



Town of Mt. Crested Butte

Cinnamon Mountain Road and Hunter Hill Drainage and Paving Rehabilitation (FDR)

PROJECT MANUAL

February 2024

Prepared By:



103 W. TOMICHI AVE, SUITE A
GUNNISON, CO 81230
970.641.5355
970.641.5358 FAX

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BID DOCUMENTS



ADVERTISEMENT FOR BIDS

The Town of Mt Crested Butte will be accepting sealed BIDS for:

Cinnamon Mountain Road and Hunter Hill Road Drainage and Paving Rehabilitation (FDR)

This project is for Paving and Drainage Improvements to Sections of Hunter Hill Road and Cinnamon Mountain Road. All paving work for this project must be completed by September 13, 2024.

The work for Hunter Hill Road will include Full Depth Reclamation and Paving of 1,571 feet beginning at the Gothic Road right-of-way, including 33 feet on Snowmass Road from the intersection of Hunter Hill Road. Improvement to and partial replacement of part of the curb and gutter, sidewalk, driveways, and valley pans. Improvement to the stormwater drainage including replacement and addition of culverts, drainage pipe, and other drainage features such as improvement to existing swales. Project will include buried electrical lines for way-finding signs.

The work for Cinnamon Mountain Road will include Full Depth Reclamation, Paving and Drainage improvements for approximately 1,000 feet of road to the cul-de-sac. Improvement to the stormwater drainage including replacement and addition of culverts, drainage pipe, and other drainage features such as improvement to existing swales. An additional "alternate bid item" includes work at the Cinnamon Mountain Road Cul-de-sac that includes a rockery retaining wall.

A project site tour with Town staff and questions will be accepted until March 25, 2024 at 4:00 PM (MST). The site tour can be arranged with Jeff Smith at jsmith@mtcb.colorado.gov. 970.349.6632, Ext 108. Written questions are to be submitted electronically to Kathie Lucas (SGM) at kathiel@sgm-inc.com or Jerry Burgess (SGM) at jerryb@sgm-inc.com.

Bids will be received by the Town of Mt Crested Butte at Town Hall until April 1, 2024 at 11:00 AM (MST), at which time they will be opened and publicly read aloud.

Send or deliver bid proposals to:

**Town of Mt Crested Butte
911 Gothic Road
P.O. Box 5800
Mt. Crested Butte, CO 81225
Attn: Jeff Smith**

Electronic Bid Packages can be emailed to jsmith@mtcb.colorado.gov

Electronic PDF construction documents are available to be sent via email at no cost. Hard copies are available to be delivered FedEx after receipt of a non-refundable \$50.00 fee and a FedEx account number, contact SGM.

SGM, Inc.,
103 W. Tomichi Ave, Suite A
Gunnison, CO 81230

Instructions to Bidders

1. Defined Terms.

Terms used in these Instructions to Bidders which are defined in the Standard General Conditions of the Construction Contract. NSPE-ACEC Document 1910-8, CSI 56465 (1978 editions) have the meanings assigned to them in the General Conditions. The term "Successful Bidder" means the lowest, qualified, responsible Bidder to whom the Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

2. Copies of Bidding Documents.

2.1. Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation may be obtained from Engineer.

2.2. Complete sets of Bidding Documents shall be used in preparing Bids: neither Owner nor Engineer assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

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

3. Qualifications of Bidders.

To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit within five days of Owner's request written evidence and project references of the types of work performed similar to the work of this project. Previous experience and ability to perform this work will be verified. Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.

4. Examination of Contract Documents and Site.

4.1. Before submitting a Bid, each Bidder must (a) examine the Contract Documents thoroughly, (b) visit the site to familiarize himself with local conditions that may in any manner affect cost, progress or performance of

the Work, (c) familiarize himself with federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost, progress or performance of the Work; and (d) study and carefully correlate Bidder's observations with the Contract Documents.

4.2. The submission of a Bid will constitute an incontrovertible representation by the Bidder that he has complied with every requirement of this Article 4 and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

5. Interpretations.

All questions about the meaning or intent of the Contract Documents shall be submitted to Engineer in writing. Replies will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than four 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.

6. Bid Security.

6.1. Bid Security shall be made payable to Owner, in an amount of five percent of the Bidder's maximum Bid price and in the form of a- certified or bank check or a Bid Bond (on form attached, if a form is prescribed) issued by a Surety meeting the requirements of paragraph 5.01 of the General Conditions.

6.2. The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Contract Security, whereupon it will be returned; if the successful Bidder fails to execute and deliver the Agreement and furnish the required Contract Security within 15 days of the Notice of Award, Owner may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid Security of any Bidder whose Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh day after the "effective date of the Agreement" (which term is defined in the

General Conditions) by Owner to Contractor and the required Contract Security, is furnished or the sixty-first day after the Bid opening. Bid Security of other Bidders will be returned within seven days of the Bid opening.

7. Contract Time.

September 13, 2024 is the date by which, the Work is to be completed (the Contract Time) is set forth in the Agreement. A tentative construction schedule is to be submitted with bid.

8. Liquidated Damages.

Provisions for liquidated damages, if any, are set forth in the Agreement.

9. Substitute Material and Equipment.

The Contract, if awarded, will be on the basis of material and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the "effective date of the Agreement".

10. Bid Form.

10.1. The Bid Form is attached hereto; additional copies may be obtained from Engineer.

10.2. Bid Forms must be completed in ink or by typewriter. The Bid price of each item on the form must be stated in words and numerals; in case of a conflict, words will take precedence.

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

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

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

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

10.7. The address to which communications regarding the Bid are to be directed must be shown.

11. Submission of Bids.

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

12. Modification and Withdrawal of Bids.

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

12.2. If, within twenty-four hours after Bids are opened, any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of his Bid, that Bidder may withdraw his Bid and the Bid Security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work.

13. Opening of Bids.

Bids will be opened just after bids are due at Mt. Crested Butte Town Hall.

13.1. When Bids are opened publicly they will be read aloud, and an abstract of the amounts of the base Bids and major alternates (if any) will be made available after the opening of Bids.

14. Bids to Remain Open.

All Bids shall remain open for sixty days after the day of the Bid opening, but Owner may, in his sole discretion, release any Bid and return the Bid Security prior to that date.

15. Award of Contract.

15.1. Owner reserves the right to reject any and all Bids, to waive any and all informalities and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, no responsive or conditional Bids. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

15.2. In evaluating Bids, Owner shall consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements and alternates, unit prices requested in the Bid forms and construction schedule. It is Owner's intent to accept alternates (if any are accepted) in the order in which they are listed in the Bid form but Owner may accept them in any order or combination.

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

15.4. Owner may conduct such investigations as he deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of the Bidders, proposed Subcontractors and

other persons and organizations to do the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

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

15.6. If the contract is to be awarded it will be awarded to the lowest Bidder whose evaluation by Owner indicates to Owner that the award will provide the best value to the Town of Mt. Crested Butte.

15.7. If the contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within sixty (60) days after the day of the Bid opening.

16. Performance and Other Bonds.

The Mt. Crested Butte Construction Agreement, Paragraph 5.9 of the General Conditions and the Supplementary Conditions set forth Owner's requirements as to performance and other Bonds. When the Successful Bidder delivers the executed Agreement to Owner it shall be accompanied by the required Contract Security.

17. Signing of Agreement.

When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by at least three unsigned counterparts of the Agreement and all other Contract Documents. Within fifteen days thereafter Contractor shall, sign and deliver at least three counterparts of the Agreement to Owner with all other Contract Documents attached. Within ten days thereafter Owner will deliver all fully signed counterparts to Contractor. Engineer will identify those portions of the Contract Documents not fully signed by Owner and Contractor and such identification shall be binding on all parties.

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BID FORM

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____, doing business as _____*, to _____, (hereinafter called "OWNER") for construction of Cinnamon Mountain Road and Hunter Hill Road Drainage and Paving Rehabilitation (FDR).

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for of Cinnamon Mountain Road and Hunter Hill Road Drainage and Paving Rehabilitation (FDR) in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of the BID, each BIDDER certifies, and in the case of a joint BID, each party has been arrived at independently, without consultation, communication, or agreement as to any matter relating to the BID with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete the PROJECT by **September 13, 2024**. BIDDER further agrees to pay as liquidated damages, as set forth in the agreement per consecutive calendar day thereafter as provided in Agreement.

