3-inches. Do not drag spud vibrators through the concrete or move concrete laterally by vibration.

d. Use single spud hand vibrators to consolidate the concrete adjacent to transverse construction joints and along the full length of dowel basket assemblies. Vibrate to a depth that consolidates the concrete above and below the dowel bars. Vibrate along the forms as required to achieve a void-free formed edge. Do not allow vibrators to contact reinforcement, forms, or the grade during vibration.

e. Float the surface as needed to produce a uniform surface. Before the concrete's initial set, tool the pavement edges and along each side of transverse isolation joints, formed joints, transverse construction joints, and fixed forms to produce a true-to-line ¼-inch radius with a smooth, dense mortar finish.

f. Remove forms after the pavement has cured sufficiently to avoid damaging the concrete. Remove individual forms sooner in order to saw transverse joints at the contractor's discretion.

B. Reinforcement

1. Keep reinforcement clean, free of rust and scale, and supported to prevent distortion.

2. Protect epoxy coated steel from cumulative exposure to sunlight for more the two (2) months by covering with an opaque material. Clear plastic shrink wrap for dowel bars and dowel baskets is sufficient protection for up to four (4) months exposure.

C. Jointing

1. General

a. Construct joints perpendicular to the pavement surface. Join new work to existing concrete pavement using tie bars or dowel bars epoxied into the existing pavement.

b. Saw joints in a single cut. Begin sawing as soon as the concrete hardens sufficiently to prevent excessive raveling along the saw cut and finish before conditions induce uncontrolled cracking.

c. CONTRACTOR may temporarily hand tool joints to reduce the potential for early cracking. Ensure hand-tooled joints have a ¼-inch radius and are smooth and straight. Saw hand-tooled joints as soon as practicable.

2. Longitudinal Joints

a. Construct parallel to the centerline along lane edges. On two-lane pavements, construct along the pavement centerline. On multi-lane pavements, construct along traffic and taper lane edges.

3. Transverse Joints

a. Extend transverse joints across the entire pavement width and through curb or median placed integrally with pavement. When the pavement abuts existing pavement, curb and gutter, or median, construct transverse joints matching existing joints or cracks.

b. Form a construction joint at the end of each day's run or when an interruption long enough for the concrete to develop its initial set occurs by doing one of the following:

1) Set a header board to support dowel bars. Use production quality concrete, hand vibrated behind the header board, and protect protruding bars from anything that might damage the bars or weaken the bond.

2) Saw back the concrete full depth to expose solid concrete then drill and epoxy in dowel bars.

D. Surface Finishing

1. Finish the pavement surface after excess moisture disappears and while it is still possible to produce a uniform striated surface texture.

2. Provide an artificial turf drag surface finish. Use a seamless strip of artificial turf approximately full pavement width and of sufficient length to provide approximately 2 feet of turf in contact with the pavement surface. Pull the drag with a device that allows control of the time and rate of texturing. Operate the drag in a longitudinal direction parallel with the centerline to produce a straight finish. Weight the drag as necessary to maintain contact with the pavement. Keep the drag clean and free of particles of hardened concrete.

3. Where it is impracticable to apply a turf finish, apply a broom finish.

4. Restore pavement texture damaged by rain by re-dragging the concrete while still plastic.

E. Curing of Concrete

1. After finishing operations and as soon as the free water disappears, spray the concrete surface with a uniform coating of curing compound. Seal moisture in the concrete by applying a continuous water-impermeable film on exposed concrete surfaces.

2. Apply curing compound with a self-propelled mechanical power sprayer whenever practicable. Hand-operated spraying equipment is acceptable for the following:

a. Irregular, narrow, or variable width sections.

b. Re-coating applications or after form removal.

c. Special applications approved by the OWNER.

3. Apply curing compound uniformly at a minimum rate of one gallon per 200 square feet.

4. If the curing compound coating is damaged within 72 hours after application, immediately recoat the affected area. If removing forms within 72 hours after placing concrete, coat newly exposed surfaces within 30 minutes after form removal.

F. Cold Weather Concreting

1. Suspend concreting operations if the descending air temperature in the shade and away from artificial heat falls below 35˚F. Do not resume concreting operations until the ascending air temperature in the shade and away from artificial heat reaches 30˚F. Maintain the concrete temperature at the point of placement at or above 50˚F.

2. If necessary to maintain placement temperature, heat the water, aggregates, or both.

3. Do not heat the cement, add salt or chemical admixtures to the concrete mix to prevent freezing.

4. If the national weather service forecast for the construction area predicts temperatures of less than 28°F within the next 24 hours, or when freezing temperatures actually occur, provide the following thermal protection to concrete that has not met the opening criteria:

Predicted or Actual Air Temp.	Min. Level of Protection
22 to <28°F	Single layer of polyethylene.
17 to <22°F	Double layer of polyethylene.
<17°F	6” of loose, dry straw or hay between 2 layers of polyethylene.

G. Sealing Joints

1. Seal all construction, longitudinal and transverse concrete pavement and concrete curb and gutter joints, including the joint between the pavement and the curb and gutter, and the transverse joints on curb and gutter to the face of the curb. Tool the sealant flush with or recessed up to a maximum of 1/16-inch ± 1/64-inch below the concrete surface. Overbonding is not allowed. Remove material remaining on the surface of the pavement without damaging the sealant in the joint.

3.3. FIELD QUALITY CONTROL

A. Air Entrainment

1. Test in accordance with AASHTO T152.

2. Perform daily air tests according to the following:

a. Perform a minimum of two tests per day, per mix design.

b. Submit daily air test results signed by the CONTRACTOR or his representative to the OWNER or his representative.

3. Acceptable air content:

a. Slip-formed concrete: 7.0 percent, +/- 1.5 percent

b. Other concrete: 6.0 percent, +/- 1.5 percent

B. Concrete Consistency / Slump

1. Perform consistency/slump tests according to the following:

a. A minimum of two tests per day, per mix design.

b. Sign the slump test results.

c. Submit daily slump test results to OWNER or representative.

2. Acceptable Slump:

a. 2.5-inches or less for slip-formed pavement.

b. 4-inches or less for non-slip-formed pavement.

C. Compressive Strength Testing

1. Test Procedure

a. Make and test concrete cylinders according to AASHTO T22 and T23.

b. Perform testing of concrete cylinders by an OWNER approved, independent, certified testing laboratory.

2. Testing Frequency

a. At a minimum, perform testing according to the following:

1) Once per day.

2) One test for each 150 cubic yards.

b. Make a minimum of three cylinders for each test.

c. For each test, record the station and location where the cylinders were made.

3. Compressive Strength Requirements

a. Test cylinders at 7 days and 28 days.

b. Prior to opening any new pavement to traffic, two cylinder tests must show a minimum of 3000 psi.

c. Obtain the OWNER'S approval prior to opening any new pavement to traffic.

D. Concrete Test Results

1. Submit all test results, from an OWNER approved certified testing laboratory, within 48 hours of test completion.

2. The test results should include at a minimum the following:

a. Compressive Strength of Concrete Cylinders or Compressive Strength of Concrete Cores

b. Slump

c. Air Entrainment

3. Send a copy of the test results to the concrete supplier, OWNER and ENGINEER.

END OF SECTION

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CONCRETE CURB & GUTTER

PART 1 – GENERAL

1.1. SUMMARY

A. Section Includes

1. Material requirements, reinforcement, joints, placement procedures, and testing procedures.

B. Measurement Procedures

1. Concrete Curb & Gutter

a. Measure curb or curb and gutter by the linear foot unless specified otherwise in the Contract Documents. Measure through drainage structures.

b. Measure curb or curb and gutter along either of the following:

1) Flow line of gutter.

2) Face of curb.

C. Payment Procedures

1. Concrete Curb & Gutter

a. Price includes:

1) Furnishing, installing, curing and protecting all materials incorporated into the work.

2) Saw cutting, jointing, sealing joints, reinforcement, preparation of the foundation, adjusting fixtures, testing, and required submittals.

2. Reinforcement

a. If a Bid Item exists, pay reinforcement according to the Specifications.

b. If no Bid Item exists, reinforcement is considered part of the concrete pavement. No additional compensation will be provided.

1.2. REFERENCES

A. American Association of State Highway and Transportation Officials (AASHTO)

1. C260 – Standard Specification for Air-Entraining Admixtures for Concrete

2. M31 – Standard Specification for Deformed and Plain Carbon and Low-Alloy Steel Bars for Concrete Reinforcement

3. M43 – Standard Specification for Sizes of Aggregate for Road and Bridge Construction

4. M153 – Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction

5. M213 – Standard Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)

6. T11 – Standard Method of Test for Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing

7. T19 – Standard Method of Test for Bulk Density ("Unit Weight") and Voids in Aggregates

8. T21 – Standard Method of Test for Organic Impurities in Fine Aggregates for Concrete

9. T22 – Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens

10. T23 – Standard Method of Test for Making and Curing Concrete Test Specimens in the Field

11. T27 – Standard Method of Test of Sieve Analysis of Fine and Coarse Aggregate

12. T71 – Standard Method of Test for Effect of Organic Impurities in Fine Aggregate on Strength of Mortar

13. T84 – Standard Method of Test for Specific Gravity and Absorption of Fine Aggregate

14. T85 – Standard Method of Test for Specific Gravity and Absorption of Coarse Aggregate

15. T103 – Standard Method of Test for Soundness of Aggregates by Freezing and Thawing

16. T104 – Standard Method of Test for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate

17. T113 – Standard Method of Test for Lightweight Particles in Aggregate

18. T152 – Standard Method of Test for Air Content of Freshly Mixed Concrete by the Pressure Method

B. American Society for Testing and Materials (ASTM)

1. C150 – Standard Specification for Portland Cement

2. C309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

3. C494 – Standard Specification for Chemical Admixtures for Concrete

4. C1260 – Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)

5. C1567 – Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combination of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)

6. D4791 – Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate

7. D6690 – Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

1.3. SUBMITTALS

A. Manufacturer's Certifications

1. Submit the following a minimum of 10 days prior to incorporation into the work for review by the ENGINEER.

a. Certified test analysis for all elements of the Specifications both physical and chemical.

b. Certificate of compliance, by responsible company officer, stating all material furnished meets Contract Specifications.

B. Materials

1. Submit the following certifications a minimum of 10 days prior to incorporating a material into the work for review by the ENGINEER:

a. Portland Cement

1) A manufacturer’s written certification stating the source, amount, and composition of essential constituents and the composition of the final cement.

b. Reinforcement

1) A manufacturer's certified report of test or analysis showing the reinforcement conforms to the Specification.

c. Expansion Joint Filler

1) A manufacturer's written certification stating it conforms to AASHTO M153 or AASHTO M213.

d. Joint Sealer

1) A manufacturer's written certification stating it is a gray sealant complying with ASTM D6690 for non-sagging grade NS, Class 25, traffic area use T, and either single-component Type S, or multi-component Type M.

e. Concrete Curing Compounds

1) A manufacturer's written certification stating Poly-Alpha-Methylstyrene (PAM) liquid curing compound conforms to ASTM C309, Type 2, Class B.

f. Aggregates

1) Sampling and test results according to the following:

a)	Lightweight Pieces in Aggregate	AASHTO T113
b)	Material Finer than No. 200 Sieve	AASHTO T11
c)	Unit Weight of Aggregate	AASHTO T19
d)	Organic Impurities in Sands	AASHTO T21
e)	Sieve Analysis of Aggregates	AASHTO T27
f)	Effect of Organic Impurities in Fine Aggregate	AASHTO T71
g)	Alkali Silica Reactivity of Aggregates	ASTM C1260
h)	Alkali Silica Reactivity of Combinations of Cementitious Materials and Aggregates	ASTM C1567
i)	Freeze-Thaw Soundness of Coarse Aggregate (Procedure B, 16 Cycles, with Methyl Alcohol)	AASHTO T103
j)	Sodium Sulfate Soundness of Coarse Aggregated (R-4, 5 Cycles)	AASHTO T104

k) Specific Gravity and Absorption of Fine Aggregate AASHTO T84

l) Specific Gravity and Absorption of Coarse Aggregate AASHTO T85

m) Flat & Elongated Pieces Based on a 3:1 Ratio ASTM D4791

C. Mix Design

1. Submit a mix design a minimum of 10 days prior to incorporation into the work for review by the ENGINEER.

2. Submit the brand and source for each cement used on the project.

3. Include the following in the mix design:

a. Any necessary adjustments for the specific gravity of the aggregates used.

b. Any necessary adjustments to master limits of the job mix required by the Contract Specifications.

PART 2 – PRODUCTS

2.1. MATERIALS

A. Concrete

1. Concrete must consist of Portland cement, fine aggregate, coarse aggregate, and water proportioned and mixed according to the following:

a. Portland Cement

1) Type I Portland cement; ASTM C150.

2) Type II Portland cement: ASTM C150

3) Type III Portland cement: ASTM C150 for high early strength.

b. Air Entraining Admixtures

1) Conforms to AASHTO C260 for 7- and 28-day compressive and flexural strengths and resistance to freezing and thawing.

c. Retarding and Water Reducing Admixtures

1) Retarding admixtures must conform to ASTM C494, Type B.

2) Water reducing admixtures must conform to ASTM C494 Type A or D.

3) Do not add Type A and D admixtures to the same batch of concrete.

d. Water

1) Acceptable water

a) Drinking water from municipal water supplies.

b) From other sources meeting the following requirements:

(1) Acidity, maximum of 0.1N NaOH to neutralize 200mL of water: 2mL

(2) Alkalinity, maximum of 0.1N HCL to neutralize 200 mL of water: 15 mL

(3) Maximum sulphate (SO4): 0.05%

(4) Maximum chloride: 0.10%

(5) Maximum total solids:

(a) Organic: 0.04%

(b) Inorganic: 0.15%

c) If utilizing water from non-municipal water supply, test at least 2 quarts of water for conformance with the listed requirements.

e. Aggregates

1) Fine Aggregates

a) Consisting of a combination of sand with fine gravel, crushed gravel, or crushed stoned consisting of hard, strong, durable particles.

b) Do not exceed the following percentages of deleterious materials:

Substance	Percent by Weight
Material Passing the No. 200 Sieve	3.5
Coal	1.0
Clay Lumps	1.0
Shale	1.0

Substance	Percent by Weight
Other Deleterious Substances Like Alkali, Mica, Coated Grains, Soft and Flaky Particles	1.0

c) Do not exceed a total of 3.0% by weight of coal, clay lumps, shale, and other deleterious substances.

d) Acceptable gradation:

Sieve	Percent Passing by Weight
3/8-Inch	100
No. 4	90–100
No. 16	45–85
No. 50	5-30
No. 100	0-10

2) Coarse Aggregates

a) Consisting of clean, hard, durable gravel, crushed gravel, crushed stone, or crushed concrete free of an excess of flat and elongated pieces.

b) Do not exceed the following percentages of deleterious materials:

Substance	Percent by Weight
Material Passing the No. 200 Sieve	1.5
Coal	1.0
Clay Lumps	0.3
Soft Fragments	5.0
Shale	1.0
Flat & Elongated Pieces Based on a 3:1 Ratio	15
Lightweight Pieces (material having a saturated surface-dry bulk specific gravity of less than 2.45) (AASHTO T113)	5.0

c) Do not exceed a total of 5.0% by weight of coal, clay lumps, shale, and soft fragments.

d) Acceptable physical properties:

(1) Wear less than 50 or less.

(2) Soundness loss 12% or less.

(3) Freeze-thaw average loss 18% or less.

e) Acceptable gradations:

Sieve	Percent Passing by Weight AASHTO M43	
	Size No. 1 AASHTO No. 67	Size No. 2 AASHTO No. 4
2-Inch	-	100
1½-Inch	-	90-100
1-Inch	100	20-55
¾-Inch	90-100	0-15
3/8-Inch	20-55	0-5
No. 4	0-10	-
No. 8	0-5	-

f. Composition of Concrete

1) Conform to master limits in following chart:

Concrete Grade (2)(3)	Quantities for a Nominal Cubic Yard (1)						
	Cement (lb)	Class C Fly Ash (lb)	Slag (lb)	Weight Total Agg (lb)	Percent Fine Agg(4) (% total agg)	Design Water (gals)	Maximum Water (gals)
A	565	-	-	3120	30-40	27	32
A-FA (5)	395	170	-	3080	30-40	27	32
A-S (5)	395	-	170	3100	30-40	27	32
A-T (5)	395	Total fly ash and slag of 170 (6)		3090	30-40	27	32
C	660	-	-	2980	30-40	30	36
E	823	-	-	2810	50	32	35

(1) A nominal cubic yard has the tabulated weights of cement and aggregate, design mix water, and 6.0% air.

(2) For all grades, use a water-reducing admixture conforming to 501.2.3.3 and 501.3.2.4.4.

(3) For all grades, provide air entrainment as specified in 501.3.2.4.2.

(4) If using crushed stone or crushed concrete coarse aggregate, the ENGINEER may allow up to 45% fine aggregate.

(5) If using less than the tabulated maximum quantities of fly ash or slag, calculate the cement content by reducing the base cement content for the Grade A mix by the weight of fly ash or slag added.

(6) For ternary mixes containing cement, fly ash, and slag, if using less than the tabulated maximum combined quantity of fly ash and slag calculate the cement content by reducing the base cement content for the Grade A mix by the combined weight of fly ash and slag added.

2) Use concrete grade A unless specified otherwise in the Specifications.

g. High Early Strength Concrete

1) If high early strength concrete is required by the specifications or chosen by the CONTRACTOR it may be supplied with the following:

a) High early strength cement (Type III).

b) An additional amount of the same cement used in the original mix conforming to the Grade C or Grade E master limits.

2) There will be no additional compensation if CONTRACTOR chooses high early strength concrete.

B. Reinforcement

1. Provide epoxy coated reinforcement including reinforcing steel and tie bars conforming to AASHTO M31.

C. Expansion Joint Filler

1. Conforms to AASHTO M153 or AASHTO M213.

D. Joint Sealer

1. Conforms to ASTM D6690 Type II.

E. Concrete Curing Materials

1. Poly-Alpha-Methylstyrene (PAM) liquid curing compound conforming to ASTM C309, Type 2, Class B; polyethylene sheeting and burlap.

2.2. EQUIPMENT

A. Acceptable concrete mixing sources:

1. Automatic or Semi-Automatic Batch Plants

2. Ready-Mixed Concrete Plants

PART 3 – EXECUTION

3.1. PREPARATION

A. Preparation of Foundation

1. Includes, but is not limited to the following:

a. Repair unstable areas in the base course.

b. Place new base course in order to achieve curb and gutter ready condition.

2. Preparation of Aggregate Base Course

a. Scarify, shape, trim, and compact the surface of base aggregate where necessary to provide the required cross-sectional contour, a profile free from abrupt changes in elevations and a surface free from pits, hollows, depressions or projections above the normal surface.

b. Shape and trim the foundation to the plan required line, grade and cross section using long-wheel-base motor graders or sub-grade finishers designed for the purpose. Prepare foundation areas by hand or other methods approved by the ENGINEER if machine methods are impractical.

c. Prepare the foundation 1 foot wider on each side of the planned new curb and gutter width, or as shown on the plans.

d. Proof roll existing base aggregate using a loaded tandem axle truck. Remove and reconstruct areas showing appreciable displacement either laterally or longitudinally.

e. Moisten the foundation with water no less than 6 hours prior to placing the concrete. Provide moist but not saturated foundation at the time of placing concrete.

f. Prepare no less than 300 feet of foundation in advance of concrete placement operations unless approved by the ENGINEER.

B. Saw Cutting

1. Sawcut all curb and gutter to be removed, as shown on the Plans, or specified by the ENGINEER.

2. Perform saw cutting according to the following:

a. Place full depth saw cuts as indicated on the Plans.

b. Perform saw cutting so that the surface to remain is vertical for its full depth.

C. Adjust Catch Basins, Inlets, Manholes, and Valve Bowes

1. Adjust catch basins, inlets, manholes, valve boxes, and other fixtures to the plan grade and alignment.

2. Catch basin, inlet, and manhole adjustment includes the repair of the uppermost 12-inches of the existing masonry structure.

3.2. CONSTRUCTION

A. Placing Concrete Curb and Gutter

1. Use self-propelled slip-form paving equipment wherever possible.

2. Deposit, consolidate, and slip form the concrete to the required section. If not using a slip form process, deposit concrete in the forms, spade against the forms, and consolidate thoroughly. Use mechanical vibration for concrete with slump less than 2-inches. After consolidation strike off, and finish to the required section.

3. Unless constructed integrally with concrete pavement, securely anchor concrete curb, gutter, or curb & gutter, to adjoining concrete pavement by placing specified tie bars if and as the plans show.

4. Tie new work to existing concrete pavement using tie bars driven or epoxied into the existing concrete. Use only cast-in-place tie bars in construction joints between pavement and curb, gutter, or curb & gutter placed under the contract.

5. Form contraction joints by sawing or forming an induced plane of weakness at least 2-inches deep in the curb, gutter, or curb & gutter directly opposite construction or contraction joints in adjoining concrete pavement and at the required spacing when adjoining asphaltic pavement. Space all joints between 6 feet and approximately 20 feet apart.

6. Saw as soon as possible after the concrete sets sufficiently to prevent raveling during sawing, and before shrinkage cracking takes place. If this method results in random cracking, then form an induced plane of weakness.

7. Construct depressions in or revisions of the curb, in curb, or curb & gutter to accommodate curb ramps and driveways at locations and as shown on the plans.

B. Finishing

1. Float and brush the face surfaces of the curb or curb and gutter. Round the back edge of curbs, the edge of the gutter next to the pavement, and edges next to expansion joints or induced contraction joints, with a ¼-inch radius edger.

C. Expansion Joints

1. Place expansion joints at the following locations:

a. Where tangent and radial curb & gutter meet.

b. On each side of every inlet 3 feet from the inlet but no closer than 6 feet from another joint.

c. Between 6 feet and 300 feet apart on tangent sections.

d. Matching expansion joints in adjacent concrete pavement.

2. Set joints at right angles to the face of curb and at right angles to the flow line and surface of gutters.

3. Use ¾-inch wide joint filler.

D. Curing of Concrete

1. After finishing operations and as soon as the free water disappears, spray the concrete surface with a uniform coating of curing compound. Seal moisture in the concrete by applying a continuous water-impermeable film on exposed concrete surfaces.

2. Apply curing compound with a self-propelled mechanical power sprayer whenever practicable. Hand-operated spraying equipment is acceptable for the following:

   a. Irregular, narrow, or variable width sections.

   b. Re-coating applications or after form removal.

   c. Special applications approved by the OWNER.

3. Apply curing compound uniformly at a minimum rate of one gallon per 200 square feet.

4. If the curing compound coating is damaged within 72 hours after application, immediately recoat the affected area. If removing forms within 72 hours after placing concrete, coat newly exposed surfaces within 30 minutes after form removal.

E. Cold Weather Concreting

1. Suspend concreting operations if the descending air temperature in the shade and away from artificial heat falls below 35˚F. Do not resume concreting operations until the ascending air temperature in the shade and away from artificial heat reaches 30˚F. Maintain the concrete temperature at the point of placement at or above 50˚F.

2. If necessary to maintain placement temperature, heat the water, aggregates, or both.

3. Do not heat the cement, add salt or chemical admixtures to the concrete mix to prevent freezing.

4. If the national weather service forecast for the construction area predicts temperatures of less than 28°F within the next 24 hours, or when freezing temperatures actually occur, provide the following thermal protection to concrete that has not met the opening criteria:

Predicted or Actual Air Temp.	Min. Level of Protection
22 to <28°F	Single layer of polyethylene.
17 to <22°F	Double layer of polyethylene.
<17°F	6" of loose, dry straw or hay between 2 layers of polyethylene.

F. Sealing Joints

1. If adjacent or integral to sealed concrete pavement, seal all concrete curb and gutter joints, including the joint between the concrete pavement and the curb and gutter, and the transverse joints on curb and gutter to the face of the curb. Tool the sealant flush with or recessed up to a maximum of 1/16-inch ± 1/64-inch below the concrete surface. Overbonding will not be allowed. Remove material remaining on the surface of the pavement without damaging the sealant in the joint.

3.3. FIELD QUALITY CONTROL

A. Air Entrainment

1. Test in accordance with AASHTO T152.

2. Perform daily air tests according to the following:

a. Perform a minimum of two tests per day, per mix design.

b. Submit daily air test results signed by the CONTRACTOR or his representative to the OWNER or his representative.

3. Acceptable air content:

a. Slip-formed concrete: 7.0 percent, +/- 1.5 percent

b. Other concrete: 6.0 percent, +/- 1.5 percent

B. Concrete Consistency / Slump

1. Perform consistency/slump tests according to the following:

a. A minimum of two tests per day, per mix design.

b. Sign the slump test results.

c. Submit daily slump test results to OWNER or representative.

2. Acceptable Slump

a. 2.5-inches or less for slip-formed pavement.

b. 4-inches or less for non-slip-formed pavement.

C. Compressive Strength Testing

1. Test Procedure

a. Make and test concrete cylinders according to AASHTO T22 and T23.

b. Perform testing of concrete cylinders by an OWNER approved, independent, certified testing laboratory.

2. Testing Frequency

a. At a minimum, perform testing according to the following:

1) Once per day.

2) One test for each 150 cubic yards.

b. Make a minimum of three cylinders for each test.

c. For each test, record the station and location where the cylinders were made.

3. Compressive Strength Requirements

a. Test cylinders at 7 days and 28 days.

b. Prior to opening any new curb & gutter to traffic, two cylinder tests must show a minimum of 3000 psi.

c. Obtain the OWNER'S approval prior to opening any new pavement to traffic.

D. Concrete Test Results

1. Submit all test results, from an OWNER approved certified testing laboratory, within 48 hours of test completion.

2. The test results should include at a minimum the following:

a. Compressive Strength of Concrete Cylinders or Compressive Strength of Concrete Cores

b. Slump

c. Air Entrainment

3. Send a copy of the test results to the concrete supplier, OWNER and ENGINEER.

END OF SECTION

SECTION 32 16 23.00

CONCRETE SIDEWALK & DRIVEWAYS

PART 1 – GENERAL

1.1. SECTION INCLUDES

A. Material requirements, reinforcement, joints, placement procedures, and testing procedures.

1.2. MEASUREMENT PROCEDURES

A. Concrete Sidewalk & Driveway

1. Measure 6-inch concrete sidewalk, including handicap ramps and driveways, by the square foot unless specified otherwise in the Contract Documents.

2. Measure 4-inch concrete sidewalk by the square foot unless specified otherwise in the Contract Documents.

1.3. PAYMENT PROCEDURES

A. Concrete Sidewalk & Driveway

1. Price includes:

a. Furnishing, installing, curing and protecting all materials incorporated into the work.

b. Saw cutting, jointing, sealing joints, reinforcement, preparation of the foundation, adjusting fixtures, testing, and required submittals.

B. Reinforcement

1. If a Bid Item exists, pay reinforcement according to the Specifications.

2. If no Bid Item exists, reinforcement is considered part of the concrete sidewalk or driveway. No additional compensation will be provided.

C. Pay for 6-inch concrete sidewalk, including handicap ramps and driveways, by the square foot unless specified otherwise in the Contract Documents.

D. Pay for 4-inch concrete sidewalk by the square foot unless specified otherwise in the Contract Documents.

1.4. REFERENCES

A. American Association of State Highway and Transportation Officials (AASHTO)

1. C260 – Standard Specification for Air-Entraining Admixtures for Concrete

2. M31 – Standard Specification for Deformed and Plain Carbon and Low-Alloy Steel Bars for Concrete Reinforcement

3. M43 – Standard Specification for Sizes of Aggregate for Road and Bridge Construction

4. M153 – Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction

5. M213 – Standard Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)

6. T11 – Standard Method of Test for Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing

7. T19 – Standard Method of Test for Bulk Density ("Unit Weight") and Voids in Aggregates

8. T21 – Standard Method of Test for Organic Impurities in Fine Aggregates for Concrete

9. T22 – Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens

10. T23 – Standard Method of Test for Making and Curing Concrete Test Specimens in the Field

11. T27 – Standard Method of Test of Sieve Analysis of Fine and Coarse Aggregate

12. T71 – Standard Method of Test for Effect of Organic Impurities in Fine Aggregate on Strength of Mortar

13. T84 – Standard Method of Test for Specific Gravity and Absorption of Fine Aggregate

14. T85 – Standard Method of Test for Specific Gravity and Absorption of Coarse Aggregate

15. T103 – Standard Method of Test for Soundness of Aggregates by Freezing and Thawing

16. T104 – Standard Method of Test for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate

17. T113 – Standard Method of Test for Lightweight Particles in Aggregate

18. T152 – Standard Method of Test for Air Content of Freshly Mixed Concrete by the Pressure Method

B. American Society for Testing and Materials (ASTM)

1. C150 – Standard Specification for Portland Cement

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3. C494 – Standard Specification for Chemical Admixtures for Concrete

4. C1260 – Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)

5. C1567 – Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combination of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)

6. D4791 – Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate

1.5. SUBMITTALS

A. Manufacturer's Certifications

1. Submit the following a minimum of 10 days prior to incorporation into the work for review by the ENGINEER.

a. Certified test analysis for all elements of the Specifications both physical and chemical.

b. Certificate of compliance, by responsible company officer, stating all material furnished meets Contract Specifications.

B. Materials

1. Submit the following certifications a minimum of 10 days prior to incorporating a material into the work for review by the ENGINEER:

a. Portland Cement

1) A manufacturer’s written certification stating the source, amount, and composition of essential constituents and the composition of the final cement.

b. Reinforcement

1) A manufacturer’s certified report of test or analysis showing the reinforcement conforms to the specification.

c. Expansion Joint Filler

1) A manufacturer's written certification stating it conforms to AASHTO M153 or AASHTO M213.

d. Concrete Curing Compounds

1) A manufacturer's written certification stating Poly-Alpha-Methylstyrene (PAM) liquid curing compound conforms to ASTM C309, Type 2, Class B.

e. Aggregates

1) Sampling and test results according to the following:

a)	Lightweight Pieces in Aggregate	AASHTO T113
b)	Material Finer than No. 200 Sieve	AASHTO T11
c)	Unit Weight of Aggregate	AASHTO T19
d)	Organic Impurities in Sands	AASHTO T21
e)	Sieve Analysis of Aggregates	AASHTO T27
f)	Effect of Organic Impurities in Fine Aggregate	AASHTO T71
g)	Alkali Silica Reactivity of Aggregates	ASTM C1260
h)	Alkali Silica Reactivity of Combinations of Cementitious Materials and Aggregates	ASTM C1567
i)	Freeze-Thaw Soundness of Coarse Aggregate (Procedure B, 16 Cycles, with Methyl Alcohol)	AASHTO T103
j)	Sodium Sulfate Soundness of Coarse Aggregated (R-4, 5 Cycles)	AASHTO T104
k)	Specific Gravity and Absorption of Fine Aggregate	AASHTO T84
l)	Specific Gravity and Absorption of Coarse Aggregate	AASHTO T85
m)	Flat & Elongated Pieces Based on a 3:1 Ratio	ASTM D4791

C. Mix Design

1. Submit a mix design a minimum of 10 days prior to incorporation into the work for review by the ENGINEER.

2. Submit the brand and source for each cement used on the project.

3. Include the following in the mix design:

a. Any necessary adjustments for the specific gravity of the aggregates used.

b. Any necessary adjustments to master limits of the job mix required by the Contract Specifications.

PART 2 – PRODUCTS

2.1. MATERIALS

A. Concrete

1. Concrete must consist of Portland cement, fine aggregate, coarse aggregate, and water proportioned and mixed according to the following:

a. Portland Cement

1) Type I Portland cement; ASTM C150.

2) Type II Portland cement: ASTM C150

3) Type III Portland cement: ASTM C150 for high early strength.

b. Air Entraining Admixtures

1) Conforms to AASHTO C260 for 7- and 28-day compressive and flexural strengths and resistance to freezing and thawing.

c. Retarding and Water Reducing Admixtures

1) Retarding admixtures must conform to ASTM C494, Type B.

2) Water reducing admixtures must conform to ASTM C494, Type A or D.

3) Do not add Type A and D admixtures to the same batch of concrete.

d. Water

1) Acceptable Water

a) Drinking water from municipal water supplies.

b) From other sources meeting the following requirements:

(1) Acidity, maximum of 0.1N NaOH to neutralize 200mL of water: 2mL
(2) Alkalinity, maximum of 0.1N HCL to neutralize 200 mL of water: 15 mL
(3) Maximum sulphate (SO4): 0.05%
(4) Maximum chloride: 0.10%
(5) Maximum total solids:
(a) Organic: 0.04%
(b) Inorganic: 0.15%

c) If utilizing water from non-municipal water supply, test at least 2 quarts of water for conformance with the listed requirements.

e. Aggregates

1) Fine Aggregates

a) Consisting of a combination of sand with fine gravel, crushed gravel, or crushed stoned consisting of hard, strong, durable particles.

b) Do not exceed the following percentages of deleterious materials:

Substance	Percent by Weight
Material Passing the No. 200 Sieve	3.5
Coal	1.0
Clay Lumps	1.0
Shale	1.0
Other Deleterious Substances Like Alkali, Mica, Coated Grains, Soft and Flaky Particles	1.0

c) Do not exceed a total of 3.0% by weight of coal, clay lumps, shale, and other deleterious substances.

d) Acceptable Gradation:

Sieve	Percent Passing by Weight
3/8 Inch	100
No. 4	90-100
No. 16	45-85
No. 50	5-30
No. 100	0-10

2) Coarse Aggregates

a) Consisting of clean, hard, durable gravel, crushed gravel, crushed stone, or crushed concrete free of an excess of flat and elongated pieces.

b) Do not exceed the following percentages of deleterious materials:

Substance	Percent by Weight
Material Passing the No. 200 Sieve	1.5
Coal	1.0
Clay Lumps	0.3
Soft Fragments	5.0
Shale	1.0
Flat & Elongated Pieces Based on a 3:1 Ratio	15
Lightweight Pieces (Material having a saturated surface-dry bulk specific gravity of less than 2.45) (AASHTO T113)	5.0

c) Do not exceed a total of 5.0% by weight of coal, clay lumps, shale, and soft fragments.

d) Acceptable Physical Properties:

(1) Wear less than 50 or less.
(2) Soundness loss 12% or less.
(3) Freeze-thaw average loss 18% or less.

e) Acceptable Gradations:

Sieve	Percent Passing by Weight	
	Size No. 1 AASHTO No. 67	Size No. 2 AASHTO No. 4
2 Inch	-	100
1½ Inch	-	90-100
1 Inch	100	20-55

Sieve	Percent Passing by Weight	
	Size No. 1 AASHTO No. 67	Size No. 2 AASHTO No. 4
¾ Inch	90-100	0-15
3/8 Inch	20-55	0-5
No. 4	0-10	-
No. 8	0-5	-

f) Composition of Concrete

(1) Conform to master limits in following chart:

Concrete Grade (2)(3)	Quantities for a Nominal Cubic Yard (1)						
	Cement (lb)	Class C Fly Ash (lb)	Slag (lb)	Weight Total Agg (lb)	Percent Fine Agg(4) (% total agg)	Design Water (gals)	Maximum Water (gals)
A	565	-	-	3120	30-40	27	32
A-FA (5)	395	170	-	3080	30-40	27	32
A-S (5)	395	-	170	3100	30-40	27	32
A-T (5)	395	Total fly ash and slag of 170 (6)		3090	30-40	27	32
C	660	-	-	2980	30-40	30	36
E	823	-	-	2810	50	32	35

(1) A nominal cubic yard has the tabulated weights of cement and aggregate, design mix water, and 6.0% air.
(2) For all grades, use a water-reducing admixture conforming to 501.2.3.3 and 501.3.2.4.4.
(3) For all grades, provide air entrainment as specified in 501.3.2.4.2.
(4) If using crushed stone or crushed concrete coarse aggregate, the ENGINEER may allow up to 45% fine aggregate.
(5) If using less than the tabulated maximum quantities of fly ash or slag, calculate the cement content by reducing the base cement content for the Grade A mix by the weight of fly ash or slag added.
(6) For ternary mixes containing cement, fly ash, and slag, if using less than the tabulated maximum combined quantity of fly ash and slag calculate the cement content by reducing the base cement content for the Grade A mix by the combined weight of fly ash and slag added.

(2) Use concrete grade A unless specified otherwise in the specifications.

g) High Early Strength Concrete

(1) If high early strength concrete is required by the specifications or chosen by the CONTRACTOR it may be supplied with the following:

(a) High early strength cement (Type III).
(b) An additional amount of the same cement used in the original mix conforming to the Grade C or Grade E master limits.

(2) There will be no additional compensation if CONTRACTOR chooses high early strength concrete.

B. Reinforcement

1. Provide epoxy coated reinforcement including reinforcing steel and tie bars conforming to AASHTO M31 if required in the Contract.

C. Expansion Joint Filler

1. Conforms to AASHTO M153 or AASHTO M213.

D. Concrete Curing Materials

1. Poly-Alpha-Methylstyrene (PAM) liquid curing compound conforming to ASTM C309, Type 2, Class B; polyethylene sheeting and burlap.

2.2. EQUIPMENT

A. Acceptable Concrete Mixing Sources

1. Automatic or Semi-Automatic Batch Plants.

2. Ready-Mixed Concrete Plants.

PART 3 – EXECUTION

3.1. PREPARATION

A. Preparation of Foundation

1. Includes, but is not limited to the following:

a. Repair unstable areas in the base course.

b. Place new base course in order to achieve concrete driveway or sidewalk ready condition.

2. Preparation of Aggregate Base Course

a. Tamp or compact the base aggregate to ensure stability.

b. Construct the sidewalk or driveway foundation at least 1 foot wider on each side than the proposed sidewalk. Construct sidewalks on a 4-inch layer of compacted aggregate base course and driveways on a 6-inch layer of compacted aggregate base course unless otherwise shown in the Contract Documents.

B. Saw Cutting

1. Sawcut all driveway or sidewalk to be removed, as shown on the Plans, or specified by the ENGINEER.

2. Perform saw cutting according to the following:

a. Place full depth saw cuts as indicated on the Plans.

b. Perform saw cutting so that the surface to remain is vertical for its full depth.

C. Adjust Catch Basins, Inlets, Manholes, and Valve Boxes

1. Adjust catch basins, inlets, manholes, valve boxes, and other fixtures to the plan grade and alignment.

2. Catch basin, inlet, and manhole adjustment includes the repair of the uppermost 12-inches of the existing masonry structure.

3.2. CONSTRUCTION

A. Placing Concrete Sidewalk and Driveway

1. Place the concrete on a moist foundation and consolidate sufficiently to bring the mortar to the surface, then strike-off and finish to a true and even surface. Brush or lightly broom the surface before the mortar sets.

2. Embed detectable warning field array in plastic concrete in curb ramps.

3. Tie new driveway to existing concrete driveway using tie bars driven or epoxied into the existing driveway if required in the contract.

B. Finishing

1. Brush or lightly broom the sidewalk or driveway surface before the mortar sets.

2. Round the edge along forms and unsawed joints with a 1/2-inch radius edger.

C. Reinforcement

1. If required, use reinforcement conforming to, and place it as specified on, the plans.

D. Joints

1. Expansion Joints

a. Place expansion joints at the following locations:

1) Between sidewalk or driveway and back of curb & gutter.

2) No greater than 96 feet apart on tangent sections.

3) Matching expansion joints in adjacent concrete pavement.

b. Set joints at right angles to the edge of sidewalk or driveway.

c. Use 1/2-inch wide joint filler.

2. Longitudinal and Transverse Joints

a. Form contraction joints by sawing or forming an induced plane of weakness at least 1-inch deep and ¼-inch wide in the sidewalk or driveway directly opposite construction or contraction joints in adjoining concrete and at the required spacing when adjoining asphaltic pavement. Space all joints between 3 feet and approximately 12 feet apart.

b. Saw as soon as possible after the concrete sets sufficiently to prevent raveling during sawing, and before shrinkage cracking takes place. If this method results in random cracking, then form an induced plane of weakness.

c. Construct longitudinal joints parallel to the centerline.

d. Construct transverse joints at right angles to the sidewalk or driveway centerline.

e. Construct longitudinal joints and transverse joints at right angles to each other.