Bidder acknowledges receipt of the following ADDENDA:

No. _____ dated _____

No. _____ dated _____

Base Bid Cinnamon Mountain Road: _____
(Numeric)

(Written)

Cinnamon Mountain Road – Alternate 1: _____
(Numeric)

(Written)

Cinnamon Mountain Road and Alternate 1: _____
(Numeric)

(Written)

Hunter Hill Road: _____
(Numeric)

(Written)

Total Complete Bid: _____
(Numeric)

(Written)

Respectfully submitted:

Signature

Address

Title

Firm Name

Telephone

(SEAL, if Bid is by a corporation)

ATTEST: _____
Name

* Insert "a corporation", "a partnership", or "an individual", as applicable

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Project Bid Schedule
Mt Crested Butte
Cinnamon Mountain Road

Contract Item #	Estimated Quantity	Unit	Description	Unit Price	Total Price
1-C	1	LS	Mobilization and Demobilization		
2-C	240	SF	Remove Valley Pan		
3-C	2,200	SY	Full Depth Reclamation		
4-C	2,375	SY	Geotextile Fabric (Geogrid)		
5-C	140	TON	Aggregate Base Coarse		
6-C	330	LF	Ditch Improvements		
7-C	250	LF	Culvert Cleaning		
8-C	40	LF	New Valley Pan - 36"		
9-C	4	EACH	Storm Inlet with Valley Pan Inlet/Grate		
10-C	410	LF	12" HDPE Pipe/Culvert		
11-C	5	EACH	Flared End Sections (HDPE Culvert) 12"		
12-C	420	TONS	Hot Mix Asphalt (prep and place)		
13-C	350	SY	Subgrade Stabilization		
14-C	1	LS	Traffic Control		
15-C	1	LS	Construction Staking/Survey		
16-C	1	LS	Minor Contract Revisions	\$25,000.00	\$25,000.00

Base Bid Total:

Cinnamon Mtn. Road - Alternate 1

Item #	Quantity	Unit	Description	Unit Price	Total Price
28	1	LS	Clearing and Grubbing		
29	106	LF	18" HDPE Pipe/Culvert		
30	2	LF	18" Flared End Section		
31	6	SY	Rip Rap Inlet/Outlet Protection		
32	510	SY	Full Depth Reclamation (Cinnamon)		
32	75	TONS	Imported Aggregate Base Course		
34	125	TONS	Hot Mix Asphalt (prep and place)		
35	650	SY	Geotextile Fabric (Geogrid)		
36	600	SF	Rockery Retaining Wall		

ALT 1 Total:

Project Total: _____

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Project Bid Schedule

Mt Crested Butte

Hunter Hill Road

Contract Item #	Estimated Quantity	Unit	Description	Unit Price	Total Price
1-H	1	LS	Mobilization and Demobilization		
2-H	227	LF	Remove Curb and Gutter		
3-H	845	SF	Remove Valley Pan		
4-H	110	SY	Remove Concete Sidewalk and Flatwork		
5-H	4,100	SY	Full Depth Reclamation		
6-H	4,100	SY	Geotextile Fabric (Geogrid)		
7-H	110	TON	Aggregate Base Coarse		
8-H	605	LF	Ditch Improvements		
9-H	100	LF	Culvert Cleaning		
10-H	227	LF	New Curb and Gutter		
11-H	100	SY	Concrete Flat Work		
12-H	285	LF	New Valley Pan - 36"		
13-H	1	EACH	Storm Inlet with Valley Pan Inlet/Grate		
14-H	1	EACH	Storm MH		
15-H	170	LF	18" HDPE Pipe/Culvert		
16-H	3	EACH	Flared End Sections (HDPE Culvert) 18"		
17-H	210	LF	Electrical Conduit (pipe only - no conductors) 1-1/2" Dia.		
18-H	740	TONS	Hot Mix Asphalt (prep and place)		
19-H	175	SY	Subgrade Stabilization		
20-H	1	LS	Traffic Control		
21-H	1	LS	Construction Staking/Survey		
22-H	1	LS	Minor Contract Revisions	\$25,000.00	\$25,000.00

Base Bid Total: _____

Project Total: _____

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BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____

_____ as Principal, and _____

held and firmly bound unto _____

in the penal sum of _____

for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed this _____ day of _____, 20____. The condition of the above obligation is such that whereas the Principal has submitted to Town of Mt. Crested Butte, Colorado, a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the Cinnamon Mountain Road and Hunter Hill Road Drainage and Paving Rehabilitation (FDR).

NOW, THEREFORE,

- [a] If said Bid shall be rejected, or
- [b] If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a Bond for his faithful performance of said contract, and for the payment of all persons performing labor of furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid,

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its Bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension. IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and

these presents to be signed by their proper officers, the day and year first set forth above.

_____(L.S.)
Principal

Surety

By: _____

IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as Amended) and be authorized to transact business in the state where the project is located.

NOTICE OF AWARD

Dated _____, 2024

TO: _____
Bidder

OWNER'S PROJECT NO. _____

PROJECT: Cinnamon Mountain Road and Hunter Hill Road Drainage and Paving Rehabilitation (FDR)

CONTRACT FOR: Town of Mt. Crested Butte

You are notified that your Bid dated _____, 2024, for the above Contract has been considered. You are the apparent successful Bidder and have been awarded a contract for Cinnamon Mountain Road and Hunter Hill Road Drainage and Paving Rehabilitation (FDR).

The Contract Price of your Contract is _____ Dollars(\$_____).

Three copies of each of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

You must comply with the following conditions precedent within fifteen days of the date of this Notice of Award, that is by _____, 2024.

1. You must deliver to the OWNER three fully executed counterparts of the Agreement, including all the Contract Documents, Performance and Payment Bonds and Insurance Certificate. Each of the Contract Documents must bear your signature on the cover.
2. You must deliver with the executed Agreement the Contract Security (Bonds) as specified in the Mt. Crested Butte Construction Agreement.
3. You must deliver with the executed Agreement, proof of insurance coverage as specified in the Mt. Crested Butte Construction Agreement (paragraph 7).

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

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

Town of Mt. Crested Butte
Owner

By: _____
Authorized Signature

Carlos Velado
Town Manager

AGREEMENT DOCUMENTS



**CONSTRUCTION AGREEMENT
(TOWN TEMPLATE)**

THIS CONSTRUCTION AGREEMENT ("Agreement") is made this ___ day of _____, 2024, by and between the Town of Mt. Crested Butte, Colorado a Colorado home-rule municipality (hereinafter the "**Town**") with an address of PO Box 5800, 911 Gothic Road, Mt. Crested Butte, Colorado 81225 and [INSERT COMPANY NAME] with an address of [INSERT COMPANY ADDRESS] (hereinafter referred to as "**Contractor**").

RECITALS

WHEREAS, the Town desires to contract with the Contractor to provide professional construction services to **Cinnamon Mountain Road and Hunter Hill Road Drainage and Paving Rehabilitation (FDR)** (hereinafter the "Project") as Town roadways located in Mt. Crested Butte.

WHEREAS, Contractor is a professional contractor firm located in [INSERT] who can provide such services under the terms and conditions stated below.

WHEREAS, Contractor desires to perform such duties pursuant to the terms and conditions provided for in this Agreement; and

WHEREAS, the parties hereto desire to set forth certain understandings regarding the Project in writing.

AGREEMENT

NOW, THEREFORE, for and in consideration of the mutual promises and covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Statement of Work.

Contractor agrees to manage and supervise the construction of the Project located in the Town of Mt. Crested Butte, Colorado within Gunnison County, Colorado, as directed by the Town and pursuant to the Town of Mt. Crested Butte Town Code and according to the plans and specifications approved by the Town and prepared by SGM, Inc (civil engineer).

Contractor shall (a) furnish all tools, equipment, supplies, superintendence, transportation and other construction accessories, services and facilities; (b) furnish all materials, supplies, and equipment specified to be incorporated into and form a permanent part of the complete work; (c) provide and perform all necessary labor in a substantial and skillful manner and in accordance with the provisions of this Agreement; and (d) execute, construct and complete all work included in and covered by this Agreement.

2. Standard of Services.

Services must be provided according to all applicable federal, state and local laws and regulations. All Services shall be performed in a timely manner according to the Project Schedule attached hereto within **Exhibit A (Scope of Work/Project Schedule)**.

3. Time of Commencement and Completion.

Construction under this Agreement will begin no later than [INSERT DATE] and shall be completed by **September 13, 2024** ("Completion Date"). The Completion Date may, at the Town's sole discretion, be extended if approved by the Town in writing.