E. Curing of Concrete

1. After finishing operations and as soon as the free water disappears, spray the concrete surface with a uniform coating of curing compound. Seal moisture in the concrete by applying a continuous water-impermeable film on exposed concrete surfaces.

2. Apply curing compound with a self-propelled mechanical power sprayer whenever practicable. Hand-operated spraying equipment is acceptable for the following:

a. Irregular, narrow, or variable width sections.

b. Re-coating applications or after form removal.

c. Special applications approved by the OWNER.

3. Apply curing compound uniformly at a minimum rate of one gallon per 200 square feet.

4. If the curing compound coating is damaged within 72 hours after application, immediately recoat the affected area. If removing forms within 72 hours after placing concrete, coat newly exposed surfaces within 30 minutes after form removal.

F. Cold Weather Concreting

1. Suspend concreting operations if the descending air temperature in the shade and away from artificial heat falls below 35˚F. Do not resume concreting operations until the ascending air temperature in the shade and away from artificial heat reaches 30˚F. Maintain the concrete temperature at the point of placement at or above 50˚F.

2. If necessary, to maintain placement temperature, heat the water, aggregates, or both.

3. Do not heat the cement, add salt or chemical admixtures to the concrete mix to prevent freezing.

4. If the national weather service forecast for the construction area predicts temperatures of less than 28°F within the next 24 hours, or when freezing temperatures actually occur, provide the following thermal protection to concrete that has not met the opening criteria:

Predicted or Actual Air Temp.	Min. Level of Protection
22 to <28°F	Single layer of polyethylene.
17 to <22°F	Double layer of polyethylene.
<17°F	6” of loose, dry straw or hay between two layers of polyethylene.

3.3. FIELD QUALITY CONTROL

A. Air Entrainment

1. Test in accordance with AASHTO T152.

2. Perform daily air tests according to the following:

a. Perform a minimum of two tests per day, per mix design.

b. Submit daily air test results signed by the CONTRACTOR or his representative to the OWNER or his representative.

3. Acceptable air content:

a. 6.0 percent, +/- 1.5 percent

B. Concrete Consistency / Slump

1. Perform consistency/slump tests according to the following:

a. A minimum of two tests per day, per mix design.

b. Sign the slump test results.

c. Submit daily slump test results to OWNER or representative.

2. Acceptable Slump:

a. 2.5-inches or less for slip-formed pavement.

b. 4-inches or less for non-slip-formed pavement.

C. Compressive Strength Testing

1. Test Procedure

a. Make and test concrete cylinders according to AASHTO T22 and T23.

b. Perform testing of concrete cylinders by an OWNER approved, independent, certified testing laboratory.

2. Testing Frequency

a. At a minimum, perform testing according to the following:

1) Once per day.

2) One test for each 150 cubic yards.

b. Make a minimum of three cylinders for each test.

c. For each test, record the station and location where the cylinders were made.

3. Compressive Strength Requirements

a. Test cylinders at 7 days and 28 days.

b. Prior to opening any new driveway to traffic, two cylinder tests must show a minimum of 3000 psi.

c. Obtain the OWNER'S approval prior to opening any new sidewalk or driveway to traffic.

D. Concrete Test Results

1. Submit all test results, from an OWNER approved certified testing laboratory, within 48 hours of test completion.

2. The test results should include at a minimum the following:

a. Compressive Strength of Concrete Cylinders or Compressive Strength of Concrete Cores

b. Slump

c. Air Entrainment

3. Send a copy of the test results to the concrete supplier, OWNER and ENGINEER.

END OF SECTION

SECTION 32 17 23.00

PAVEMENT MARKINGS

PART 1 - GENERAL

1.1. SECTION INCLUDES

A. Providing, installing, and removing pavement marking.

1.2. MEASUREMENT PROCEDURES

A. Measure marking line, stop line, dotted extension, diagonal, chevron, crosswalk, curb, parking stall, and removing marking lines by material and size by the lineal foot.

B. Measure marking arrows, words, symbols, railroad crossing, yield line, and island nose on an each basis.

C. Measure marking corrugated median by the square foot.

D. Include RXR symbol and 3 transverse lines as one railroad crossing.

E. Measure curb with vertical face and top of curb being one unit per lineal foot.

F. Measure yield line as each individual triangle in the yield line.

1.3. PAYMENT PROCEDURES

A. Pay for marking line, stop line, dotted extension, diagonal, chevron, crosswalk, curb, parking stall, and removing marking lines by material and size by the lineal foot.

B. Pay for marking arrows, words, symbols, railroad crossing, and island nose on an each basis.

C. Pay for marking corrugated median on a square foot basis.

1.4. REFERENCES

A. American Association of State Highway and Transportation Officials (AASHTO)

1. M247 – Standard Specification for Glass Beads Used in Pavement Marking

B. ASTM International (ASTM)

1. D6628 – Standard Specification for Color of Pavement Marking Materials

1.5. QUALITY ASSURANCE / CONTROL SUBMITTALS

A. Submit Certificate of Conformance signed by authorized agent of the manufacturer or supplier.

B. Submit manufacturer specifications.

1.6. CLOSEOUT SUBMITTALS

A. Provide record drawing showing installed items and quantities.

PART 2 - PRODUCTS

2.1. MATERIALS

A. Glass Beads

1. Dual coated glass beads treated for both moisture resistance and adherence conforming to AASHTO M247, Type 1, except with a minimum of 80 percent true spheres.

2. Furnish beads in containers or bags labeled with the bead type, net weight, lot or batch number, blend date, and manufacturer's name and address.

PART 3 - EXECUTION

3.1. INSTALLATION

A. General

1. Prepare surface and apply marking as the manufacturer specifies.

B. Liquid Marking

1. Apply marking to the width and color the bid item indicates. Provide a sharp cutoff for both sides and ends of the marking with a uniform cross-section.

2. If roadway is open to traffic use temporary raised pavement markers. Apply permanent marking within 7 days of completing mainline paving. If the roadway is closed during construction, apply permanent marking before opening to traffic.

3. Protect freshly applied marking until the line is dry or cured enough to prevent pickup under traffic. Place traffic cones on wet lines immediately behind the marking train or use a convoy of moving vehicles to keep traffic from crossing the wet line. Remove cones promptly after the line dries or cures.

4. Apply liquid marking and glass beads to or exceeding the following:

LIQUID MARKING PAINT	PAVEMENT TYPE	THICKNESS (mils)	BEAD APPLICATION (pounds per gallon)
Paint	All	16	8
Epoxy	Seal Coat	25	25
Epoxy	All Other	20	22.5

C. Long Line Marking

1. Long lines are centerlines, lane lines, edge lines, channelizing lines, and dotted extension lines.

2. Equipment

a. Use equipment that can spray both yellow and white material to produce uniform lines. Ensure the equipment can do the following:

1) Applies lines both on the left and right sides, not necessarily simultaneously.

2) Applies two (2) lines simultaneously, with either line in a solid or intermittent pattern, in yellow or white.

3) Reports a daily-accumulated installed length for each gun.

4) Reports a volume of paint used each day.

b. Use automatic, mechanical devices to apply glass beads and report the volume used.

D. Cold Weather Marking

1. Do not place permanent paint if the ambient or pavement temperature is below 50°F.

2. Do not place epoxy marking if the ambient or pavement temperature is below 35°F unless the ENGINEER allows in writing.

E. Removing Marking

1. Remove marking by air blasting, water blasting, or grinding. Provide a dust control system and remove accumulated sand or other materials. Collect, haul, and dispose of dust or residue from removals.

2. Perform air blasting conforming to the following:

a. If air blasting within 10 feet of a lane open to traffic, remove dust and other residue continuously while blast cleaning.

b. If removing existing marking before applying new marking, expose at least 90 percent of the marking surface.

c. If removing yellow centerline for no passing zone changes, ensure the cycling mechanism on line removal equipment produces a uniform cycle or alternatively remove by hand.

3. Perform water blasting only if the ambient temperature is at least 36°F and rising. Use a truck mounted ultra-high pressure pump and water tank capable of delivering between 30,000 psi and 40,000 psi to water jet nozzles. Provide a vacuum recovery system that contains wastewater and debris to provide a clean, damp-dry surface without a secondary cleanup operation.

4. Grind using a truck-mounted or hand system capable of complete removal of the marking. Provide a vacuum system to completely collect dust and debris.

3.2. TRAFFIC CONTROL

A. On roadways open to 2-way traffic, provide a leading vehicle and a trailing vehicle equipped with the following:

1. A slow-moving vehicle emblem.

2. One or more flashing or revolving yellow lights showing to the front and rear.

3. Signs to advise traffic of the wet line and number of vehicles in the marking train.

B. On one-way roadways, operate marking train vehicles in the direction of traffic. Provide the following:

1. A minimum of two (2) trailing vehicles. A leading vehicle is not required.

2. A slow-moving vehicle emblem.

3. One or more flashing or revolving yellow lights showing to the front and rear.

4. May use flashing arrow panels to direct traffic to pass.

3.3. REPAIR

A. Repair or replace marking the ENGINEER deems improperly constructed.

3.4. FIELD QUALITY CONTROL

A. If ENGINEER or OWNER request, provide calculations demonstrating that the application rate is consistent with the specified dimensions and the bead application rate is consistent with the specified rate. If on any block-long section or individual special marking have a calculated application rate less than 90 percent of that specified, remove and remark this section or special marking.

END OF SECTION

SECTION 32 19 00.00

PAVEMENT REPAIR & RESURFACING

PART 1 - GENERAL

1.1. DESCRIPTION

A. Wherever any paved or graveled surface (including curb and gutter and sidewalk) has been damaged or removed by the CONTRACTOR, replace or repair existing improvements at the CONTRACTOR's expense. Replace with the same material, thickness and type as the existing disturbed surface

B. The OWNER will perform repairs or replacements if the CONTRACTOR is negligent in completing the repairs in a reasonable time period. The OWNER may deduct the cost for such work from the monies due the CONTRACTOR.

C. Repair disturbed areas as specified herein or in accordance with other sections of the Specification.

D. Maintain barricades, guard rails, signs and warning devices to provide traffic control during the construction period and during repairs to paved areas. Provide dust control during this same period, seeing that the areas are oiled, watered, or treated with calcium chloride.

1.2. RELATED SECTIONS

A. Section 31 20 00.00 Earthwork

B. Section 32 11 23.00 Base Aggregates

C. Section 32 12 16.00 Asphaltic Concrete Paving

D. Section 32 13 13.00 Concrete Pavements

E. Section 32 16 13.00 Concrete Curb & Gutter

F. Section 32 16 23.00 Concrete Sidewalk & Driveways

G. Section 33 05 22.00 Utility Trenching and Backfilling

1.3. REGULATORY REQUIREMENTS

A. Contact State and County Highway Departments before preparing the bid to determine their requirements.

PART 2 - PRODUCTS

2.1. GENERAL

A. Meet requirements of Section 32 11 23.00 Base Aggregates.

B. Meet requirements of Section 32 12 16.00 Asphaltic Concrete Paving.

C. Meet requirements of Section 32 13 13.00 Concrete Pavements.

D. Meet requirements of Section 32 16 13.00 Concrete Curb and Gutter.

E. Meet requirements of Section 32 15 23.00 Concrete Sidewalk and Driveways.

PART 3 - EXECUTION

3.1. GENERAL

A. Compact backfill material in accordance with the requirements of Section 33 05 22.00 – Utility Trenching and Backfilling and/or Section 31 20 00.00 – Earthwork.

B. Remove the materials placed to the depth required for the pavement specified. Sawcut the adjoining pavement edges to provide neatly trimmed edges clean of any shattered or split material. Compact sub-grade with suitable equipment.

3.2. CONCRETE PAVEMENTS

A. Provide an aggregate base a minimum of 6-inches thick.

B. Replace concrete pavement to the same thickness as the adjoining slab. Provide a minimum thickness of 6-inches.

C. Saw pavement using a diamond saw to make straight, full depth cuts without causing further cracking of the surrounding pavement. Remove the spalled concrete with a light hammer.

D. Install tie bars in all the replaced concrete pavement. Drill tie bars in accordance with Wisconsin Department of Transportation (DOT) design. Install number 6x12-inch deformed bars spaced at 3 feet on longitudinal joints and 1 foot on transverse joints.

E. Perform work in accordance with the requirements of Section 32 13 13.00 - Concrete Pavements.

3.3. ASPHALT PAVEMENT & ASPHALT DRIVEWAYS

A. Replace asphalt pavement to the same thickness as adjoining pavement. Place a minimum thickness of 3-inches asphalt pavement over a 12-inch aggregate base.

B. Place asphalt with a paving machine if the trench width exceeds 4 feet.

C. Perform work in accordance with the requirements of Section 32 12 16.00 - Asphaltic Concrete Paving.

3.4. GRAVEL SURFACES

A. Replace gravel roadway or walkway surface with a cross section conforming to the adjacent base course or a minimum of 12-inches of Base Aggregate in accordance with Section 32 11 23.00 – Base Aggregates.

3.5. CONCRETE SURFACES

A. Concrete Curb & Gutter

1. Replace curb and gutter with curb and gutter having a cross section conforming to the adjacent curbing. Perform work in accordance with the requirements of Section 32 16 13.00 - Concrete Curb & Gutter.

B. Sidewalks & Driveways

1. Replace sidewalks and driveways with the same thickness and width to conform to adjacent walks and driveways. Perform work in accordance with the requirements of Section 32 16 23.00 - Concrete Sidewalk & Driveways.

3.6. TEMPORARY RESURFACING & MAINTENANCE

A. If site conditions (such as cold weather) preclude placing the permanent pavement replacement, the OWNER may instruct the CONTRACTOR to place temporary asphalt cold mix patches in open excavation or place asphalt around manhole castings to prevent damage by snow plows.

B. The OWNER may deduct the cost for any maintenance or emergency repair work provided by the OWNER in areas that have not yet been paved from the monies due the CONTRACTOR.

3.7. REQUIREMENTS BY OTHERS

A. Repair streets, highways, alleys, highway shoulders, ditches or other surfaces that occur on County or State Highways or property in accordance with the County or State Highway Departments. Acquire County or State Highway Department approval before the work will be accepted by the OWNER. When special backfill is required by the County or State Highway Departments, include the cost of hauling away the surplus material removed from the trench and the cost of furnishing, hauling and placing special backfill in the unit price bid for the items in which such backfill is required.

END OF SECTION

SECTION 32 92 00.00

LANDSCAPING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Restoration, seed, fertilizer, mulch, sod, trees, shrubs, biofiltration prairie plants, prairie seed, and wetland plants.

1.2 MEASUREMENT PROCEDURES

A. The OWNER reserves the right to modify the landscaping limits during construction. Payment will be based on the final quantity and unit price bid for each bid item.

1.3 REFERENCES

A. Conform to the Standard Specifications for Road and Bridge Construction of the State of Wisconsin, Current Edition, in addition to the requirements of this section.

1.4 DEFINITIONS

A. Restoration include the items of topsoil, seed, fertilizer and mulch, unless otherwise noted.

B. 'Catch' or Uniform Stand: Germination/sprouting of seed resulting in plants of mature height and density. For seed mixture in Table 32 92 00.00-1 80% density is required.

C. Deconsolidation: Loosening or decreasing density of soil by mechanical methods.

PART 2 - PRODUCTS

2.1 TOPSOIL

A. Friable soil, obtained from natural, well-drained areas.

B. Free from refuse, heavy weeds or grasses.

C. Free from heavy roots, clay lumps, stones larger than 1-inch in size, sticks, brush, litter and other deleterious substances.

D. Maximum 5% by volume of the following: Stones smaller than 1-inch, coarse sand and small clay lumps.

E. Free from insoluble carbonates and conform to the following requirements (verified by soil analysis):

1. Between 1% and 13% organic matter, as determined by the test for organic matter in accordance with ASTM D2974.

2. Between 12% and 50% clay, as determined in accordance with ASTM D422.

3. Less than 55% sand content, as determined in accordance with ASTM D422.

4. PH between 5.0 and 8.0 as determined in accordance with ASTM D4972.

5. Meet the following mechanical criteria: 100% passes the 1-inch screen; 90-100% passes the No. 10 mesh sieve; and 40-60% passes the No. 100 mesh sieve.

F. Furnish the OWNER with the proposed source or sources of topsoil to be used at least fifteen (15) working days prior to delivery. Obtain soil samples from the intended topsoil source and have a soil analysis performed by a soil testing laboratory to ensure conformity with the preceding specification. Do not deliver topsoil to the work site prior to review by the OWNER.

2.2 SALVAGED TOPSOIL

A. Consists of the natural loam, sandy loam, silt loam, silty clay loam or clay loam humus-bearing soils available from the over-lying portions of the areas contemplated by the Plans or Contract to be occupied by the completed roadway.

2.3 SEED

A. Mixed and guaranteed by the dealer as provided in Table 32 92 00.00-1, located at the end of this Section.

B. Composed of seeds of the purity, germination and proportions, by weight, as given in Table 32 92 00.00-1, located at the end of this Section.

C. Seed mixture selection:

1. Seed Mixture #1: On average loam, heavy clay or moist soils.

2. Seed Mixture #2: On light, dry, sandy or gravely soils.

3. Seed Mixture #1 or #2: On all ditches, in-slopes, median areas and low fill areas.

4. Seed Mixture #3: On rural areas and high cut and fill slopes, generally exceeding 6 to 8 feet.

5. Seed Mixture #4: In urban or other areas where a lawn type turf is desired.

6. Seed Mixture #2 or #3: Suitable on very steep slopes where sterile soil and erosion conditions exist when used in conjunction with erosion control mat specified by the ENGINEER.

2.4 FERTILIZER

A. Use fertilizers for seeding, sodding, or other plantings that are standard, commercial, packaged or bulk products, in granular or liquid form conforming to Wisconsin Statutes and the Wisconsin Administrative Code Chapter ATCP 40. Ensure that each container of packaged fertilizer is plainly marked with the analysis of the contents showing minimum percentages of total nitrogen, available phosphoric acid, and soluble potash.

B. If using fertilizer with a total of nitrogen, phosphoric acid, and potash greater than 32%, apply them at a rate that provides equal nitrogen, phosphoric acid, and potash.

C. Fertilizer shall conform to the following minimum requirements:

1. Nitrogen, Not Less Than..... 16%

2. Phosphoric Acid, Not Less Than 6%

3. Potash, Not Less Than 6%

D. The total of nitrogen, phosphoric acid, and potash shall equal at least 32%.

E. Total nitrogen shall at least equal the sum of the phosphoric acid and soluble potash.

2.5 MULCH

A. Straw or hay in an air-dry condition, free of noxious weed seeds and objectionable foreign matter.

B. Use emulsified asphalt meeting the requirements of Type SS-1 of the Specifications for Emulsified Asphalt, AASHTO Designation M140, if asphalt is used. Use materials approved by the ENGINEER prior to use lieu of asphaltic materials for binding mulch.

PART 3 - EXECUTION

3.1. TOPSOIL

A. Grass areas require 4-inches of topsoil.

B. Prairie grass areas require 6-inches of topsoil. Finish grade 6-inches and deconsolidate to a minimum depth of 3-inches using a disc or other acceptable equipment.

C. Wetland/safety shelf areas require 12-inches of topsoil. Finish grade 12-inches and thoroughly deconsolidate to a minimum depth of 9-inches using a plow or other equipment. Deconsolidate topsoil to the point that the soil is very soft for planting of aquatic plants. Do not drive any equipment on topsoil after deconsolidation. If a vehicle is driven on the topsoil following final deconsolidation, the CONTRACTOR may be required by the OWNER to thoroughly deconsolidate the soil again.

D. Rake or drag the surface of the topsoil (except not in the wetland/safety shelf area) until smooth, friable and of uniformly fine texture.

3.2. SEEDING

A. Acceptable methods:

1. Base Method

a. Rake the ground until the surface is smooth, friable and of uniformly fine texture immediately before any seed is sown.

b. Seed areas evenly with a mechanical spreader at the rate of 5-pounds per 1,000 square feet for Seed Mixtures #1 through #4.

c. Rake lightly and roll with a 200-pound roller, and then water with a fine spray.