If, due to misconduct or neglect, Contractor fails to complete the Project on or before the Completion Date, the Town may deduct liquidated damages in the amount of **Eight Hundred Dollars (\$800.00)** from the contract price per day for each day Contractor works beyond this date. It is understood by Contractor and the Town that actual damages caused by Contractor's failure to complete this Agreement on time are impracticable or extremely difficult to fix, and that the per diem deduction from the contract price will be retained by the Town as payment by Contractor of liquidated damages, and not as a penalty.

4. Compensation.

Town shall pay and Contractor shall receive the contract price of [INSERT DOLLAR AMOUNT PER FINAL CONTRACT QUOTE] as stipulated in the Notice of Award, attached hereto as **Exhibit B (Notice of Award)** and incorporated herein by this reference, as full compensation for everything furnished and done by Contractor under this Agreement, including all loss or damage arising out of the work or from the action of the elements; for any unforeseen obstruction or difficulty encountered in the prosecution of the work, including increased prices for or shortages of materials for any reason, including natural disasters; for all risks of every description associated with the work; for all expenses incurred due to the suspension or discontinuation of the work; and for well and faithfully completing the work as provided in this Agreement.

5. Payment Draw Requests.

Contractor agrees to perform all work on the Project according to the schedules set forth in the approved Bid Proposal attached hereto as **Exhibit A** and incorporated herein by this reference. Contractor shall submit monthly progress reports to the Town Manager or his designee showing actual costs incurred and work completed. Upon review and approval of the progress reports and draw requests by the Town Manager or his designee, the Town agrees to pay Contractor the amounts shown on all draw requests, minus a **Ten** percent (10%) retainage, no later than the fifteenth (15th) business day following the date the draw request was submitted and approved. Payments may be withheld if:

- A. Work is found defective and not remedied;
- B. Contractor fails to meet schedules shown on **Exhibit A**, as may be amended by the actual construction commencement date.

- C. Contractor does not make prompt and proper payments to subcontractors;
- D. Contractor does not make prompt and proper payments for labor, materials, or equipment furnished;
- E. Another contractor is damaged by an act for which Contractor is responsible;
- F. Claims or liens are filed on the job; or
- G. In the opinion of the Town, Contractor's work is not progressing satisfactorily.

The Town shall disburse the total retainage and the final draw request submitted by Contractor upon acceptance of the Project as described in *Paragraph 16 (Substantial Completion/Acceptance)* below.

6. Liability for Damages.

The Town its officers, agents or employees, shall not in any manner be answerable or responsible for any loss or damage to the work or to any part of the work; for any loss or damage to any materials, building, equipment or other property that may be used or employed in the work, or placed on the worksite during the progress of the work; for any injury done or damages or compensation required to be paid under any present or future law, to any person, whether an employee of Contractor or otherwise; or for any damage to any property occurring during or resulting from the work. Contractor shall indemnify the Town, its officers, agents and employees, against all such injuries, damages and compensation arising or resulting from causes other than the Town's neglect, or that of its officers, agents or employees.

7. Inspection of Work and Materials.

- A. The Town Manager or his designee may appoint and employ such persons as may be necessary to act as inspectors or agents for the purpose of supervising in the interests of the Town materials furnished and work done as the work progresses.
- B. The Town shall at all times have unrestricted access to all parts of the work site and to other places where or in which the preparation of materials and other integral parts of the work are being carried on and conducted. Contractor shall fully cooperate with the Town's staff and appointed inspectors during the course of the work.
- C. Contractor shall provide all facilities and assistance required or requested to carry out the work of supervision and inspection by the Town, including soil, concrete, hot mix asphalt and other material tests.
- D. Inspection of the work by the above-mentioned authorities or their representatives shall in no manner be presumed to relieve in any degree the responsibility or obligations of Contractor.

- E. Any materials or workmanship found at any time to be defective shall be replaced or remedied at once regardless of previous inspection. Inspection of materials shall be promptly made, and, where practicable, at the source of supply.
- F. Whenever the specifications, the instructions of the Town or the laws, ordinances or regulations of any public authority require work to be specially tested or approved, Contractor shall give the Town timely notice of its readiness for inspection, and if the inspection is by another authority, of the date fixed for the inspection.

8. Insurance.

Contractor shall not commence work under this Agreement until Contractor has obtained all insurance required under this section and the insurance has been approved by the Town Manager or his designee. Similarly, Contractor shall not allow any approved subcontractor to commence work on his or her subcontract until all similar insurance required of subcontractor has been so obtained and approved. The following insurance shall be required:

- A. Commercial General Liability Insurance: At a minimum, combined single limits of **\$1,000,000** per occurrence and **\$2,000,000** for general aggregate for bodily injury and property damage, which coverage shall include products/completed operations, independent contractors, and contractual liability each at **\$1,000,000** per occurrence.
- B. Workers' Compensation and Employer's Liability: Workers' compensation insurance for all of Contractor's employees engaged in work at the site of the project including occupational disease coverage in accordance with scope and limits as required by the State of Colorado.
- C. Comprehensive Automobile Liability Insurance: Including coverage for all owned, non-owned, and rented vehicles with **\$1,000,000** combined single limit for each occurrence.

The Town shall be named as an additional insured. Certificates of insurance shall be issued prior to execution of the Notice to Proceed.

9. Performance Bond.

To secure performance of Contractor's obligations under this Agreement, the Contractor shall provide the Town with a Performance Bond in the amount of the full contract price. Prior to execution of this Agreement, the Contractor shall provide the form of the Performance Bond to the Town for its review and approval. The Town shall be authorized to draw upon the Performance Bond to correct any default by Contractor under this Agreement, which default shall be determined and substantiated by an Affidavit of Default signed by the Town Manager. The Performance Bond shall be held by the Town through the one-year warranty period specified in *Paragraph 17 (Warranty)* below.

10. Payment of Labor and Materials Bond.

To secure performance of Contractor's obligations under this Agreement to its subcontractors and suppliers, Contractor shall provide the Town with a Payment of Labor and Materials Bond in the amount of the full contract price. Prior to execution of this Agreement, the Contractor shall provide the form of the Payment of Labor and Materials Bond to the Town for its review and approval. The Town shall be authorized to draw upon the Payment of Labor and Materials Bond to correct any default by Contractor under this Agreement, which default shall be determined and substantiated by an Affidavit of Default signed by the Town Manager. The Payment of Labor and Materials Bond shall be held by the Town through the one-year warranty period specified in *Paragraph 17 (Warranty)* below.

11. Notice to Proceed.

Notice to Proceed shall be issued within ten (10) calendar days of the execution of this Agreement by all parties. If the Town fails to issue such Notice to Proceed within that time limit, Contractor may terminate the Agreement without further liability on the part of either party. Such notice of termination must be tendered in writing to the Town. Additionally, the parties may mutually agree that the time for the Notice to Proceed be extended.

12. Compliance with Laws.

Contractor and every subcontractor or person doing or contracting to do any work contemplated by this Agreement shall keep himself or herself fully informed of all national and state laws and all municipal ordinances and regulations in any manner affecting the work or performance of his or her contract or any extra work, and shall at all times observe and comply with such laws, ordinances and regulations, whether or not the laws, ordinances or regulations are mentioned in this contract.

13. Indemnification.

Contractor agrees to indemnify, defend and hold harmless the Town, its town council, agents and employees of and from any and all liability, claims, liens, demands, actions and causes of action whatsoever (including reasonable attorney's and expert's fees and costs) arising out of or related to any loss, cost, damage or injury, including death, of any person or damage to property of any kind caused by the misconduct or negligent acts, errors or omissions of Contractor or its employees, sub-contractors or agents in connection with this Agreement and the Project. This provision shall survive any termination or expiration of this Contract with respect to any liability, injury or damage occurring prior to such termination.

14. Certificates and Permits.

Contractor shall secure at Contractor's own expense all necessary certificates, licenses and permits from municipal or other public authorities required in connection with the work contemplated by this Agreement or any part of this Agreement with exception of the Town of Mt. Crested Butte building permit which the Town will pay for. Contractor shall give all notices required by law, ordinance or regulation. Contractor shall pay all fees and charges incident to the due and lawful prosecution of the work contemplated by this Agreement, and any extra work performed by Contractor.

15. Termination.

The Town may, at its sole discretion, terminate this Agreement without liability in the event that Contractor fails to provide the Performance Bond and/or Payment of Labor and Materials Bond, Certificates of Insurance required by *Paragraph 8 (Insurance)* otherwise fails to meet the conditions precedent to issuance of the Notice to Proceed. The Town may also, at its sole discretion, on one week's notice to Contractor, terminate this Agreement without liability before the completion date, and without prejudice to any other remedy the Town may have, when Contractor defaults in the performance of any provision, or fails to carry out the construction of the Project in accordance with the provisions of this Agreement. In the event of termination under this paragraph, the Town shall pay the Contractor for all work satisfactorily completed to the date of termination.

16. Substantial Completion/Acceptance.

The date of substantial completion of the Project shall be a date mutually agreed upon by the Town and Contractor in writing and signed by both parties. By definition, substantial completion is the date at which the salient portions of the project are complete, accepted and ready for their intended use. In the event that the Town and Contractor do not reach an agreement as to the date of substantial completion, the Town Council shall determine such date. Upon the date of substantial completion, Contractor or its engineer shall certify in writing that the improvements have been completed in conformance with the plans and specifications and submit to the Town a completed acceptance checklist utilizing a form approved by the Town. Thereafter, and within thirty (30) business days after a request for final inspection by Contractor, the Town shall inspect the Project and notify Contractor in writing and with specificity of their conformity or lack thereof to the plans and specifications. Contractor shall make all corrections necessary to bring the Project into conformity with the plans and specifications. Once any and all corrections are completed, the Town shall promptly notify Contractor in writing that the Project is in conformance with the approved plans and specifications, and the date of such notification shall be known as the Acceptance Date. The Acceptance Date shall coincide with the commencement of the one-year warranty period described in *Paragraph 17 (Warranty)* below. Within thirty (30) days of the Acceptance Date, the Town shall pay Contractor the amount shown on the final draw request and issue a letter of project closure; provided, however, that the amount of funds left from the contract price specified in the Notice of Award are sufficient to cover this amount.

17. Warranty.

Contractor shall warrant any and all improvements constituting the Project constructed for the Town pursuant to this Construction Agreement for a period of twelve (12) months from the Acceptance Date as set forth herein. Specifically, but not by way of limitation, Contractor shall warrant that:

- A. Any and all improvements constituting the Project shall be free from any security interest or other lien or encumbrance; and
- B. Any and all improvements and structures so conveyed shall be free of any defects in materials or workmanship for a period of one (1) year, as stated above.

18. Corrections to Project.

If, within one (1) year after the date of substantial completion determined pursuant to *Paragraph 16 (Substantial Completion/Acceptance)*, any of Contractor's work on the Project is found to be not in accordance with the standards set forth in the preceding *Paragraph 17 (Warranty)*, Contractor shall, at Contractor's expense, correct it promptly after receipt of a written notice from the Town to do so unless the Town has previously accepted such condition. Such notice shall be either delivered personally or by overnight express courier, or sent by registered or certified mail, postage prepaid, return receipt requested, and must be received by Contractor as soon as practicable after the Town discovers the defect or the loss or damage caused by such defect, but in no event later than the date that the warranty given hereby expires.

19. Modifications.

The Town may modify this Agreement with respect to the arrangement, character, alignment, grade or size of the work or appurtenances whenever in its opinion it shall deem it necessary or advisable to do so. Contractor shall accept such modifications when ordered in writing by the Town Manager or their designee. Any such modifications shall not subject Contractor to increased expense without equitable compensation, which compensation may be approved by the Town pursuant to its purchasing policy. If any modification results in a decrease in the cost of work involved, an equitable deduction from the contract price shall be made. These deductions shall be determined by the Town Manager or his designee. The determination of any such additional compensation or deduction shall be based on the bids submitted and accepted. No modifications in the work shown on the plans and described in the specifications shall be made, unless the nature and extent of the modifications has first been certified by the Town in writing and sent to Contractor.

20. Attorneys' Fees; Survival; Costs of Collection.

Should this Agreement become the subject of legal action to resolve a claim of default in performance by any party, including the collection of past due amounts, the non-prevailing party shall pay the prevailing party's reasonable attorneys' fees, expenses, and court costs. All rights concerning remedies and/or attorneys' fees shall survive any termination of this Agreement.

21. Governing Law and Venue.

The laws of the State of Colorado shall govern the validity, performance, and enforcement of this Agreement. Venue for any action arising out of this Agreement shall be proper and exclusive in the district court for Gunnison County

22. Assignment.

This Agreement may not be assigned without the prior written consent of the non-assigning party.

23. Amendment.

This Agreement shall not be amended, except by subsequent written agreement of the parties.

24. Entire Agreement.

This Agreement, along with any addendums and attachments hereto, constitutes the entire agreement between the parties. The provisions of this Agreement may be amended at any time by the mutual consent of both parties. The parties shall not be bound by any other agreements, either written or oral, except as set forth in this Agreement.

25. Captions.

The captions in this Agreement are inserted only for the purpose of convenient reference and in no way define, limit, or prescribe the scope or intent of this Agreement or any part thereof.

26. Binding Effect.

This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, successors, and assigns.

27. Invalid Provision.

If any provisions of this Agreement shall be determined to be void by any court of competent jurisdiction, then such determination shall not affect any other provision hereof, all of which other provisions shall remain in full force and effect. It is the intention of the parties hereto that, if any provision of this Agreement is capable of two constructions, one of which would render the provision void, and the other of which would render the provision valid, then the provision shall have the meaning which renders it valid.

28. Notices.

Written notices required under this Agreement and all other correspondence between the parties shall be directed to the following and shall be deemed received when hand-delivered or three (3) days after being sent by certified mail, return receipt requested:

If to the Town: Carlos Velado, Town Manager
911 Gothic Road
P.O. Box 5800
Mt. Crested Butte, CO 81225

If to Contractor: [INSERT NAME]
[INSERT TITLE]
[INSERT COMPANY NAME]
[INSERT ADDRESS]
[INSERT PHONE AND EMAIL]

29. Authority.

Each person signing this Agreement represents and warrants that he is fully authorized to enter into and execute this Agreement, and to bind the party it represents to the terms and conditions hereof.

30. Counterparts.

This Agreement may be executed in counterparts, each of which shall be deemed an original, and all of which, when taken together, shall be deemed one and the same instrument.

31. No Waiver of Governmental Immunity.

The Town, its officers, and its employees, are relying on, and do not waive or intend to waive by any provision of this Contract, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town and its officers or employees.

WHEREFORE, the parties hereto have executed duplicate originals of this Construction Agreement on the day and year first written above.

TOWN:

Town of Mt. Crested Butte:

By _____

Title _____

ATTEST:

By _____

Title _____

CONTRACTOR:

Contractor Name:

By _____

Title _____

ATTEST:

By _____

Title _____

ATTACHED EXHIBITS:

Exhibit A: Notice of Award

Exhibit B: Scope of Work/Project Schedule

Exhibit C: Certificate of Insurance (Town Named as Additional Insured)

Exhibit A
Notice of Award

[INSERT]

Exhibit B
Bid Proposal

[INSERT]

Exhibit C
Certificate of Insurance
(Town Named as Additional Insured)

[INSERT]

This page has intentionally been left blank.

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that

_____ (Name of Contractor)

_____ (Address of Contractor)

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

and _____ (Name of Surety)

_____ (Address of Surety)

Hereinafter called Surety, are held and firmly bound unto _____

_____ Town of Mt. Crested Butte, Colorado

_____ (Name of Owner)

911 Gothic Road, P.O. Box 5800, Mt. Crested Butte, CO 81225

_____ (Address of Owner)

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

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a
certain contract with the OWNER, dated the _____ day of _____, _____, a copy of
which is hereto attached and made a part hereof for the construction of:

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

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

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

IN WITNESS WHEREOF, this instrument is executed in _____
(number)

counterparts, each one of which shall be deemed an original, this _____ day of _____
_____, _____.

Principal

ATTEST:

(Principal) Secretary By: _____ (s)

(Address)

Witness as to Principal:

(Address)

(Surety)

By: _____
(Attorney-In-Fact)

(Address)

ATTEST:

Witness as to Surety

(Address)

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

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the WORK is located.

**EXHIBIT A
AMENDMENT**

The following additional provision shall constitute an amendment to Payment Bond No.

_____.

PROVIDED, FURTHER, that the Principal and Surety, for value received, shall indemnify and save harmless the Owner to the extent of any payments required to be made by the Principal under the terms of the Contract. Subcontractors, material men, mechanics, and others shall have the right of action for amounts lawfully due them from the Principal or Subcontractor directly against the Principal and Surety of this bond. In the event the Principal or his Subcontractor fails to duly pay for any labor, materials, team hire, sustenance, provisions, pro-vendor, or other supplies used or consumed by such Principal or his Subcontractor in performance of the Work contracted be done, the Surety shall pay the same in an amount not exceeding the sum specified in the bond, together with interest, at the rate of eight percent (8%) per annum.

IN WITNESS WHEREOF, this Amendment is executed in four counterparts, each one of which shall be deemed an original, this _____ day of _____.