2. CONTRACTOR'S Option: Vary the method of seeding in accordance with Standard Specifications for Road and Bridge Construction of the State of Wisconsin, Current Edition, at the discretion of the CONTRACTOR, to establish a smooth, uniform, turf composed of the grasses specified using the seeding rates in base method.

B. Reseed any areas which fail to show a 'catch' or uniform stand with the original mixture. Repeat such re-seeding until final acceptance.

C. Repair damage resulting from erosion, gullies, washouts or other causes by filling with topsoil, tamping, re-fertilizing and re-seeding without extra cost to the OWNER.

D. Seed all disturbed areas in the project area unless otherwise specified.

3.3. FERTILIZER

A. Apply fertilizer containing 32% total of nitrogen, phosphoric acid, and potash at 7 pounds per 1,000 square feet, unless the Contract specifies otherwise. For fertilizer that contains a different percentage of components, determine the new application rate by multiplying the specified rate by a dimensionless conversion factor determined as follows:

Conversion Factor = 32 / New Percentage of Components

B. If fertilizing areas to receive sod, spread the fertilizer uniformly over the soil before sodding at the rate of 7 pound per 1,000 square feet and then work the fertilizer into the soil as part of the site preparation under Section 3.1.

3.4. MULCH

A. General

1. Place mulch on a given area within 3-days after the seeding has been completed.

2. Do not perform mulching operations during periods of excessively high winds, which would preclude the proper placing of the mulch.

3. Place mulch such that it is loose or open enough to allow some sunlight to penetrate and air to slowly circulate, but thick enough to shade the ground, conserve soil moisture and prevent or reduce erosion.

4. Maintain the mulched area and repair any areas damaged by wind, erosion, traffic, fire or other causes prior to final or partial acceptance of work under the contract documents.

B. Placing

1. Perform the work in accordance with Method A, Method B or Method C, or a combination thereof, unless a specific method is specified in the Contract Documents.

a. Method A

1) Spread the mulching material over the designated area to a loose depth of ½ to 1½-inches. Apply at a rate such that the resulting cover conforms to the requirements specified under Mulch, General. Loosen or fluff the mulch material from compacted bales before spreading in place. Unless otherwise directed, begin mulching operations at the top of the slopes and proceed downward.

2) Securely anchor straw or hay mulch by the use of an approved netting securely pegged or stapled in place. Another acceptable method is to secure the mulch means of heavy biodegradable twine fastened by pegs or staples to form a grid of from 6 to 10 feet spacing.

3) Another acceptable method is to place approved erosion control blankets or mats in lieu of separate applications of mulch and netting.

b. Method B

1) Treat straw or hay with a tackifier (as detailed in the following paragraphs), blow it from a machine and uniformly deposit it over designated areas on one operation. Place straw or hay uniformly over the area to a depth of ½ to 1-inch, using 1½ to 3-tons of mulch per acre. Mix and place tackifier in accordance with guidelines of the tackifier Product Acceptability List (PAL), Current Edition, published by the Wisconsin Department of Transportation. Place mulch within the above-designated limits and vary the rate of application of the mulch and the tackifier during mulching operations to produce the desired results. Use an approved type machine which will blow or eject by constant air stream, a controlled amount of mulch and which will introduce into the air stream a spray of tackifier to partially coat the straw or hay, producing a spotty tack sufficient to hold together and retain in

place the deposited straw or hay. As an option, apply the tackifier as an overspray in a separate operation after placing the straw or hay.

2) Apply wood fiber, wood chips or similar material with approved blowing machines or other approved methods which will place a controlled amount of mulch uniformly over the area to a depth of ½ to 1½-inches. Treat areas to be mulched with wood chips 1 lb. of available nitrogen per 1,000 square feet of area either prior to or after application of the chips.

3) Feed the mulch material into the blowing machine to produce a constant and uniform ejection from the discharge spout, operated in a position to produce a mulch of uniform depth and coverage.

a) Tackifiers - General Specifications:

i Latex-Base: Meet the following requirements:

(i) Composition, by weight, of the latex emulsion polymer

02.B.1.b.3.a.i.i.1.	48% Styrene
02.B.1.b.3.a.i.i.2.	50% Butadiene
02.B.1.b.3.a.i.i.3.	2% additive

(ii) 42.0 to 46.0% solids

(iii) pH, as shipped, of 8.5 to 10.0.

(iv) Do not allow the emulsion to freeze or to be exposed to sunlight for a prolonged period of time.

ii Guar Gum: Consist of a minimum of 9% Guar gum weight with the remainder being dispersing and cross-linking additives.

iii Other Tackifiers: Include, but not be limited to: Water soluble natural vegetable gums or Guar gums blended with gelling and hardening agents or a water soluble blend of hydrophilic polymers, viscosifiers, sticking aids, and other gums.

b) Tackifiers - Construction Methods:

i Mulch Anchoring: Anchor mulch by spraying the tackifier immediately after the mulch has been placed. Do not spray during periods of windy conditions that would prevent the proper placement of adhesive. Protect all traffic, signs, structures and other objects from being marked or disfigured by the tackifier material. Apply tackifiers at the following minimum rates per acre:

(i) Latex-Base: Mix 15-gallons of adhesive or the manufacturer's recommended rate, whichever is greater, with a minimum of

250-lbs. of recycled newsprint as a tracer with 375-gallons of water.

(ii) Guar Gum: Mix 50-lbs. of dry adhesive and a minimum of 250-lbs. of recycled newsprint as a tracer with 1,305-gallons of water.

(iii) Other Tackifiers: (Hydrophilic Polymers) mix 97 lbs. of dry adhesive or the manufacturer's recommended rate, whichever is greater and a minimum of 250-lbs. recycled newsprint as a tracer with 1,305-gallons of water.

c) Approved Tackifiers:

i Latex Base Adhesive:

Product	Manufacturer
BUTOFAN NS268	BASF Corporation

ii Guar Gum Base Adhesive:

Product	Manufacturer
Lawn Tack	Amturf Seeds
Second Nature Tacpac GTX	Central Filter Corp.
Finn A500 Hydro-Stik	Finn Corporation
Eco Tak-OP	Eastern Products, Inc.
Landtack	Erosion Control Tech.

iii Other Tackifiers (Hydrophillic Polymers):

Product	Manufacturer
Exact-Tac (E-T)	American Excelsior
Con-Tack A/T	Con Wed
Eco Tak-SAT	Eastern Products, Inc.
RMB Plus	Reinco Company

c. Method C

1) Spread the straw or hay mulch uniformly over the designated areas to a loose depth of ½ to 1½-inches, using 1½ to 3-tons of mulch per acre, by blowing from a machine, as described in Method B, or by other approved methods.

2) Immediately after spreading, anchor the mulch in the soil by the use of a mulch tiller consisting of a series of dull, flat discs with notched edges. Use discs approximately 20-inches in diameter and spaced at about 8-inch centers. Use tiller equipped with a ballast compartment to permit adjustment of the weight for depth control.

3) Impress the mulch in the soil to a depth of approximately 1½ to 2½-inches in one (1) pass of the tiller traveling longitudinally. Do not operate mulch tillers on slopes so steep that damage to the mulch, seed bed or soil occurs. Anchor the mulch on such areas by either Method A or Method B. Use tractors equipped and operated to minimize the disturbance or displacement of the soil. Provide more than one pass of the tiller to assure adequate anchoring of the mulch, if required.

3.5. ADJUSTING MANHOLES, INLETS, VALVES AND STOP BOXES

A. Adjust all manholes, inlets, valves, stop boxes, and other fixtures to the plan grade and alignment. This work is incidental to landscaping and restoration.

B. Include the repair of the uppermost 12-inches of the existing concrete structure in manhole and inlet adjustment.

3.6. WATERING

A. Provide watering of landscape areas for one (1) month after installation.

END OF SECTION

TABLE 32 92 00.00-1

TABLE OF SEED MIXTURES

			MIXTURES			
Species	% Purity	% Germination	% in #1	% in #2	% in #3	% in #4
Kentucky Bluegrass	98	85	50	10	20	50
Creeping Red Fescue	97	85	25	--	30	30
Perennial Ryegrass	97	90	25	30	--	--
Hard Fescue	97	85	--	25	25	--
Tall Fescue	98	85	--	35	--	--
Improved Fine Perennial Rye Grass	96	85	--	--	25	20

SPECIAL PROVISIONS

EISENHOWER DRIVE
STREET RECONSTRUCTION

For The
VILLAGE OF KIMBERLY
OUTAGAMIE COUNTY, WISCONSIN

I. SCHEDULES

A. Prior to start of any work, the CONTRACTOR shall submit for approval by the OWNER, a detailed Construction Schedule of all the work to be performed. The Prime CONTRACTOR shall be responsible to schedule work to be done by their sub-contractors and place them on this schedule. The schedule shall be, at least, weekly; and include the number of crews, location of work for each crew, sequence of moves and other pertinent information. The schedule shall provide for a continuous work schedule on the project with no activity gaps. Upon acceptance of the schedule work is expected to progress in a timely and orderly fashion in accordance with the accepted schedule. Deviations in the schedule are subject to acceptance by the OWNER. Anytime gaps of non-work activity which occur due to CONTRACTOR scheduling, shall be subject to liquidated damages at the discretion of the OWNER.

II. EROSION CONTROL

A. The CONTRACTOR shall place inlet protection. The CONTRACTOR shall maintain inlet protection on a daily basis and clean or replace as necessary. In addition, the CONTRACTOR shall be required to remove solids deposited on streets adjacent to the project as a result of construction related activities on a daily basis and prior to rain events.

III. EXCAVATION BELOW SUBGRADE (EBS) (Item #2)

A. Excavation Blow Subgrade (EBS), if required by the ENGINEER, shall be measured in the field at the time of removal and prior to placement of the stone to determine the cubic yard volume. The unit price bid shall include all costs associated with excavation, disposal and placement of new base course in the voided area.

IV. CONCRETE APRONS, SIDEWALKS AND DRIVEWAYS

A. Base course shall extend a minimum of 6-inches beyond the edges of sidewalks, aprons and driveways.

B. Base course under 6-inch concrete aprons and sidewalks shall be 6-inches minimum.

C. Excavation and placement of base course shall be incidental to 6-inch concrete aprons and sidewalks.

D. Asphalt Driveway Pavement

1. Asphalt shall be placed in two lifts as follows:

a. Upper layer 1.75-inches of 4LT 58-28S surface mix.

b. Lower layer 2.75-inches of 3LT 58-28S binder mix.

c. Any miscellaneous base required shall be incidental. Existing base is expected to remain.

V. PAVEMENT

A. Concrete Street Pavement

1. Concrete streets shall be machine paved as 8-inch doweled concrete pavement.

B. Curb and Gutter

1. Base Bid – Leave Existing Curb and Gutter In-Place

This option requires the CONTRACTOR to tie the new concrete pavement to the existing curb and gutter using #6 epoxy coated tie bars drilled and set at 2.5' on center. The curb and gutter shall be reviewed in the field with the CONTRACTOR prior to construction and again after paving to determine if any additional cracks are present and if any cub and gutter shall require removal at the CONTRACTOR's expense.

2. Supplemental Bid B – Remove Existing Curb and Gutter

Supplemental Bid B requests the removal of curb and gutter and placement of the street section from the north end of radius at Truman Street to the south end of radius at Kennedy Avenue as integral or separate curb and gutter. The curb pan on the boulevard shall be reject in this option. All costs associated with turf restoration, shall be considered incidental to Supplemental Bid B.

C. Sawcutting

1. Concrete Pavement

a. This item shall be paid once. The final sawcut locations shall be field marked by the ENGINEER at the appropriate point in the progression of work. Damage of the sawed match point due to removal or lack of protection of removed work shall require a second full depth sawcut as directed by the ENGINEER. Additional sawcuts and pavement replaced due to the location of the second sawcut shall be at the CONTRACTOR's expense.

2. Asphalt Pavement

a. Sawcutting existing asphalt pavement shall be incidental to the Contract.

VI. MANHOLE AND INLET ADJUSTMENTS

A. Rubber Adjusting Rings for Inlets

1. All 2’ x 3’ inlets shall require a 1-inch minimum to 3-inch maximum rubber adjusting ring(s) directly below the inlet frame. Inlets shall utilize the largest thickness of ring with a minimum thickness of 3-inches for a concrete adjusting ring. All costs associated with this work shall be incidental to Bid Item #23.

VII. TURF RESTORATION AND TERRACE BACKFILLING

A. All turf restoration areas shall require preparation for 3-inches of pulverized topsoil. No salvaged topsoil shall be allowed for use. Existing sod turf removed shall not be allowed for use as backfill. Areas receiving new turf shall be uniformly graded and compacted prior to topsoil placement to prevent settled areas. Specific attention shall be given to compaction of areas behind the curb. Backfill shall be clay soils free of organics, spoil pavement, concrete, gravel and other materials.

Turf restoration shall be completed in an orderly progression of topsoil placement, seeding, fertilizer, and e-matting. Once seeded e-mat shall be applied immediately each day to prevent wind or storm water erosion.

B. The CONTRACTOR shall submit the following for review and acceptance.

1. A sample and source location of topsoil.

2. Seed mix meeting the requirements of See Mix #4.

3. A tag from each bag of seed as a method to compare pounds of seed to seeded area for compliance with the application rate.

4. E-mat meeting the requirements of Class I Urban Type A in conformance with Wisconsin Department of Natural Resources (DNR) Technical Standard 1052.

VIII. TRAFFIC CONTROL

A. Eisenhower Drive is a primary entrance into the Village of Kimberly and serves as the main entrance to the Kimberly Business Park. Six businesses are directly impacted by the reconstruction of this section of street and many others will be impacted as well.

Schedule, traffic control and communication will be critical in minimizing the impact to businesses and the general public.

B. Schedule and Communication

1. Maintaining an efficient schedule to minimize the duration of the project is of high priority to the Village. The CONTRACTOR shall provide a detailed schedule as outlined in Section I of the Special Provisions. Once accepted by the Village, the schedule will be provided to businesses and the general public to alert them of the road closure schedule. At this point it is expected that there will be strict adherence to the schedule with deviations only resulting from weather.

2. The CONTRACTOR shall establish contacts with the six businesses adjoining Eisenhower Drive and maintain regular communications on daily activities and impacts they may have. Businesses will be invited to and encouraged to attend the pre-construction conference to assist in kicking off project communication.

C. Road Closures

1. Full closure of the section of Eisenhower north of Truman Street to the south side of Kennedy Avenue shall be allowed to facilitate a minimal construction window.

D. Truman Street / Eisenhower Intersection

1. This intersection is critical to the daily operation of McDonalds. The CONTRACTOR shall phase and place this intersection in a manner which allows it to remain open to vehicle traffic at all times. Semi-truck traffic is not required to be maintained through this intersection.

E. Detour Routes

1. The CONTRACTOR shall propose detour routes for review and acceptance by the Village. Acceptable truck routes are Truman Street, Cobblestone Lane (south of Kennedy Avenue), Kennedy Avenue, Railroad Street, CTH 'N' (Washington Street). Detour routes shall be signed appropriately in conformance with the MUTCD.

F. Final Acceptance of the Schedule and Traffic Control Plan

1. The final schedule and traffic control plan shall require acceptance by the Village a minimum two weeks prior to the start of construction. This will allow the Village time to notify the public and impacted businesses.

IX. WARRANTIES AND GUARANTEES

A. The CONTRACTOR shall warrant and guarantee to the OWNER and ENGINEER that all work will be in accordance with the Contract Documents and will not be defective. The Standard General Conditions for the Construction Contract shall be amended to a 2-year warranty period.

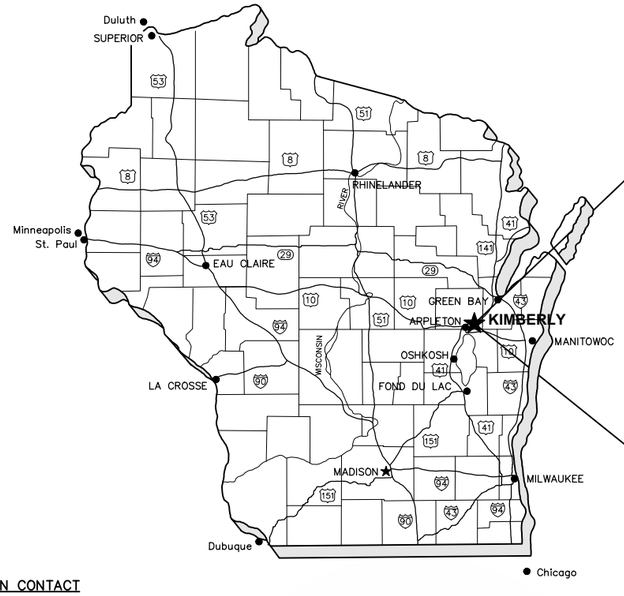
This warranty shall specifically include trench settlement and the cost to restore settled areas to their existing condition.

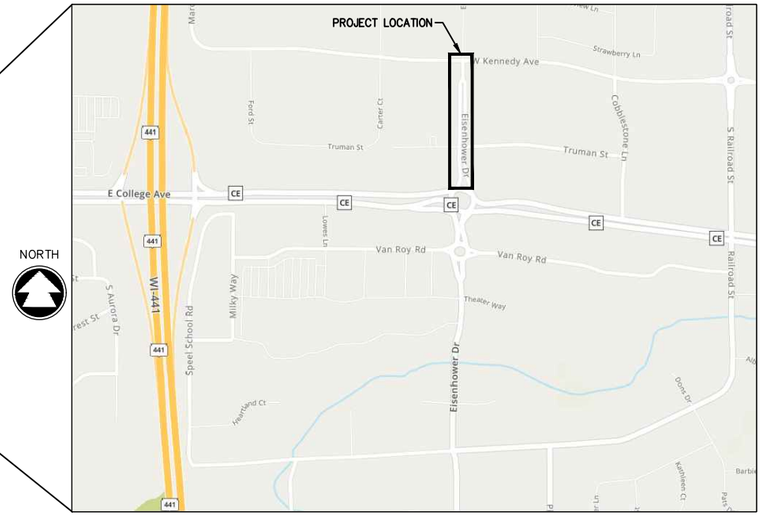
B. The warranty start date shall be the date of the final Contract Change Order establishing the final quantities of the Contract.