ATTEST:

_____ (Principal) Secretary	_____ Principal
_____ Witness as to Principal	By: _____ _____ (Address)
_____ (Witness as to Principal)	_____ Surety
_____ (Address)	By: _____ Attorney-in-Fact
ATTEST:	_____ Address
_____ Address	

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS that

_____ Name of Contractor

_____ Address of Contractor

a _____ Corporation, Partnership or Individual

Hereinafter called Principal, and _____ Name of Surety

_____ Address of Surety

Hereinafter call Surety, are held and firmly bound unto _____

_____ Town of Mt. Crested Butte, Colorado Name of Owner

_____ 911 Gothic Road P.O. Box 5800, Mt. Crested Butte, CO 81225 Address of Owner

Hereinafter called OWNER, in the penal sum of _____

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

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, _____, a copy of which is hereto attached and made a part hereof for the construction of:

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

PROVIDED, FURTHER, THAT THE SAID surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby

waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

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

IN WITNESS WHEREOF, this instrument is executed in _____
(number of copies)
counterparts, each one of which shall be deemed an original, this ____ day of _____,
_____.

Principal (signature)

By: _____
Type/print

Address

ATTEST:

(Principal) Secretary

(SEAL)

Witness as to Principal

Address

SURETY: _____

By: _____
Attorney-in-Fact

ATTEST:

Witness as to Surety

Address

Address

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

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the WORK is located.

NOTICE TO PROCEED

Project: Cinnamon Mountain Road and Hunter Hill Road Drainage and Rehabilitation (FDR)

Date: _____

Owner: Town of Mt Crested Butte, Colorado

Contractor: _____

Contractor's Address: _____

You are hereby notified that Contract time will begin to run as noted below. On or before that date you are to commence WORK in accordance with the Agreement and to start performing your obligations under the Contract Documents.

Project shall be completed by _____ to achieve readiness for final payment.

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Dated _____ On or Before _____

By: _____

Owner

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged

By _____

This _____ day of _____, 2024

By: _____

Title: _____

STANDARD GENERAL CONDITIONS



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



Endorsed By



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National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314-2794
(703) 684-2882
www.nspe.org

American Council of Engineering Companies
1015 15th Street N.W., Washington, DC 20005
(202) 347-7474
www.acec.org

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400
(800) 548-2723
www.asce.org

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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, expeditors, 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.

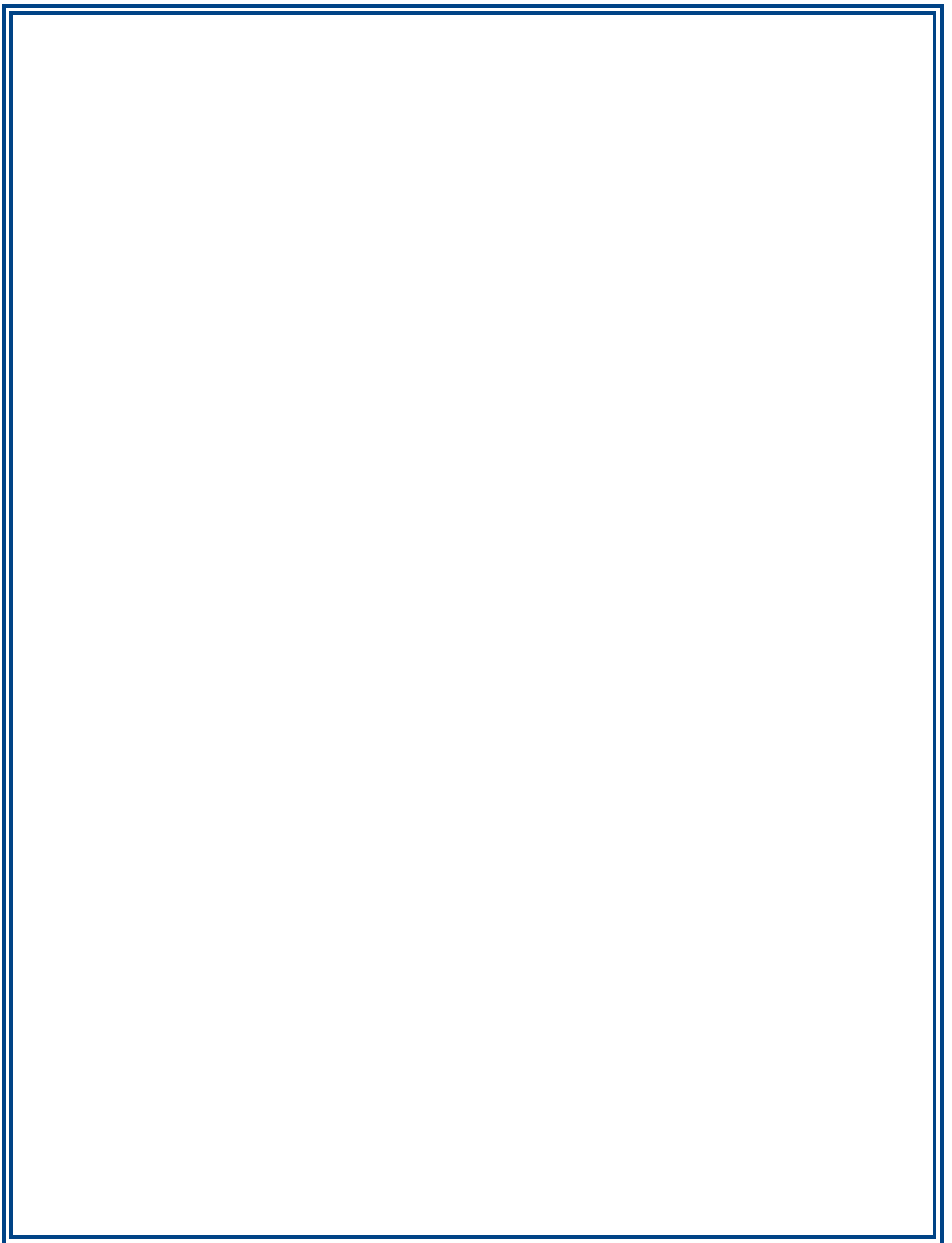
18.10 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SUPPLEMENTARY GENERAL CONDITIONS





SUPPLEMENTARY GENERAL CONDITIONS

1.00 GENERAL

These Supplementary General Conditions amend or supplement the Standard General Conditions of the construction contract and other provisions of the contract documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The "Construction Agreement" as provided by the Town of Mt Crested Butte, takes precedence over documents either written or implied.

The terms in these Supplementary General Conditions which are defined in the Standard General Conditions of the construction contract have the meaning assigned to them in the General Conditions.

2.00 INSURANCE

In addition to other requirements for insurance coverage, the contractor shall provide and maintain adequate workmen's compensation insurance for all labor on the work under this contract. Certifications of such insurance shall be filed with the owner prior to commencement of operations. Proof of carriage of insurance by subcontractors shall also be furnished.

2.01 With reference to Section 5.06, the owner need not carry such insurance.

2.02 Coverage Required (minimum) As identified in the Construction Agreement "Town of Mt. Crested Butte" part 7.

3.00 TAX EXEMPTION

Owner's tax exempt number, when applicable, to be used as part of this project, will be provided to the successful bidder.

4.00 FINAL PAYMENT

Lien waivers from all prime contractors and subcontractors shall be provided prior to issuance of final payment.

5.00 COMPLETION TIME

Completion time shall be by **September 16, 2024**.

6.00 LIQUIDATED DAMAGES

Provisions for Liquidated Damages are set forth in the Agreement.

7.00 ENGINEER'S REPRESENTATIVE

Unless provided for otherwise in writing by the engineer, any on-site inspector or representative of the engineer shall not have the authority to render any binding decisions nor make any

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binding judgments to the contractor pertaining to any work which may change the contract price or time of completion, or to the quality of work, or to the manner in which the work is being performed. The representative of the engineer shall serve as a means of communication between the engineer/Town of Mt Crested Butte and the contractor and shall monitor the work for the Town. Any communication given to the representative of the engineer by the contractor shall be considered as being given to the engineer or Town.

8.00 SAFETY REQUIREMENTS

Nothing in the Contract Documents shall be construed as relieving the contractor from protecting all property and persons or from strictly adhering to all applicable local, state and federal safety requirements. Where there is a conflict between the Contract Documents and any applicable safety requirement, the safety requirement shall take precedence.

9.00 LAWS AND ORDINANCES

The contractor shall at all times observe and comply with all federal, state and local laws, ordinances and regulations which in any manner affect the contract or work and shall indemnify and save harmless the owner and the owner's agents against any claim arising from the violations of any such laws, ordinances and regulations, whether by the contractor or his employees.

If the contractor performs any work knowing it to be contrary to such laws, ordinances, rules or regulations, and without notice to the engineer or Town, he shall bear all costs arising therefrom.

10.00 WAIVER

It is expressly understood and agreed that any waiver granted by the engineer or owner of any term, provision or covenant of this contract shall not constitute a precedent nor breach of the same or any other terms, provisions or covenants of this contract. Neither the acceptance of the work by the owner nor the payment of all or part of the sum due the contractor hereunder, shall constitute a waiver by the owner of any claim which the owner may have against the contractor or otherwise.

11.00 PROTECTION OF PUBLIC UTILITIES AND OTHER ADJOINING PROPERTY

The contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury, or loss to other property at the site or adjacent thereto, and he shall be liable for any and all claims for such damage on account of his failure to fully provide such protection. The bulk of this project crosses private property via easements already in place, the contractor shall protect and respect private property at all times. The contractor shall notify all public utility companies at least seventy-two (72) hours prior to commencement of any work in the vicinity of the utilities. No work shall commence until the utilities have been located and staked by the utility company or written consent to proceed has been given by the engineer.

12.00 PROJECT PHOTOGRAPHS/VIDEOS

It is the contractor's responsibility to take a sufficient number of pre-construction

photographs/videos to resolve any disputes, which may arise regarding the conditions prior to and subsequent to construction. The contractor shall provide copies of the pre-construction photographs/videos to the engineer prior to the start of work. Any potential problems should be identified at that time.

Progress and record photographs/videos shall be provided by the contractor as appropriate to resolve any disputes and to completely document the work performed as a supplement to the record drawings. In general, the photographs/videos should be sufficient to show that all work was properly completed in accordance with the plans and specifications and private property was maintained.

13.00 DAMAGE TO CONSTRUCTION

The contractor shall safeguard, until all work embraced by this contract is formally accepted, all construction, both complete and incomplete, against damage and destruction, and should damage result, he will be required to reconstruct or repair it at his expense in a manner conforming to the plans and specifications, reconstruction shall be in a manner suitable to the engineer.

14.00 PRE-CONSTRUCTION CONFERENCE

A pre-construction conference shall be held within ten (10) days after the *Notice To Proceed*, at the owner's place of business. The purpose of such meeting shall be to explain as required to the contractor, the requirements of the contract documents, the procedures to be used in the administration of the contract, the requirements of any funding agencies, and to discuss any item of concern to the Work. The contractor, owner and engineer, or authorized representative of each, shall be required to attend such meeting as a condition of the contract.

15.00 BIDDER EXPERIENCE

Bidder experience, past performance and ability to complete the work this year will be considered in the award of contract. The Town will award this project to the Contractor that provides the best overall value to the Town.

16.00 PERFORMANCE AND PAYMENT BONDS

Payment and performance bonds are required (See Section 5.01 and 5.02 of the General Conditions and Paragraph 8 and 9 of the Construction Agreement).

17.00 WARRANTY INSPECTION

At the owner's discretion, a warranty inspection will be held during the sixty (60) calendar days prior to the expiration of the **1-year** general warranty period. Contractor agrees to provide an authorized representative at such inspection to represent contractor's interests. All defects identified during the inspection shall be corrected at contractor's expense at direction of owner in a timely manner. Corrective work shall be commenced within ten (10) calendar days after written notice to contractor.

18.00 SUBSURFACE SOILS INVESTIGATION

Not applicable for this project.

19.00 PRE-QUALIFICATION

Not applicable for this project.

20.00 JOB SITE RESTRICTIONS

20.01 Salvage. All materials to be removed from the project site or demolished on site, shall be disposed of by the contractor off the project site in a legal manner.

20.02 Disposal Area. Private land owners property is not available for a contractor disposal area. If excess or unsuitable excavated material is encountered, material shall be disposed of off site in a legal and approved manner. Excess excavated material may potentially be needed by the Town for use within Town, however for bidding purposes contractor should plan to haul off all excess and unsuitable material.

20.03 Working Hours. Work hours will be between 7:00 a.m and 6:00 PM. Other work hours must be approved by the Town in writing. For work to be permitted on Saturday, Sunday or Town of Mt Crested Butte recognized holiday, a 48-hour prior written notice must be given to the Town.

21.00 ARBITRATION

Anything in the General Conditions of the contract documents, notwithstanding the choice to submit any dispute to binding arbitration, shall be solely that of the owner. No other party to this contract shall have the right to submit any controversy to binding arbitration.

22.00 PAYMENT RETAINAGE

Retainage on pay estimates shall be ten percent (10%). If the project is substantially complete by completion date, or in the judgment of the engineer, the amount of remaining work justifies a reduction in retainage, then retainages may be reduced on the recommendation of the engineer and at the sole discretion of the owner.

23.00 REFERENCE TO OWNER

The Town of Mt Crested Butte Colorado will be the owner of this project and will be referred to as owner in the Agreement and contract documents. The Town will assume operation and maintenance of the facilities and, therefore, reserves the right to inspect the project under the conditions of these current documents and/or have their engineer inspect on behalf of the Town.

24.00 PRECEDENCE OF CONTRACT DOCUMENTS

The order of precedence of contract documents is as follows:

1. Addenda
2. Drawings
 - a. Detailed Drawings
 - b. Standard Drawings

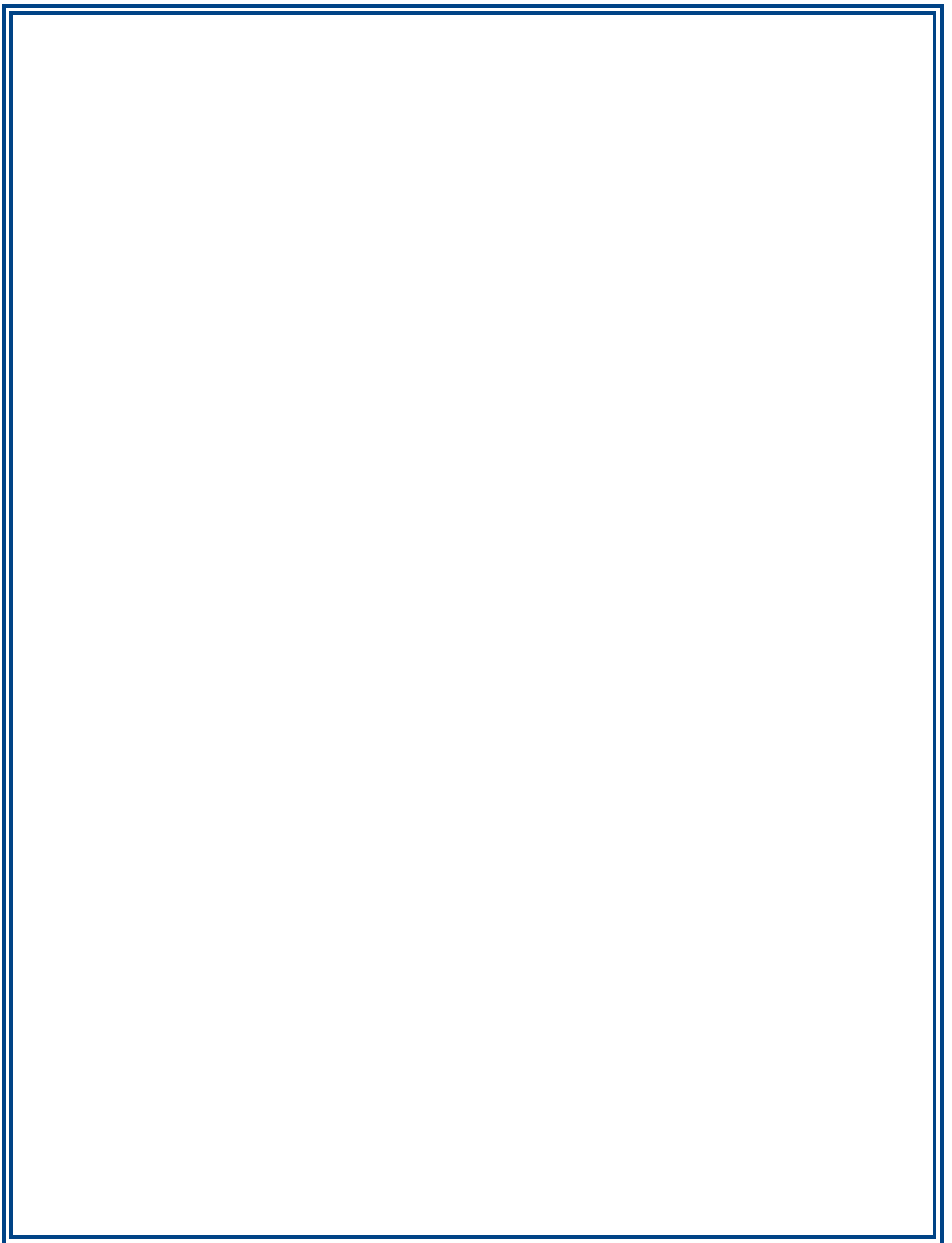
3. Technical Specifications
4. Reference Technical Specifications
5. Supplementary General Conditions
6. Bid Documents, Agreement Documents
7. Standard General Conditions of the Construction Documents