END OF SECTION

EISENHOWER DRIVE
STREET RECONSTRUCTION
VILLAGE OF KIMBERLY

OUTAGAMIE COUNTY, WISCONSIN
MCM # K0001-09-20-00811





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DATE
JANUARY, 2021
PROJECT NO.
K0001-09-20-00811

STANDARD ABBREVIATIONS

AC	ACRE	LT	LEFT
AGG	AGGREGATE	LVC	LENGTH OF VERTICAL CURVE
AH	AHEAD	MAINT	MAINTENANCE
ASPH	ASPHALT PAVEMENT	MAT'L	MATERIAL
AVG	AVERAGE	MAX	MAXIMUM
B–B	BACK TO BACK	MIN	MINIMUM
BEG	BEGIN	MH	MANHOLE
BIT	BITUMINOUS	MP	MILE POST
BK	BACK	NB	NORTHBOUND
B/L	BASE LINE	NO	NUMBER
BLDG	BUILDING	NOR	NORMAL
BM	BENCH MARK	OD	OUTSIDE DIAMETER
BOC	BACK OF CURB	OBLIT	OBLITERATE
BRG	BEARING	PAV'T	PAVEMENT
C–C	CENTER TO CENTER	PC	POINT OF CURVATURE
CY	CUBIC YARD	PCC	PORTLAND CEMENT CONCRETE OR POINT OF COMPOUND CURVATURE
C&G	CURB AND GUTTER		
CB	CATCH BASIN	PE	PRIVATE ENTRANCE
CE	COMMERCIAL ENTRANCE	PED	PEDESTAL
CHD	CHORD	PGL	PROFILE GRADE LINE
C/L	CENTER LINE	PI	POINT OF INTERSECTION
CL	CLASS (FOR CONC PIPE)	P/L	PROPERTY LINE
CMP	CORRUGATED METAL PIPE	PLE	PERMANENT LIMITED EASEMENT
CO	CLEAN OUT	PP	POWER POLE
CONC	CONCRETE	PRC	POINT OF REVERSE CURVATURE
CORR	CORRUGATED	PROP	PROPOSED
CP	CONTROL POINT	PSD	PASSING SIGHT DISTANCE
CR	CRUSHED	PSI	POUNDS PER SQUARE INCH
CS	CURB STOP	PT	POINT OF TANGENCY
CSW	CONCRETE SIDEWALK	PVC	POLYVINYL CHLORIDE OR POINT OF VERTICAL CURVATURE
CTH	COUNTY TRUNK HIGHWAY		
CULV	CULVERT	PVI	POINT OF VERTICAL INTERSECTION
D	DEPTH OR DELTA	PVT	POINT OF VERTICAL TANGENCY
DI	DUCTILE IRON	R	RADIUS
DIA	DIAMETER	RCP	REINFORCED CONCRETE PIPE
DIS	DISCHARGE	RD	ROAD
EA	EACH	REBAR	REINFORCEMENT ROD
EB	EASTBOUND	REM	REMOVE
EBS	EXCAVATION BELOW SUBGRADE	RECON	RECONSTRUCT
EG	EDGE OF GRAVEL	REQ'D	REQUIRED
ELEV	ELEVATION	R/L	REFERENCE LINE
ELEC	ELECTRIC	RP	RADIUS POINT
EMB	EMBANKMENT	RR	RAILROAD
EMAT	EROSION MAT	RT	RIGHT
ENT	ENTRANCE	R/W	RIGHT–OF–WAY
EOR	END OF RADIUS	SB	SOUTHBOUND
EP	EDGE OF PAVEMENT	SE	SUPERELEVATION
EXC	EXCAVATION	SF	SQUARE FEET
EX	EXISTING	SI	SLOPE INTERCEPT
EW	ENDWALL	STH	STATE TRUNK HIGHWAY
F–F	FACE TO FACE	SY	SQUARE YARD
FDN	FOUNDATION	SALV	SALVAGED
FE	FIELD ENTRANCE	SAN	SANITARY
FERT	FERTILIZER	SEC	SECTION
FG	FINISHED GRADE	SHLDR	SHOULDER
F/L	FLOW LINE	S/L	SURVEY LINE
FT	FOOT	SQ	SQUARE
FTG	FOOTING	STA	STATION
GRAV	GRAVEL	STD	STANDARD
GN	GRID NORTH	STO	STORM
GV	GAS VALVE	SW	SIDEWALK
HDPE	HIGH DENSITY POLYETHYLENE	TC	TOP OF CURB
HE	HIGHWAY EASEMENT	TEL	TELEPHONE
HMA	HOT MIX ASPHALT	TEMP	TEMPORARY
HP	HIGH POINT	TLE	TEMPORARY LIMITED EASEMENT
HT	HEIGHT	TV	TELEVISION
HYD	HYDRANT	TYP	TYPICAL
ID	INSIDE DIAMETER	UG	UNDERGROUND
IN	INCH	USH	U.S. HIGHWAY
INL	INLET	VAR	VARIES
INV	INVERT	VC	VERTICAL CURVE
IP	IRON PIPE	VERT	VERTICAL
JCT	JUNCTION	WB	WESTBOUND
LB	POUND	WM	WATER MAIN
LF	LINEAR FOOT	WV	WATER VALVE
LP	LIGHT POLE		

GENERAL NOTES

1. THE UTILITIES SHOWN IN PLAN AND PROFILE ARE INDICATED IN ACCORDANCE WITH AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING EXACT LOCATIONS AND ELEVATIONS OF ALL UTILITIES, INCLUDING ANY PRIVATE UTILITIES, FROM THE OWNERS OF THE RESPECTIVE UTILITIES. ALL UTILITIES SHALL BE NOTIFIED 72 HRS. PRIOR TO EXCAVATION.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY PROPOSED SITE GRADES BY FIELD CHECKING TWO (2) BENCHMARKS AND A MINIMUM OF ONE (1) SITE FEATURE AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY MCMAHON OF ANY VERTICAL DISCREPANCY.
3. THE PROPERTY LINES, RIGHT–OF–WAY LINES AND OTHER PROPERTY INFORMATION ON THIS DRAWING WERE DEVELOPED OR OBTAINED AS PART OF THE COUNTY GEOGRAPHIC INFORMATION SYSTEM OR THROUGH THE COUNTY PROPERTY TAX MAPPING FUNCTION. McMAHON DOES NOT GUARANTEE THIS INFORMATION TO BE CORRECT, CURRENT OR COMPLETE. THE PROPERTY AND RIGHT–OF–WAY INFORMATION ARE INTENDED FOR USE AS A GENERAL REFERENCE AND ARE NOT INTENDED OR SUITABLE FOR SITE–SPECIFIC USES. ANY USE TO THE CONTRARY OF THE ABOVE STATED USES IS THE RESPONSIBILITY OF THE USER AND SUCH USE IS AT THE USER'S OWN RISK.
4. NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT PRIOR APPROVAL FROM THE OWNER.
5. A SAWED JOINT IS REQUIRED WHERE NEW HMA PAVEMENT MATCHES EXISTING ASPHALTIC CONCRETE SURFACE.
6. ALL CURB RADII SHOWN ON THE PLAN SHEETS ARE TO THE BACK OF CURB UNLESS OTHERWISE NOTED.
7. DIMENSIONS ARE TO THE BACK OF CURB UNLESS OTHERWISE NOTED.

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STANDARD SYMBOLS (PLAN VIEW ONLY)

- 2" IRON PIPE FOUND
- 1 1/4" REBAR FOUND
- 1 1/4" x 30" IRON REBAR WEIGHING 4.30 LB/LF SET
- 1" (1.315 OD) IRON PIPE FOUND
- 1" IRON PIPE SET
- 3/4" IRON REBAR FOUND
- 3/4" IRON PIPE FOUND
- 3/4"x 24" IRON REBAR WEIGHING 1.5 LB/LF SET
- MAG NAIL FOUND
- MAG NAIL SET
- MAG SPIKE FOUND
- MAG SPIKE SET
- CHISEL CROSS FOUND
- CHISEL CROSS SET
- COUNTY MONUMENT
- CONCRETE MONUMENT FOUND
- CONTROL POINT HORIZONTAL
- VERTICAL BENCHMARK
- SB or MW — SOIL BORING or MONITORING WELL
- POWER POLE
- POWER POLE W/GUY WIRE
- TELEPHONE OR TELEVISION PEDESTAL
- MB — MAILBOX
- SIGN
- RAILROAD CROSS BUCK
- RAILROAD GATE ARM
- RAILROAD TRACKS
- LIGHT POLE
- WOOD POLE
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL MAST ARM
- CONIFEROUS TREE
- DECIDUOUS TREE
- TREE OR BRUSH LINE
- BED ROCK (IN PROFILE VIEW)
- HANDICAPPED PARKING STALL
- × 750.00 — PROPOSED SPOT ELEVATION
- DRAINAGE HIGH POINT
- DRAINAGE DIRECTION
- EXISTING MANHOLE
- PROPOSED MANHOLE
- EXISTING INLET
- PROPOSED INLET
- EXISTING YARD DRAIN
- PROPOSED YARD DRAIN
- CO — EXISTING CLEAN OUT
- CO — PROPOSED CLEAN OUT
- EXISTING DOWNSPOUT
- PROPOSED DOWNSPOUT
- EXISTING WATER VALVE
- PROPOSED WATER VALVE
- EXISTING CURB STOP
- PROPOSED CURB STOP
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED WATER FITTING
- PROPOSED WATER REDUCER
- PROPOSED ENDCAP
- GAS VALVE

- T — TELEPHONE CABLE – BURIED
- E — ELECTRIC CABLE – BURIED
- OHU — UTILITIES – OVERHEAD
- FO — FIBER OPTIC CABLE – BURIED
- G — GAS MAIN
- TV — CABLE TELEVISION – BURIED
- DITCH LINE
- STREET C/L OR R/L
- PROPERTY LINE
- RIGHT–OF–WAY LINE
- SECTION LINE
- 746 — EXISTING CONTOURS
- 746 — PROPOSED CONTOURS
- FM — EXISTING FORCEMAIN SEWER
- SAN — EXISTING SANITARY SEWER
- SAN — PROPOSED SANITARY SEWER
- WM — EXISTING WATER MAIN
- WM — PROPOSED WATER MAIN
- STO — EXISTING STORM SEWER
- STO — PROPOSED STORM SEWER
- EXISTING CURB & GUTTER
- PROPOSED CURB & GUTTER
- PROPOSED REJECT CURB & GUTTER
- EXISTING CULVERT WITH END SECTIONS
- PROPOSED CULVERT WITH END SECTIONS
- BUILDING OUTLINE
- FENCE LINE
- SAW CUT REQ'D
- SILT FENCE
- GUARD RAIL
- DITCH CHECK
- INLET PROTECTION
- TRACKING PAD
- TURBIDITY BARRIER OR SHEET PILING
- SANDBAG COFFERDAM
- SLOPE INTERCEPT
- **LIMITS OF DISTURBANCE**

EROSION & SEDIMENT CONTROL PLAN

BEST MANAGEMENT PRACTICES:

THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING BEST MANAGEMENT PRACTICES IN ACCORDANCE WITH WISCONSIN DEPARTMENT OF NATURAL RESOURCES (DNR) TECHNICAL STANDARDS. THESE STANDARDS MAY BE FOUND ON THE DNR WEBSITE AT http://www.dnr.wi.gov/runoff/stormwater/techstds.htm. RIP–RAP SHALL BE IN ACCORDANCE WITH SECTION 606, WIS–DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, LATEST EDITION, UNTIL TECHNICAL STANDARD 1065 IS COMPLETED BY THE DNR. THE MINIMUM BEST MANAGEMENT PRACTICES SPECIFIED FOR THIS PROJECT ARE AS FOLLOWS:

[ ] LAND APPLICATION OF POLYACRYLAMIDE (1050)	[X] DE–WATERING (1061)
[ ] WATER APPLICATION OF POLYMERS (1051)	[ ] DITCH CHECK (1062)
[ ] NON–CHANNEL EROSION MAT (1052)	[ ] SEDIMENT TRAP (1063)
[ ] CHANNEL EROSION MAT (1053)	[ ] SEDIMENT BASIN (1064)
[ ] VEGETATIVE BUFFER (1054)	[ ] RIP–RAP (1065)
[ ] SEDIMENT BALE BARRIER (1055)	[ ] CONSTRUCTION DIVERSION (1066)
[ ] SILT FENCE (1056)	[X] GRADING PRACTICES (1067)
[X] TRACKING PAD & TIRE WASHING (1057)	[ ] DUST CONTROL (1068)
[X] MULCHING (1058)	[ ] TURBIDITY BARRIER (1069)
[X] SEEDING (1059)	[ ] SILT CURTAIN (1070)
[X] STORM DRAIN INLET PROTECTION (1060)	[ ] MANUFACTURED PERIMETER PRODUCTS (1071)

THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES AND IMPLEMENT BEST MANAGEMENT PRACTICES TO PREVENT OR REDUCE ALL OF THE FOLLOWING:

A. DEPOSITION OR TRACKING OF SOIL ONTO STREETS BY VEHICLES.

B. DISCHARGE OF SEDIMENT INTO STORM WATER INLETS.

C. DISCHARGE OF SEDIMENT INTO ADJACENT STREAMS, RIVERS, LAKES AND WETLANDS.

D. DISCHARGE OF SEDIMENT FROM DITCHES AND STORM SEWERS THAT FLOW OFFSITE.

E. DISCHARGE OF SEDIMENT FROM DEWATERING ACTIVITIES.

F. DISCHARGE OF SEDIMENT FROM SOIL STOCKPILES EXISTING FOR 7 DAYS OR MORE.

G. DISCHARGE OF SEDIMENT FROM EROSIVE OUTLET FLOWS.

H. TRANSPORT OF CHEMICALS, CEMENT AND BUILDING MATERIALS BY RUNOFF.

I. TRANSPORT OF UNTREATED VEHICLE AND WHEEL WASH WATER BY RUNOFF.

THE CONTRACTOR SHALL IMPLEMENT THE FOLLOWING PREVENTATIVE MEASURES:

A. PRESERVE EXISTING VEGETATION WHENEVER POSSIBLE.

B. MINIMIZE SOIL COMPACTION AND PRESERVE TOPSOIL.

C. MINIMIZE LAND DISTURBANCES ON SLOPES OF 20% OR MORE.

D. MINIMIZE THE AMOUNT OF SOIL EXPOSED AT ANY ONE TIME.

E. DIVERT CLEAR WATER AWAY FROM EXPOSED SOILS.

F. TEMPORARILY STABILIZE EXPOSED SOILS THAT WILL NOT BE ACTIVE FOR 14 DAYS OR MORE. USE MULCHING, SEEDING, POLYACRYLAMIDE OR GRAVELING TO STABILIZE.

G. PERMANENTLY STABILIZE EXPOSED SOILS AS SOON AS POSSIBLE.

H. CONTRACTOR SHALL EDUCATE ITS EMPLOYEES AND SUBCONTRACTORS ABOUT PROPER SPILL PREVENTION AND RESPONSE PROCEDURES. IF A SPILL OCCURS, THE CONTRACTOR SHALL EVACUATE THE AREA AND IMMEDIATELY NOTIFY THE LOCAL MUNICIPALITY, FIRE DEPARTMENT OR 911 EMERGENCY SYSTEM. IF NO FIRE, EXPLOSION OR LIFE / HEALTH SAFETY HAZARD EXISTS, THE NEXT STEP IS TO CONTAIN THE SPILL AND PERFORM CLEANUP. USE DRY CLEANUP METHODS, NOT WET.

THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING OR REPLACING BEST MANAGEMENT PRACTICES DESTROYED AS A RESULT OF CONSTRUCTION ACTIVITIES BY THE END OF THE WORK DAY. THE CONTRACTOR IS RESPONSIBLE FOR REPLACING BEST MANAGEMENT PRACTICES TEMPORARILY REMOVED FOR CONSTRUCTION ACTIVITY AS SOON AS THOSE ACTIVITIES ARE COMPLETED. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING AND DISPOSING OF TEMPORARY BEST MANAGEMENT PRACTICES AFTER CONSTRUCTION IS COMPLETE AND PERMANENT VEGETATION IS ESTABLISHED.

INSPECTION & MAINTENANCE:

THE CONTRACTOR IS RESPONSIBLE FOR INSPECTING BEST MANAGEMENT PRACTICES WEEKLY, AND WITHIN 24 HOURS FOLLOWING A RAINFALL OF 0.5 INCHES OR GREATER. WRITTEN DOCUMENTATION OF EACH INSPECTION SHALL BE KEPT AT THE CONSTRUCTION SITE AND SHALL INCLUDE THE FOLLOWING INFORMATION: DATE, TIME, AND LOCATION OF INSPECTION; NAME OF INDIVIDUAL WHO PERFORMED THE INSPECTION; AN ASSESSMENT OF THE CONDITION OF BEST MANAGEMENT PRACTICES; A DESCRIPTION OF ANY BEST MANAGEMENT PRACTICE IMPLEMENTATION AND MAINTENANCE PERFORMED; AND A DESCRIPTION OF THE PRESENT PHASE OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING, REPAIRING, OR REPLACING BEST MANAGEMENT PRACTICES AS NECESSARY WITHIN 24 HOURS OF AN INSPECTION OR NOTIFICATION. THE CONTRACTOR IS RESPONSIBLE FOR INSPECTING, MAINTAINING, REPAIRING, OR REPLACING BEST MANAGEMENT PRACTICES UNTIL ALL LAND DISTURBING CONSTRUCTION ACTIVITY IS COMPLETED AND A UNIFORM PERENNIAL VEGETATIVE COVER IS ESTABLISHED WITH A DENSITY OF AT LEAST 70%.

THE CONTRACTOR IS RESPONSIBLE FOR POSTING THE PERMIT IN A CONSPICUOUS LOCATION ON THE CONSTRUCTION SITE. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING A COPY OF THE APPROVED REPORTS, PLANS, AMENDMENTS, INSPECTION REPORTS, AND PERMITS AT THE CONSTRUCTION SITE AT ALL TIMES UNTIL ALL LAND DISTURBING CONSTRUCTION ACTIVITY IS COMPLETED AND A UNIFORM PERENNIAL VEGETATIVE COVER IS ESTABLISHED WITH A DENSITY OF AT LEAST 70%. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE OWNER WHEN THE VEGETATIVE DENSITY REACHES AT LEAST 70%. THE OWNER IS RESPONSIBLE FOR TERMINATING DNR PERMIT COVERAGE.

AMENDMENTS:

THE CONTRACTOR IS RESPONSIBLE FOR AMENDING THE EROSION & SEDIMENT CONTROL PLAN IF: THERE IS A CHANGE IN CONSTRUCTION, OPERATION OR MAINTENANCE AT THE SITE WHICH HAS THE REASONABLE POTENTIAL FOR THE DISCHARGE OF POLLUTANTS; THE ACTIONS REQUIRED BY THE PLAN FAIL TO REDUCE THE IMPACTS OF POLLUTANTS CARRIED BY CONSTRUCTION SITE RUNOFF; OR IF THE DNR NOTIFIES THE APPLICANT OF CHANGES NEEDED IN THE PLAN. THE DNR AND OWNER SHALL BE NOTIFIED 5 WORKING DAYS PRIOR TO MAKING CHANGES TO THE PLAN.