END OF SECTION

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TECHNICAL SPECIFICATIONS





SECTION 01000

GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. The Contractor shall be responsible for compliance with all items specified herein. This Section is in addition to items in the General Conditions.
- B. Work to be done under this Contract consists of furnishing all labor, materials, equipment and incidental items and performing all operations necessary to complete the Work in accordance with the Drawings and Specifications.
- C. The Bidder is required to examine carefully the site of the proposed Work, the Drawings and Specifications. He shall satisfy himself as to the character, quality and quantities of work to be performed, materials to be furnished and the requirements of these Specifications. The submission of a Bid Proposal shall be evidence that the Bidder has made such an examination.

1.02 PARTNERING

- A. The Contractor, Engineer and Owner shall agree to a partnering process during the construction of the project to:
 - o Improve the working environment.
 - o Reduce and rapidly resolve disputes.
 - o Produce a high-quality product; and
 - o Eliminate or reduce delays.
- B. These goals can be obtained by mutually agreeing to a cooperative strategy of commitment and honest communication. By creating trust and working as a team, all parties will benefit in producing high quality which will result in successful completion of the work.
- C. Problem solving will be created by a working relationship where understanding, trust and mutual cooperation are prime concerns.
- D. However, partnering does not include relaxing or waving the requirements of the contract documents.
- E. If there is an error or oversight, or a change is suggested by the contractor that will produce a product equal to or better than that specified or shown, the parties will work together to determine the best approach while maintaining quality in the construction.
- F. Any changes to the project affecting project time or contract price require Agency concurrence and will be implemented by Change Order so approved.

- G. All parties shall be committed to maintaining a positive attitude towards partnering and timely decision making.

1.03 VALUE ENGINEERING

- A. Prior to issuing Notice to Proceed, a one-day value engineering and value construction Workshop will be conducted by Engineer with Owner and Contractor prior to start of construction. The intent of the Workshop will be to evaluate alternative equipment or designs identified and proposed by Contractor from those provided in the Contract Documents that may reduce the cost of the Project and still maintain the as-bid design intent. The number of value engineering items to be evaluated and reviewed by Engineer will be limited to a maximum of 20.
- B. Contractor must submit in writing to Engineer, and for review by Owner, value engineering proposals for modifying plans, specifications, or other requirements of this Contract for the sole purpose of reducing total cost of construction. The cost reduction proposals shall not impair in any manner the essential functions or characteristics of the project, including, but not limited to, service life, economy of operation, ease of maintenance, desired appearance or design and safety standards. The attached Exhibit (at the end of this specification section) is to be utilized for documentation and submission of the proposed modifications and is to be completed by the contractor prior to the workshop.
- C. Owner has the authority to accept or reject cost reductions proposed by Contractor.
- D. Value Engineering Cost Reduction Proposals (VECP) shall contain the following information:
 - 1. A description of both existing Contract requirements for performing Work and proposed changes
 - 2. An itemization of Contract requirements that must be changed if proposal is adopted.
 - 3. A detailed estimate of the cost of performing the Work under the existing Contract and under the proposed change.
 - 4. A statement of time within which Owner must make a decision thereon, if applicable
 - 5. Contract items of Work affected by proposed changes, including any quantity variation attributable thereto.
- E. Four (4) copies of the VECP shall be submitted to Engineer who will retain three copies and send one for approval to Owner. If approved, two copies will be stamped and approved by both Owner and Engineer. Engineer will return one approved copy to Contractor. If not approved, Engineer and Owner will retain one copy for their files and return a rejected copy to Contractor.
- F. Contractor shall continue to perform Work in accordance with requirements of the Contract until an executed field directive or change order, incorporating a cost reduction proposal has been issued.

1.04 DRAWING ACCURACY AND EXISTING UTILITIES

- A. Every effort has been made to identify and verify all existing facilities and utilities. However, some of this information may have been taken from old drawings and utility company maps pertinent to the site.
- B. As such, information relating to locations, sizes, or elevation of existing facilities should be considered only approximate. It shall be the responsibility of the Contractor to contact the appropriate representatives of utility companies, or utility locate companies, a minimum of 48 hours prior to the commencement of Work which might affect utility installations and to secure from such representative's information as to accurate location, size and type of such installations. The Contractor shall assume all responsibility for protection, repair and relocation of all such items encountered. Should repair or replacement be required, work shall be performed according to the requirements of the respective utility company.

1.05 ABBREVIATIONS

- A. Wherever the following abbreviations are used in these Specifications or on the Drawings, they shall be construed the same as the respective expressions represented:

AASHO or	
AASHTO	American Association of State Highway Officials
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute, Inc.
ASTM	American Society for Testing & Materials
AWWA	American Water Works Association
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health & Environment
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard, U.S. Department of Commerce
FED. SPEC.	Federal Specification
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
OSHA	Occupational Safety and Health Act (Federal and/or State)
SSPC	Steel Structures Painting Council
UBC	Uniform Building Code
UL	Underwriters Laboratories, Inc.

1.06 STANDARD SPECIFICATION REFERENCE.

- A. Where reference is made in these Specifications to other Standard Specifications, it is the intent that the latest available revisions of the Specification referenced be used. All portions of the Standard Specification referenced shall be considered a part of these Specifications unless specifically superseded herein.

1.07 CONSTRUCTION STAKING.

- A. The contractor may self-perform or subcontract construction layout work, provided that contractor satisfactorily proves to the Engineer that their designated layout person has the proper training and experience.
- B. The Contractor shall be responsible for paying their surveyor directly.
- C. The Contractor shall be responsible for coordinating all survey efforts.

1.08 PERMITS AND EASEMENTS.

- A. The Owner will provide the Contractor with a building permit. The Contractor will be responsible for coordinating inspections and meeting permit requirements.
- B. The Contractor shall obtain an Electrical Permit from the State of Colorado. The Contractor will be responsible for coordinating inspections and meeting permit.
- C. Contractor shall obtain a Colorado Department of Public Health and Environment (CDPHE) Stormwater Discharge permit and a Construction Dewatering permit.
- D. Contractor will be fully responsible for implementing, maintaining, and meeting all requirements of all permits related to the project.
- E. The Owner shall provide permanent construction and maintenance easements, where required. Maps of these easements will be included on the Construction Drawings.
- F. The Contractor shall be responsible for securing any and all access rights he may require for construction convenience with private individuals and landowners. The Contractor shall provide the Engineer evidence of agreements, in writing, for such access rights. All other permits required should be secured prior to commencement of Work at the Contractor's own expense.
- G. The successful Contractor will be required to obtain a local Contractor's license for construction operations. Proof of insurance shall be required.
- H. The successful Contractor will be required to obtain any and all permits necessary for this project.

1.09 SUBSTITUTION OF MATERIALS.

- A. At no time shall materials be substituted for those shown on the Drawings or called for in the Specifications, unless written approval is obtained from the Engineer in writing prior to construction (see Article 6, General Conditions). Any deviation from the Drawings and Specifications shall be accompanied by a written directive of the Engineer or his representative.

1.10 CONTROLLED AREA OF WORK.

- A. The Contractor shall confine all the construction work, storage of materials and all related activities to the public roadways, utility easements, or construction areas designated by the Engineer. Access and egress to the work area shall be minimized to specific points.

1.11 TEMPORARY FACILITIES.

- A. The Contractor, at his expense, shall provide all necessary temporary facilities for his own convenience or to meet local, state or federal requirements, including, but not limited to, potable water, sanitary waste facilities, power, telephone, internet, etc.

1.12 CLEAN-UP.

- A. The Contractor will be responsible for cleaning the job site during and after construction. A continuing effort shall be made through the duration of the contract to keep all areas clean and free of all rubbish, removed vegetation, construction waste, employee waste, and other objectionable materials generated from the project. All materials as part of this work shall be disposed off site in an acceptable manner. Final clean-up must be approved and accepted by the Owner before the contract may be considered complete.