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McMAHON ASSOCIATES, INC.
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PH 920.751.4200 FX 920.751.4284 MCMGRP.COM

NO.	DATE	REVISION

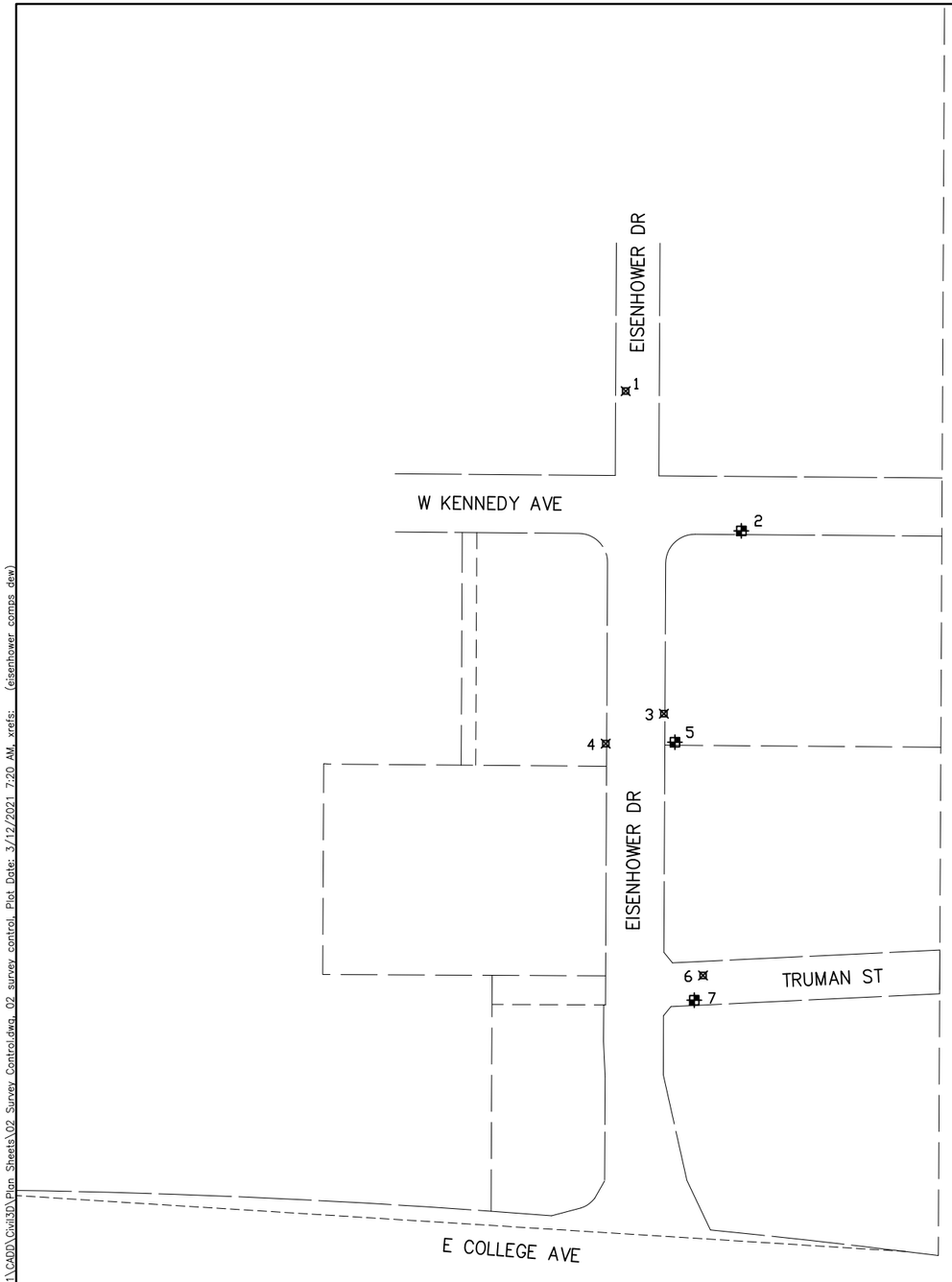
EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
ABBREVIATIONS, SYMBOLS & NOTES

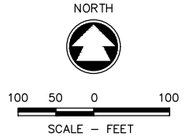
DESIGNED	DRAWN
BDW	RRS

PROJECT NO.
K0001–09–20–00811

DATE
JANUARY, 2021

SHEET NO.
01





HORIZONTAL CONTROL POINTS			
POINT #	NORTHING	EASTING	DESCRIPTION
1	562227.88	843081.08	MAG NAIL
3	561784.22	843133.68	MAG NAIL
4	561743.02	843053.71	MAG NAIL
6	561424.21	843187.50	MAG NAIL

VERTICAL BENCHMARK CONTROL		
POINT #	ELEVATION	DESCRIPTION
2	741.77	HYDRANT TAG BOLT
5	742.43	SW CONC PAD TRANSFORMER
7	744.69	MAG NAIL IN POWER POLE 90–26749

NOTE:
PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY PROPOSED SITE GRADES BY FIELD CHECKING TWO (2) BENCHMARKS AND A MINIMUM OF ONE (1) SITE FEATURE AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL ALSO VERIFY HORIZONTAL CONTROL BY FIELD CHECKING SEVERAL CONTROL POINTS AND SHALL IMMEDIATELY NOTIFY MCMAHON OF ANY DISCREPANCIES.

VERTICAL DATUM
ELEVATIONS ARE REFERENCED TO NGS DATA:
CONTROL POINT NAME: 4K94
POINT ID: DE7742 NAVD 88 DATUM
BY GPS OBSERVATION TO ELEVATION = 748.25 (2007 ADJUSTMENT)
LEVEL LOOP PER FIELD BOOK 1461 PAGES 22–24

HORIZONTAL DATUM:
COORDINATES ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM AS PUBLISHED FOR OUTAGAMIE COUNTY

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NO.	DATE	REVISION

EISENHOWER DRIVE
VILLAGE Of KIMBERLY, OUTAGAMIE COUNTY
SURVEY CONTROL

DESIGNED	DRAWN
BDW	RRS

PROJECT NO.
K0001–09–20–00811

DATE
JANUARY, 2021

SHEET NO.
02

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SHEET NO. 03	DESIGNED BDW	NO.	DATE
DATE JANUARY, 2021	DRAWN RRS		
PROJECT NO. K0001-09-20-00811			

EISENHOWER DRIVE
VILLAGE Of KIMBERLY, OUTAGAMIE COUNTY
DETOUR OPTIONS

NO.	DATE	REVISION

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W:\PROJECTS\K0001\092000811\CADD\Civil3D\Plan Sheets\EisenhowerDr-Overall.dwg, 04 Eisenhower Drive Entrances, 3/12/2021 7:21:00 AM, RSchmechel, 1:2

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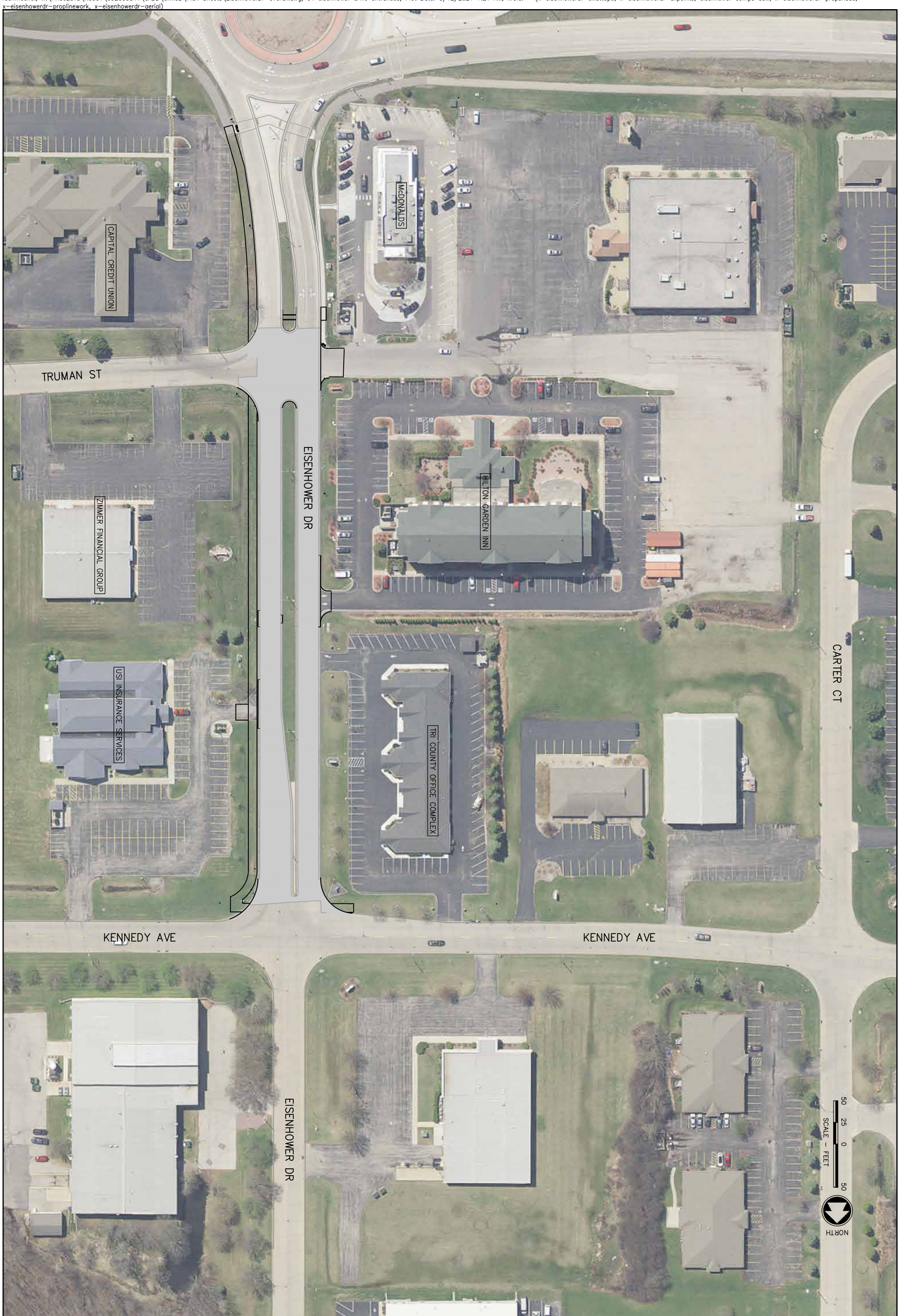

EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
EISENHOWER DRIVE ENTRANCES

NO.	DATE	REVISION

SHEET NO.	04
DATE	JANUARY, 2021
PROJECT NO.	K0001-09-20-00811
DESIGNED	BDW
DRAWN	RRS

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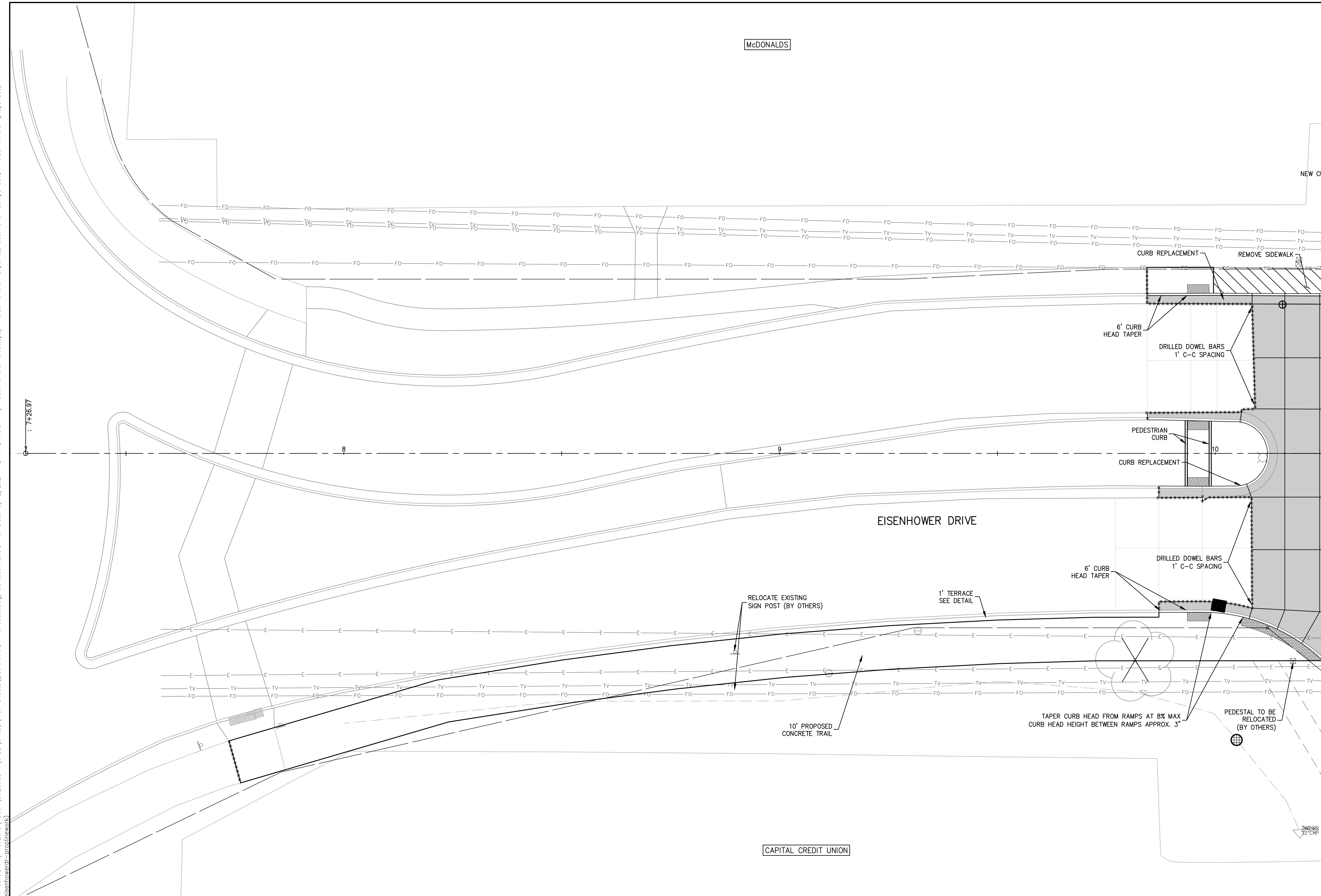

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NO.	DATE	REVISION

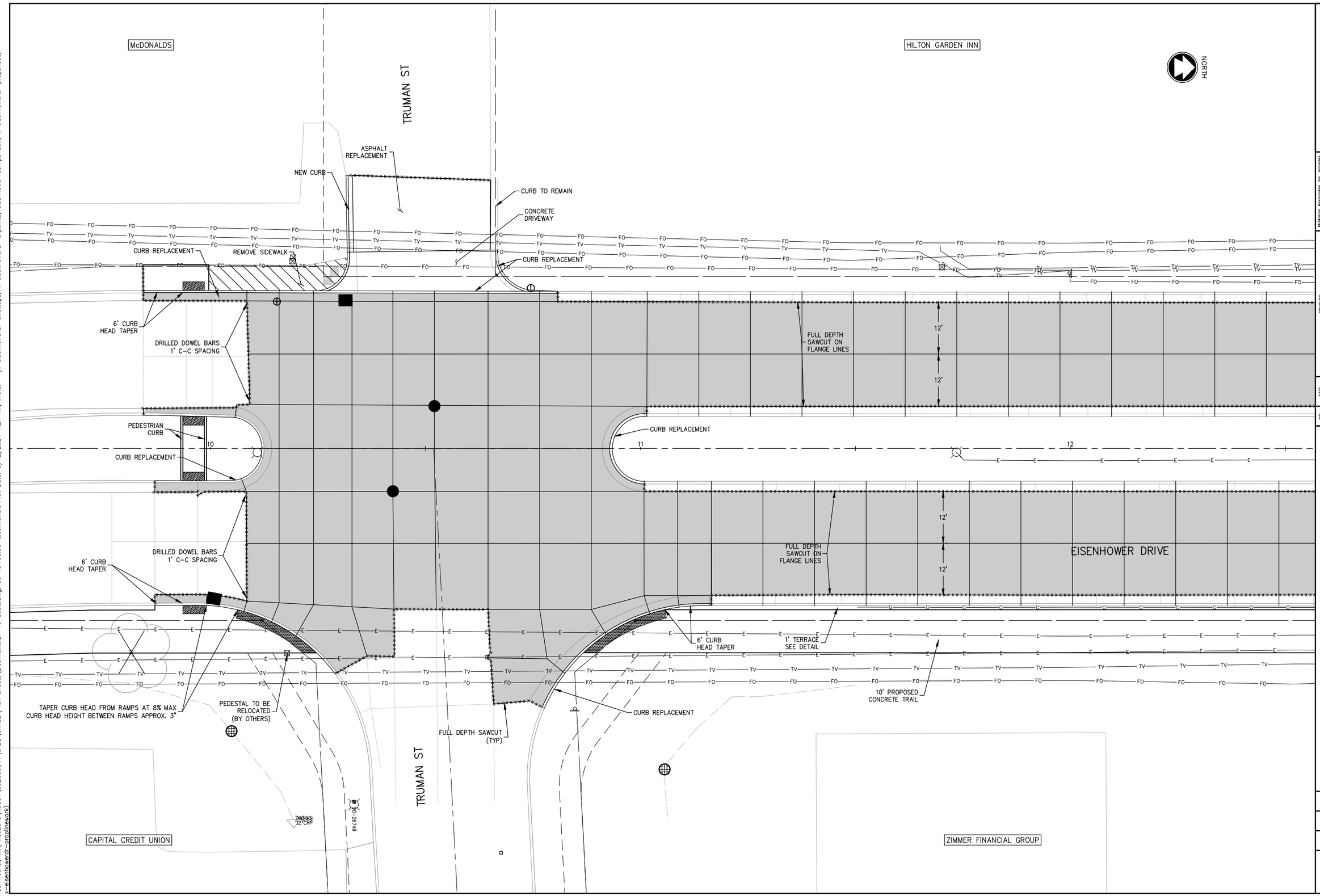
EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
EISENHOWER DR CONSTRUCTION

DESIGNED	DRAWN
BDW	RRS

PROJECT NO.
K0001-09-20-00811

DATE
JANUARY, 2021

SHEET NO.
05



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NO.	DATE	REVISION

EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
EISENHOWER DR CONSTRUCTION

DESIGNED	DRAWN
BDW	RRS

PROJECT NO.
K0001-09-20-00811

DATE
JANUARY, 2021

SHEET NO.
06

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HILTON GARDEN INN

TRI COUNTY OFFICE COMPLEX

NORTH

ASPHALT REPLACEMENT

CONCRETE DRIVEWAY

CURB REPLACEMENT

CURB REPLACEMENT

12'

12'

EISENHOWER DRIVE

FULL DEPTH SAWCUT ON FLANGE LINES

CURB REPLACEMENT

13

14

15

12'

12'

FULL DEPTH SAWCUT ON FLANGE LINES

CURB REPLACEMENT

CURB REPLACEMENT

6' CURB TAPER

6' CURB TAPER

INSTALL 6" UNDERDRAIN 10' EACH DIRECTION

PEDESTAL TO BE RELOCATED (BY OTHERS)

SW CONC PAD TRANSFORMER

ASPHALT REPLACEMENT

CONCRETE DRIVEWAY

10' PROPOSED CONCRETE TRAIL

ZIMMER FINANCIAL GROUP

USI INSURANCE SERVICES

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NO.	DATE	REVISION

EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
EISENHOWER DR CONSTRUCTION

DESIGNED	DRAWN
BDW	RRS

PROJECT NO.
K0001-09-20-00811

DATE
JANUARY, 2021

SHEET NO.
07

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TRI COUNTY OFFICE COMPLEX

KENNEDY AVE

REMOVE EXISTING INLET
SALVAGE EXISTING CASTING
12" INVERT: 735.50±
T/: 739.40±
CONTRACTOR TO FIELD VERIFY ELEVATIONS

10' PROPOSED
CONCRETE TRAIL

LIGHT

LIGHT

LIGHT

INSTALL 6" UNDERDRAIN
10' EACH DIRECTION

12" PVC SS PIPE

12" PVC 45° ELBOW

FO

T

TV

E

12'

FULL DEPTH
SAWCUT ON
FLANGE LINES

16

17

: 17+54.50

NORTH

EISENHOWER DRIVE

FULL DEPTH
SAWCUT
(TYP)

EISENHOWER DRIVE

FULL DEPTH
SAWCUT ON
FLANGE LINES

G

1' TERRACE
SEE DETAIL

10' PROPOSED
CONCRETE TRAIL

RELOCATE EXISTING SIGN POST
(BY OTHERS)

INSTALL 6" UNDERDRAIN
10' EACH DIRECTION

CURB
REPLACEMENT

KENNEDY AVE

ASSOCIATED BENEFITS
AND RISK CONSULTING

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NO.	DATE	REVISION

EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
EISENHOWER DR CONSTRUCTION

DESIGNED	DRAWN
BDW	RRS

PROJECT NO.
K0001-09-20-00811

DATE
JANUARY, 2021

SHEET NO.
08

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60

SHEET NO.

JANUARY, 2021

DATE

K0001-09-20-0811

PROJECT NO.

DESIGNED BDW

DRAWN RRS

EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
EISENHOWER DR PAVEMENT MARKING & TURF RESTORATION

NO.	DATE	REVISION

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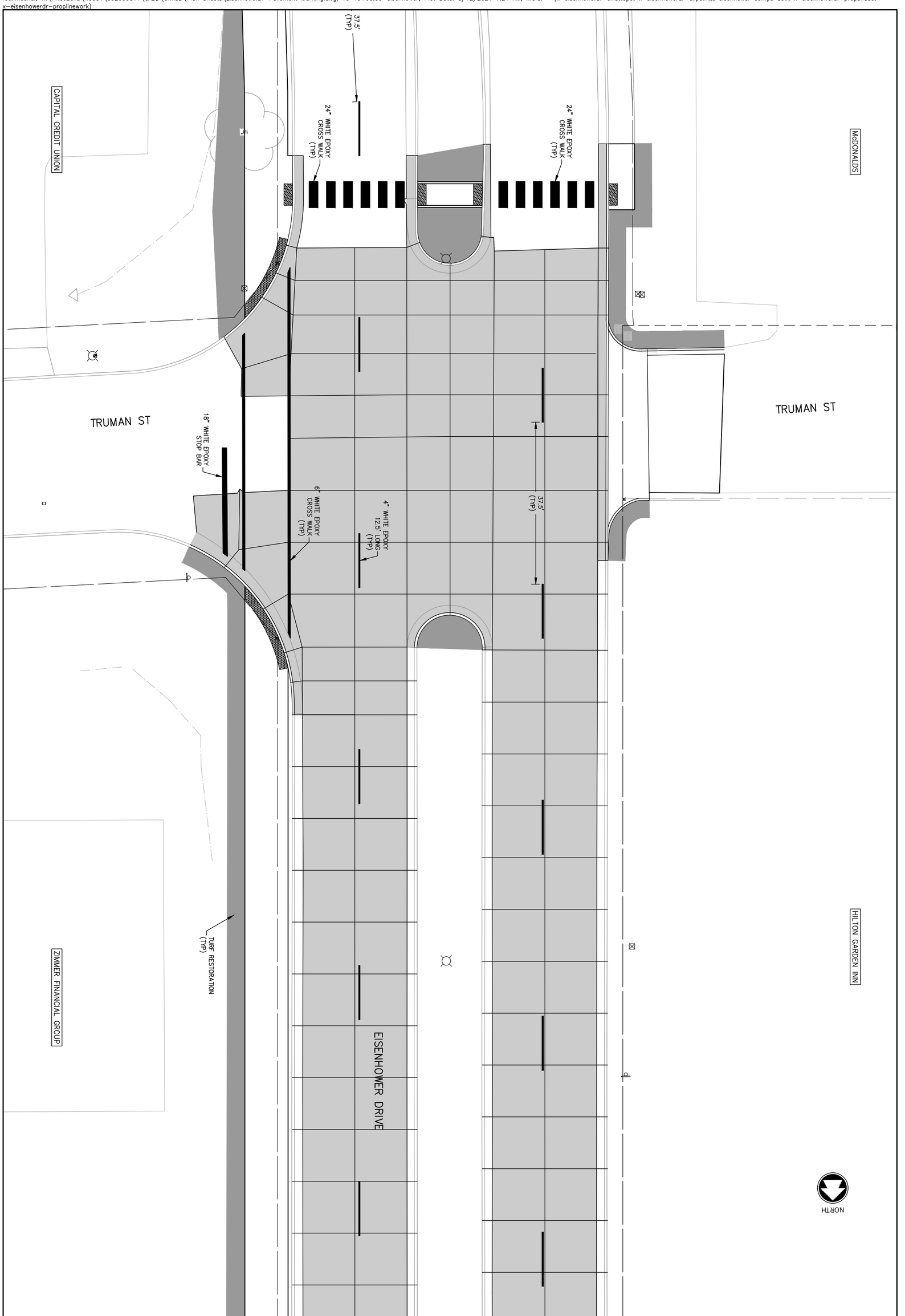

EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
EISENHOWER DR PAVEMENT MARKING & TURF RESTORATION

NO.	DATE	REVISION

DESIGNED: BDW
DRAWN: RRS
PROJECT NO.: K0001-09-20-00811
DATE: JANUARY, 2021
SHEET NO.: 10

McMAHON ENGINEERS ARCHITECTS
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HILTON GARDEN INN

TRI COUNTY OFFICE COMPLEX

NORTH

37.5'
(TYP)

EISENHOWER DRIVE

4" WHITE EPOXY
12.5' LONG
(TYP)

TURF RESTORATION
(TYP)

ZIMMER FINANCIAL GROUP

USI INSURANCE SERVICES

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ENGINEERS ARCHITECTS
McMAHON ASSOCIATES, INC.
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NO.	DATE	REVISION

EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
EISENHOWER DR PAVEMENT MARKING & TURF RESTORATION

DESIGNED	DRAWN
BDW	RRS

PROJECT NO.
K0001-09-20-00811

DATE
JANUARY, 2021

SHEET NO.
11

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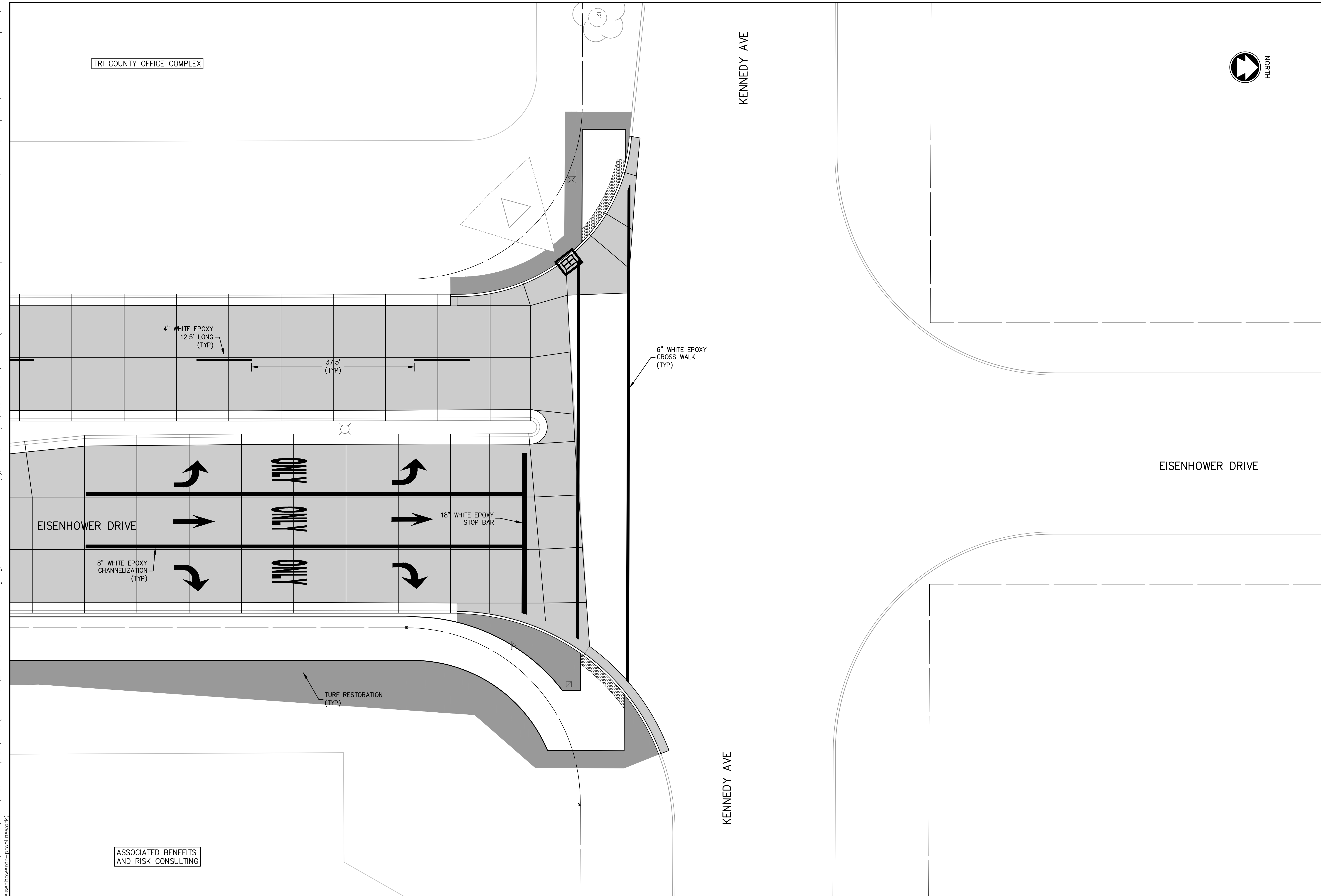

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NO.	DATE	REVISION

EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
EISENHOWER DR PAVEMENT MARKING & TURF RESTORATION

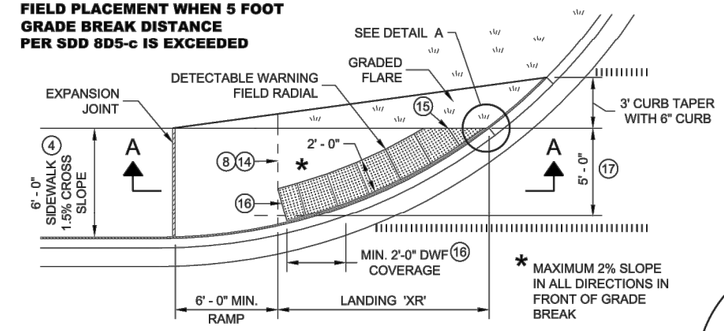
DESIGNED	DRAWN
BDW	RRS

PROJECT NO.
K0001-09-20-00811

DATE
JANUARY, 2021

SHEET NO.
12

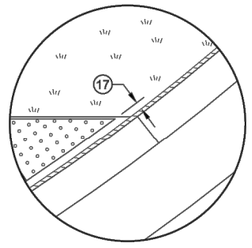
RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-c IS EXCEEDED



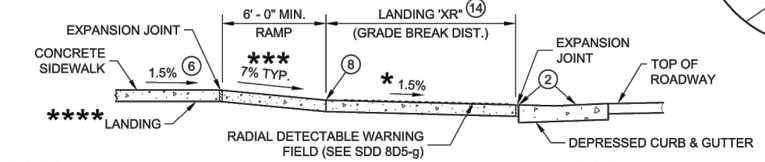
PLAN VIEW

CURB RAMP TYPE 4A1

(GRADE BREAK DISTANCE GREATER THAN 5 FEET)



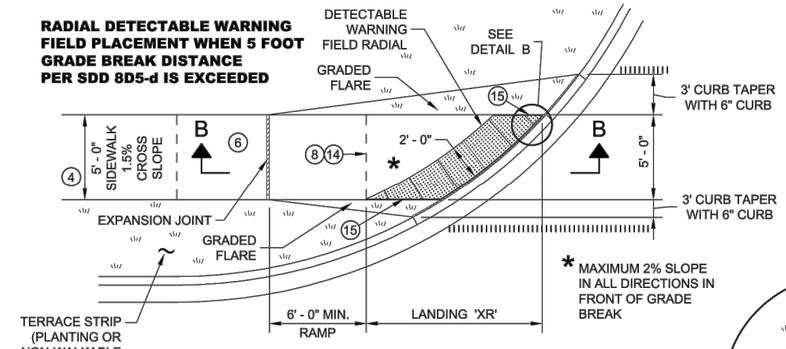
DETAIL A



**** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

SECTION A - A FOR TYPE 4A1

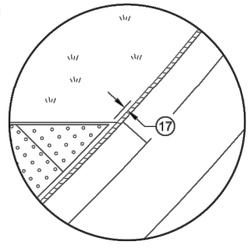
RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-d IS EXCEEDED



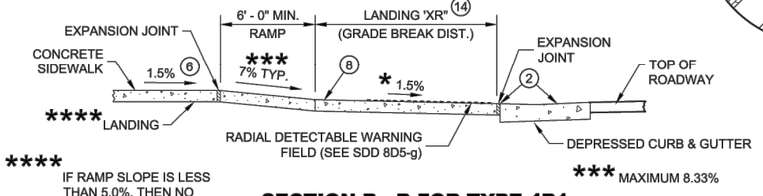
PLAN VIEW

CURB RAMP TYPE 4B1

(GRADE BREAK DISTANCE GREATER THAN 5 FEET)



DETAIL B



**** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

SECTION B - B FOR TYPE 4B1

LEGEND

- ½" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT SIDEWALK
- PAVEMENT MARKING CROSSWALK (WHITE)

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

APPLY RADIAL DETECTABLE WARNING PLACEMENT SIMILARLY FOR TYPE 4A AND 4A1 CURB RAMPS AND SIMILARLY FOR TYPE 4B AND 4B1 CURB RAMPS. TYPE 4A AND 4B CURB RAMPS ARE NOT SHOWN.

REFER TO SDD 8D5-g FOR ADDITIONAL RADIAL PLATE REQUIREMENTS.

FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FILED ARE PROHIBITED.

DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AD ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN ¼ - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.

(3) AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET BY 5 FEET.

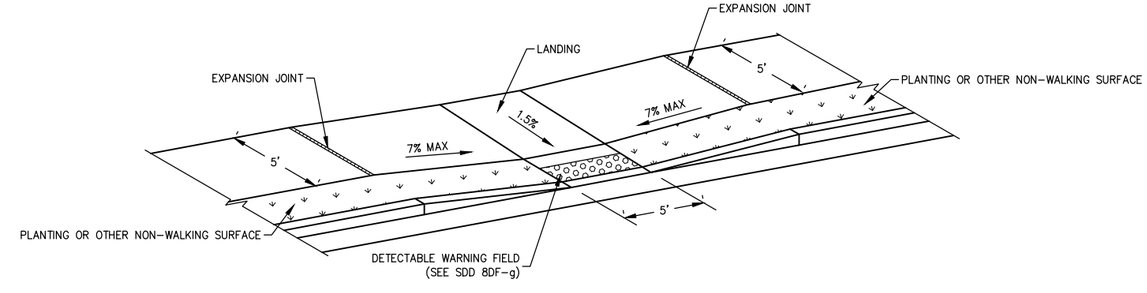
(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

(14) CONSULT ENGINEER IF GRADE BREAK LOCATION (END OF LANDING DIMENSION "XR") REQUIRES FIELD ADJUSTMENT WHEN ESTABLISHING FINAL RADIAL DETECTABLE WARNING FIELD LOCATION.

(15) FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN ⅛" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.

(16) USE 1' X 2" RECTANGULAR END PLATE AT END OF TYPE 4A1 RAMP AND PROVIDE MINIMUM 2' - 0" DETECTABLE WARNING FIELD COVERAGE (IN DIRECTION OF PEDESTRIAN TRAVEL) ALONG THE ENTIRE CURB RAMP WIDTH.

(17) A MAXIMUM 3 INCH CONCRETE BORDER WITH IS ALLOWABLE IN FROM OF RADIAL DETECTABLE WARNING FIELD FOR CONSTRUCTABILITY PURPOSES. CONCRETE BORDER WIDTH MAY VARY UP TO 1 INCH.



CURB RAMP TYPE 7B

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS

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NO.	DATE	REVISION

EISENHOWER DRIVE
VILLAGE Of KIMBERLY, OUTAGAMIE COUNTY
CONSTRUCTION JOINT DETAILS

DESIGNED	DRAWN
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K0001-09-20-00811

DATE
JANUARY, 2021

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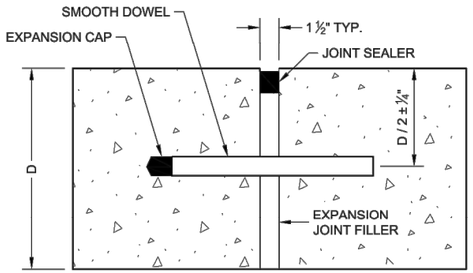
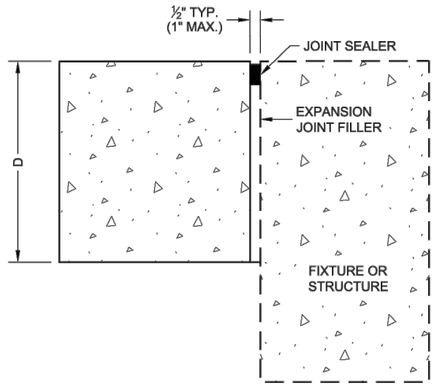


DOWELED TRANSVERSE (1)



UNTIED - LONGITUDINAL

EXPANSION JOINTS

TIE BAR TABLE

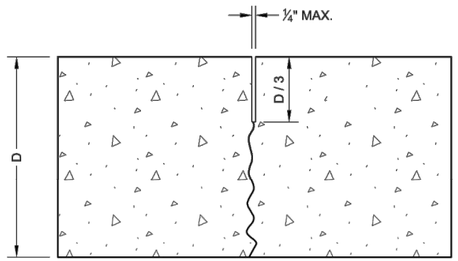
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 ½"	NO. 4	30"	36"
≥ 10 ½"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

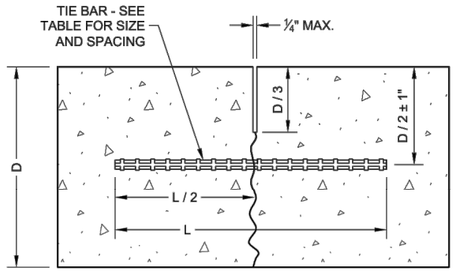
** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

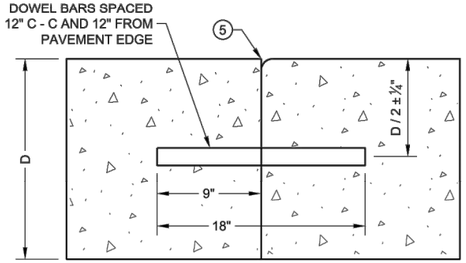
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATETHE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
4. CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
5. IF JOINT IS FORMED, PROVIDE A ¼" RADIUS.
6. ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



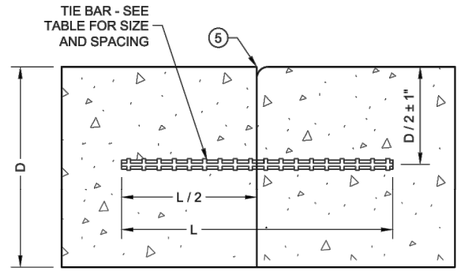
UNDOWELED TRANSVERSE



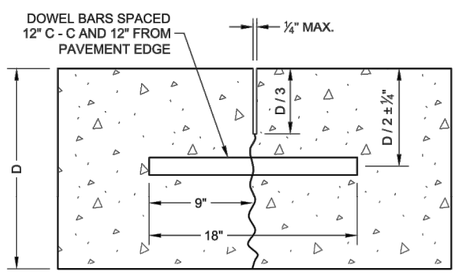
TIED LONGITUDINAL



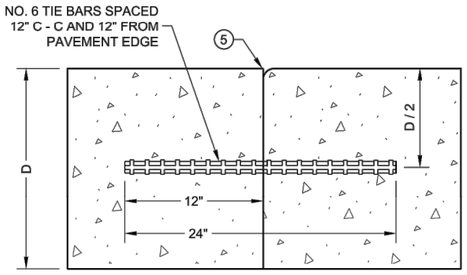
DOWELED TRANSVERSE (3)



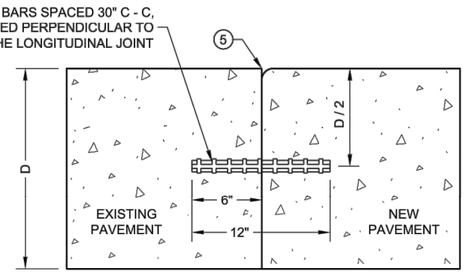
TIED LONGITUDINAL



DOWELED TRANSVERSE



TIED TRANSVERSE (3)
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



TIED LONGITUDINAL TO EXISTING

CONTRACTION JOINTS (2)

CONSTRUCTION JOINTS (4)

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NO.	DATE	REVISION

EISENHOWER DRIVE
VILLAGE Of KIMBERLY, OUTAGAMIE COUNTY
CURB RAMP DETAILS

DESIGNED	DRAWN
BDW	RRS

PROJECT NO.
K0001-09-20-00811

DATE
JANUARY, 2021

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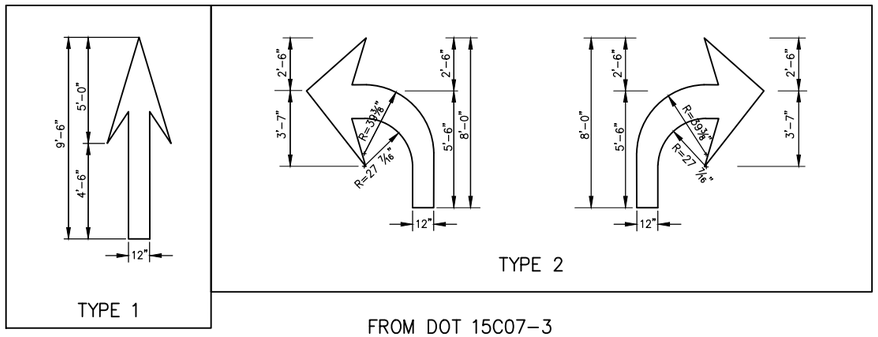
14



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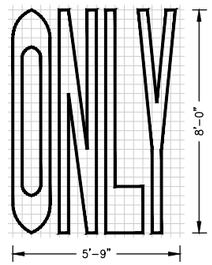
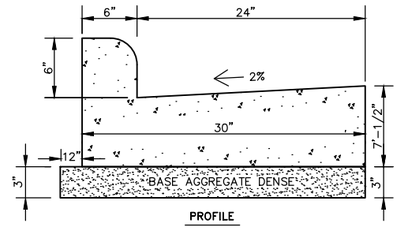
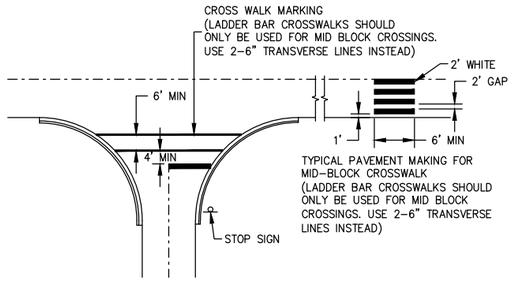
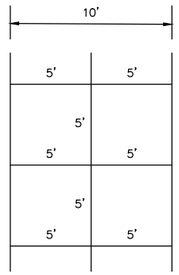




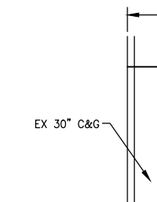
STREET CURB DETAIL



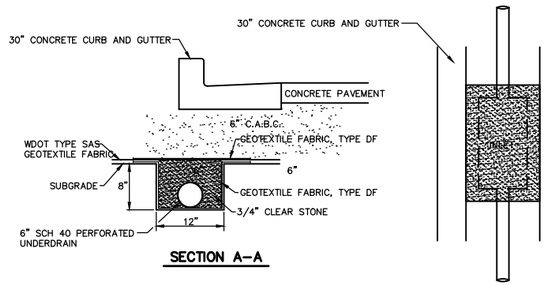
TYPICAL STOP LINE & CROSS WALK PAVEMENT MARKING

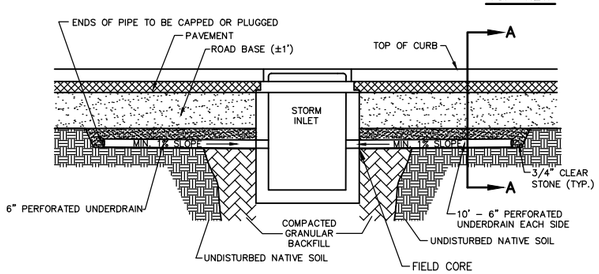


SAW CUT DETAIL
(NO TOOLED JOINTS)

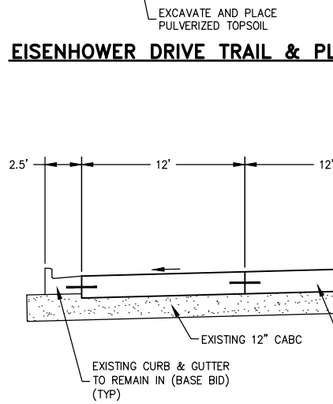


TYPICAL SAWCUT DETAIL EISENHOWER DRIVE

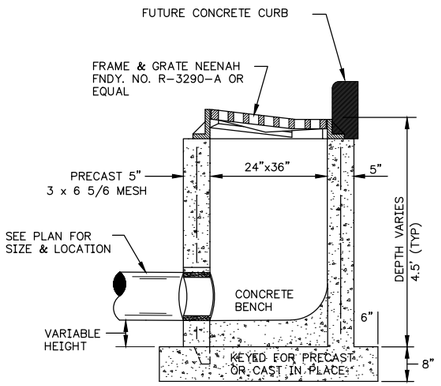




STUB DRAIN DETAIL



EISENHOWER DRIVE TRAIL & PLANTING STRIP



STORM SEWER INLET DETAIL

EISENHOWER TYPICAL SECTION

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EISENHOWER DRIVE
VILLAGE Of KIMBERLY, OUTAGAMIE COUNTY
MISCELLANEOUS DETAILS

DESIGNED	DRAWN
BDW	RRS

PROJECT NO.
K0001-09-20-00811

DATE
JANUARY, 2021

SHEET NO.
15

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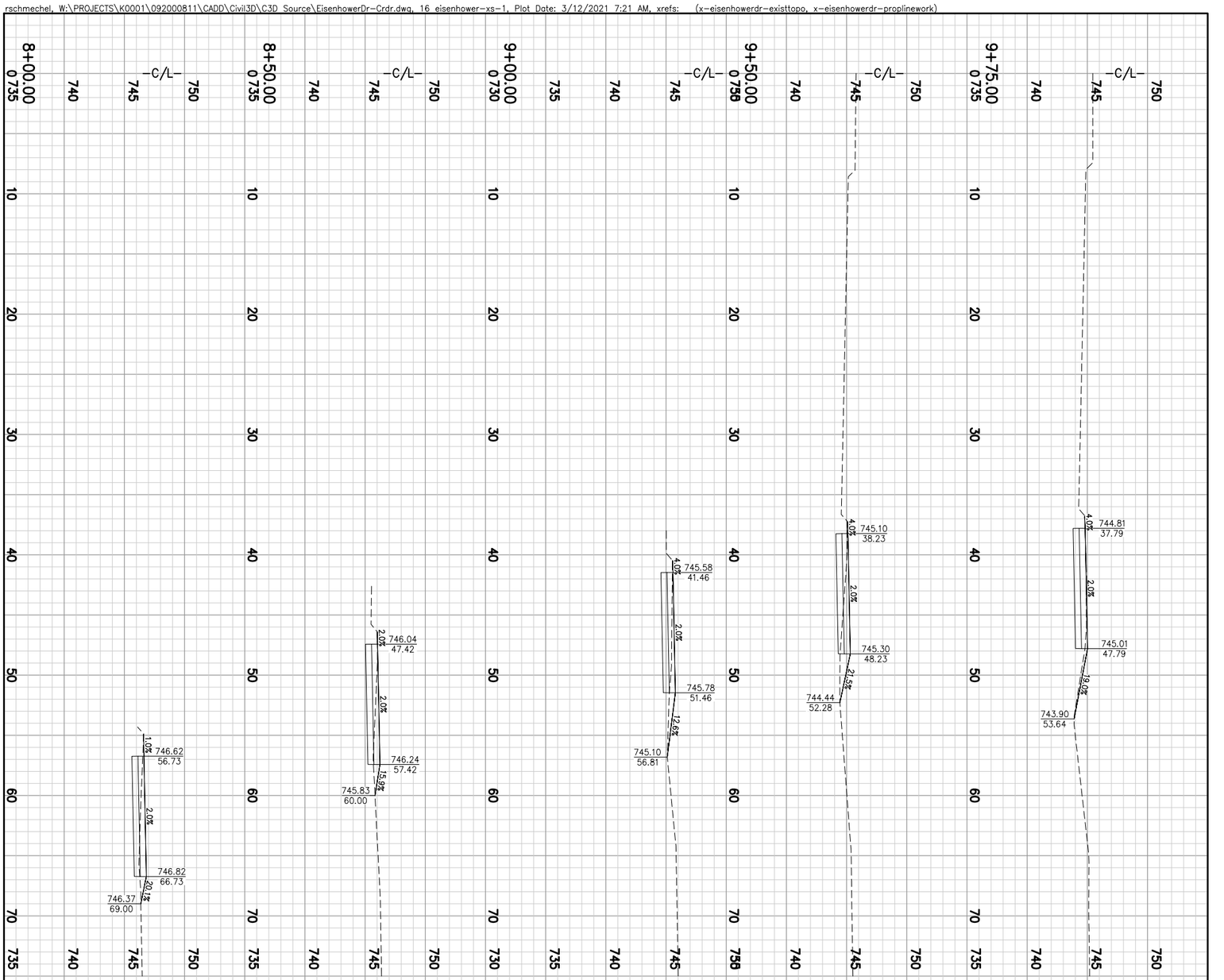

EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
CROSS SECTIONS

NO.	DATE	REVISION

DESIGNED: BDW
DRAWN: RRS
PROJECT NO.: K0001-09-20-00811
DATE: JANUARY, 2021
SHEET NO.: 16

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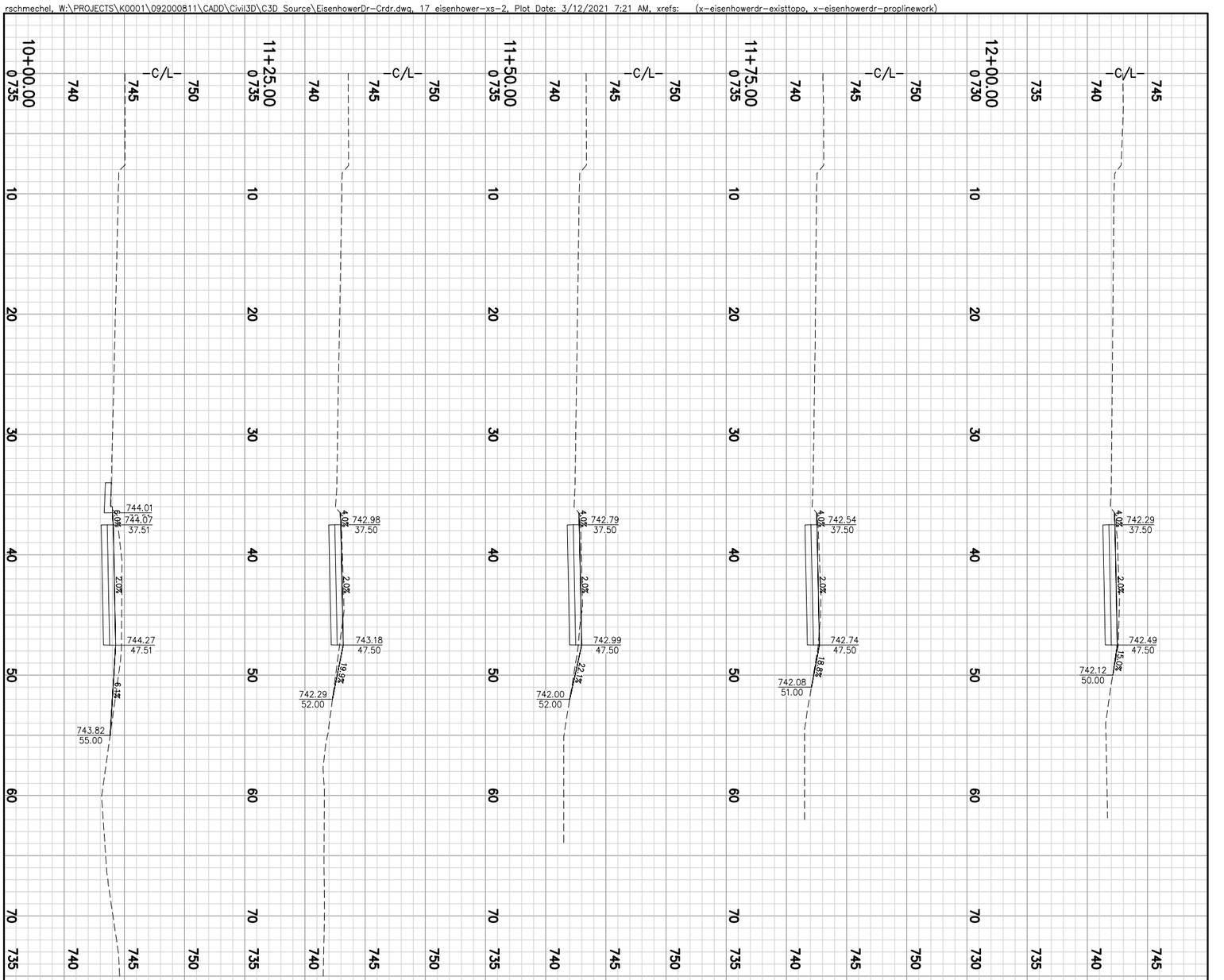

SHEET NO. 17	DESIGNED BDW	NO.	DATE
DATE JANUARY, 2021	DRAWN RRS		
PROJECT NO. K0001-09-20-00811			

EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
CROSS SECTIONS

REVISION

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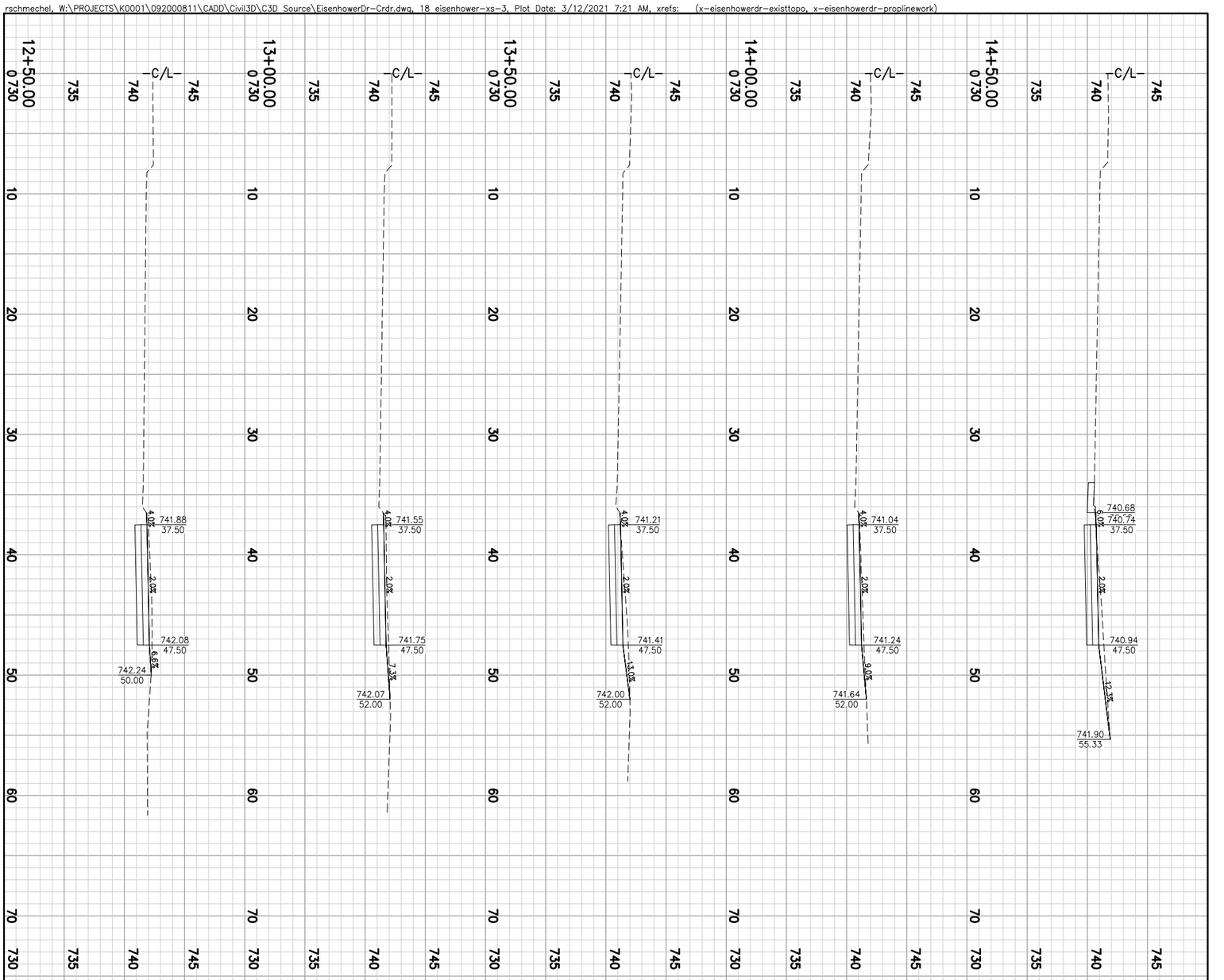

EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
CROSS SECTIONS

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DRAWN: RRS
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DATE: JANUARY, 2021
SHEET NO.: 18

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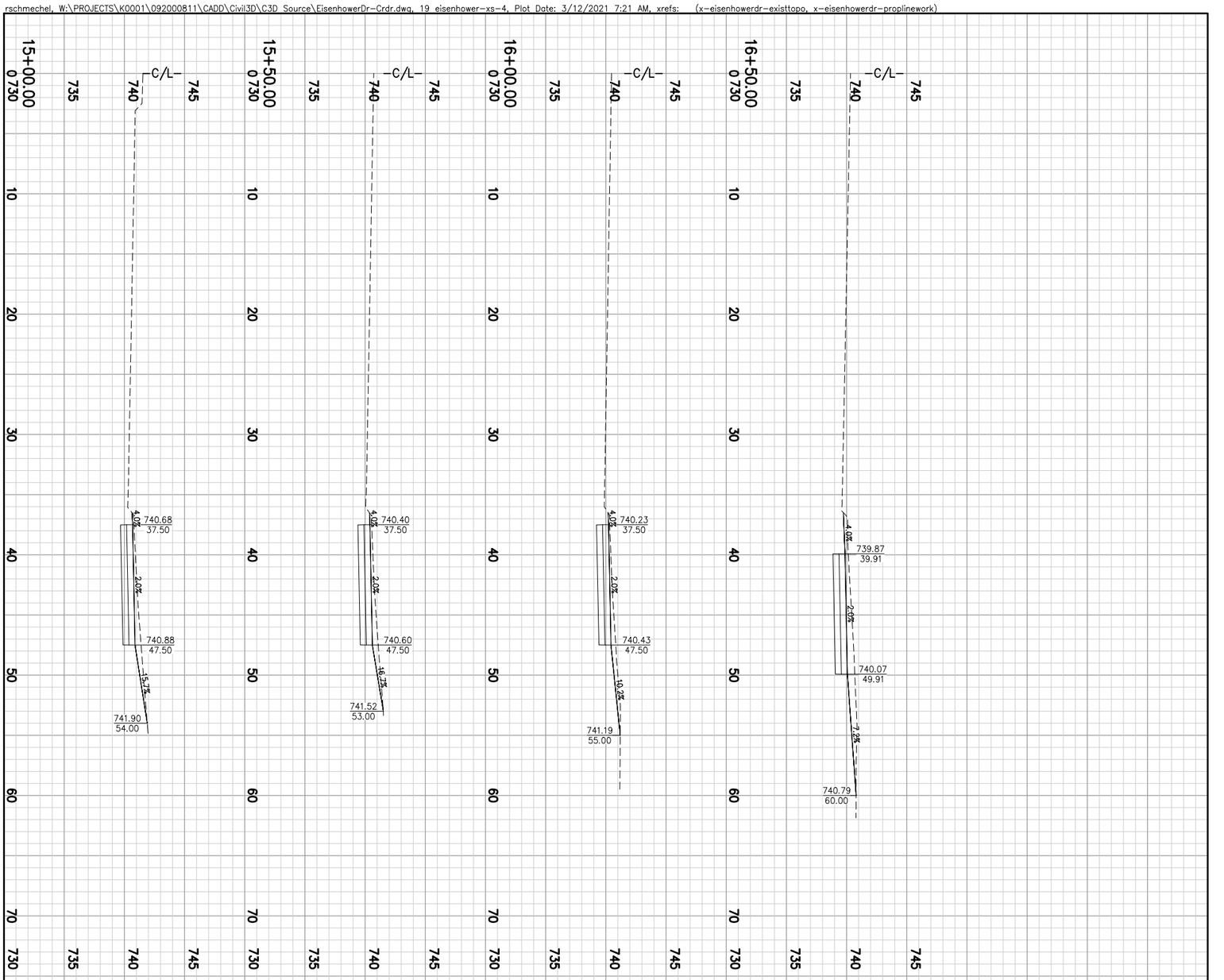

SHEET NO.	DESIGNED	BDW
19	DRAWN	RRS
DATE	PROJECT NO.	
JANUARY, 2021	K0001-09-20-00811	

EISENHOWER DRIVE
VILLAGE OF KIMBERLY, OUTAGAMIE COUNTY
CROSS SECTIONS

NO.	DATE	REVISION

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