1.13 SUBMITTALS

- A. The Contractor shall submit one (1) set of submittal data. Submittals shall be required on all materials having quality or dimension requirements as well as on all mechanical equipment or as called for in the Specifications.

1.14 JOB SITE RESTRICTIONS

- A. Salvage. The contractor shall remove and provide the materials listed below to the Owner. All other materials to be removed or demolished at the project site shall be disposed of by the Contractor at an approved off premises disposal site.
- B. Staging Area. There is limited space on the Owner's property available for Contractor staging or storage area. The Contractor will be responsible for locating, securing and paying for any additional offsite area needed.
- C. Disposal Area. Some spoils will be used for re-grading Owner's property. All other materials shall be disposed of off-site at approved disposal sites.
- D. Working Hours. Work will normally be permitted after 7:00am until 5:00pm, Monday thru Friday. Other work hours must be approved by Engineer in writing. Work may be permitted on Saturday and Sunday with Owner approval. If approved by Owner, written notice must be provided a minimum of 48 hours prior to this work that outlines all work items that will be performed. The Contractor will be responsible for paying overtime rates (1.5 x the standard hourly rate) for Owner, Owner's Representative and Engineer for work necessitated by construction activities outside the permitted work hours.

1.15 SAFETY REQUIREMENTS

Nothing in the Contract Documents shall be construed as relieving the Contractor from protecting all property and persons or from strictly adhering to all applicable local, state and federal safety requirements. Where there is a conflict between the Contract Documents and any applicable safety requirement, the safety requirement shall take precedence.

1.16 LAWS AND ORDINANCES

The Contractor shall at all times observe and comply with all federal, state and local laws, ordinances and regulations which in any manner affect the contract or Work and shall indemnify and save harmless the Owner and the Owner's agents against any claim arising from the violations of any such laws, ordinances and regulations, whether by the Contractor or his employees.

If the Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules or regulations, and without notice to the Engineer, he shall bear all costs arising therefrom.

1.17 PROTECTION OF PUBLIC UTILITIES AND OTHER ADJOINING PROPERTY

The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury, or loss to other property at the site or adjacent thereto, and he shall be liable for any and all claims for such damage on account of his failure to fully provide such protection. The Contractor shall notify all public utility companies at least forty-eight (48) hours prior to commencement of any Work in the vicinity of the utilities. No Work shall commence until the utilities have been located and staked by the utility company or written consent to proceed has been given by the Engineer. If utility service must be interrupted, the Contractor shall notify the head of local administrative services (i.e., City Manager, Mayor, City Clerk), as applicable, and utility users affected by the interruption of service at least twenty-four (24) hours prior to interruption. Notice shall consist of publication in a local newspaper and/or announcement on local radio or television stations as determined by the Engineer.

1.18 PROJECT PHOTOGRAPHS/VIDEOS

It is the Contractor's responsibility to take a sufficient number of pre-construction photographs/videos to resolve any disputes, which may arise regarding the conditions prior to and subsequent to construction. The Contractor shall provide copies of the pre-construction photographs/videos to the Engineer prior to the start of work. Any potential problems should be identified at that time.

Progress and record photographs/videos shall be provided by the Contractor as appropriate to resolve any disputes and to completely document the work performed as a supplement to the Record Drawings. In general, the photographs/videos should be sufficient to show that all work was properly completed in accordance with the plans and specifications.

1.19 DAMAGE TO CONSTRUCTION

The Contractor shall safeguard, until all work embraced by this Contract is formally accepted, all construction, both complete and incomplete, against damage and destruction, and should damage result, he will be required to reconstruct or repair it at his expense in a manner conforming to the Plans and Specifications, reconstruction shall be in a manner suitable to the Engineer.

EXHIBIT
VALUE ENGINEERING AND VALUE CONSTRUCTION FORM

[Project Name]	AREA		
[Project Code]	IDEA NO.		
	ITEM		
<u>Original Concept:</u> 			
<u>Proposed Concept:</u> 			
<u>Advantages:</u> Reduced capital costs. 			
<u>Risks/Disadvantages:</u> 			
<u>Notes:</u> 			
	Cost Summary		
	Alternative 1	Alternative 2	Alternative 3
Initial Costs – Original			
Initial Costs – Proposed			
Initial Savings			
Net Annual Costs – Original			
Net Annual Costs – Proposed			
Annual O & M Savings			
Total Annual Savings			
Present Worth - Savings (P/A, 7%, 20 yr)			

END OF SECTION

SECTION 01010
SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

- A. The work of this project consists of the full depth reclamation, paving and drainage improvements to a portion of Snowmass, Hunter Hill and Cinnamon Mountain Roads in the Town of Mt. Crested Butte. This project more specifically involves the following:
1. Full Depth Reclamation, minor earthwork and sub grade prep
 2. Drainage improvements.
 3. Demolition and removal of concrete valley pans, sidewalk, drainage piping and drainage structures.
 4. Hot mix asphalt paving
 5. Concrete curb and gutter, valley pan, sidewalks and ADA ramps.
 7. Traffic Control per an approved Contractor submitted traffic control plan.
 8. Construction staking. The Town will provide digital information sufficient to facilitate Machine Control grading. This will consist of sufficient control points for GPS calibration, the horizontal road alignment and 2D linework for centerline of road and edges of pavement and concrete in .dxf format as well as a digital terrain model of the finished grade road surface. The Contractors construction survey work shall be set up and overseen by a Professional Land Surveyor.

1.02 CONTRACTOR'S RESPONSIBILITIES

In addition to all the requirements of the Standard General Conditions and other Contract Documents:

- A. Supervision:
1. The Contractor will supervise and direct the Work. He will be solely responsible for the means and methods, techniques, and procedures of construction.
 2. The Contractor will employ and maintain on the Work a qualified supervisor or superintendent who shall have been designated in writing by the Contractor and the Contractor's representative at the site.

3. The supervisor shall have full authority to act on behalf of the Contractor and all communications given to the supervisor shall be as binding as if given to the Contractor.
4. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the Work.
5. The supervisor shall not be changed except with the consent of the Engineer, unless the supervisor has proven to be unsatisfactory to the Contractor and ceases to be in his employ.

B. Subcontracting:

1. The Contractor may utilize the services of specialty Subcontractors on those parts of the Work, which under normal contracting practices are performed by specialty Subcontractors.
2. The Contractor shall not award work to Subcontractor(s) in excess of fifty (50%) percent of the Contract Price without prior written approval of the Owner.
3. The Contractor shall be fully responsible to the Owner for the acts and omissions of his Subcontractors, and or persons either directly or indirectly employed by them, as he is for the acts of persons directly employed by him.
4. The Contractor shall cause appropriate provisions to be inserted in all Subcontracts relative to the Work to bind Subcontractors to the Contractor insofar as applicable to the Work of Subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.
5. Nothing contained in this Contract shall create any contractual relations between any Subcontractor and the Owner.

C. Safety and Protection

1. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - a) All employees on the Work and other persons who may be affected thereby;
 - b) All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site; and
 - c) Other property at the site or adjacent thereto, including, but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation or replacement in the course of construction.

2. Contractor shall comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

D. Contractor's Use of Premises

1. Owner controls all lands upon which the Work is to take place. The Contractor shall not enter upon private property for any purpose without first obtaining written permission.
2. The Contractor shall be responsible for all utilities required for construction at no additional cost to the Owner.
3. Necessary sanitary conveniences for the use of project personnel shall be properly secluded from public observation and shall be erected and maintained by the Contractor at such points acceptable to the Engineer.

1.03 OWNER COORDINATION AND NOTIFICATION

- A. The Contractor shall coordinate his efforts with the Owner so as to minimize disruption of existing service and inconvenience to traffic and adjacent property owners.
1. Set forth proposed work sequence and schedule in accordance with Section 01310 - Construction Schedules.
- B. Contractor shall notify Owner a minimum of 48 hours in advance of any efforts needing coordination and/or special inspection by Owner or their representative.

1.04 SEQUENCE OF WORK

- A. Construction Sequencing: Work efforts, traffic control, methods of handling traffic are critical elements of the sequence of work. Contractor shall take into account this sequence when preparing bid and the successful Bidder shall include this sequence in the construction schedule. Coordination of Work necessary to meet the construction sequence as discussed below is the responsibility of the Contractor. The Engineer and Owner shall be updated prior to start and completion of each phase.
- B. Short term road closures with detouring will be allowed with advanced approval from the Town and an approved detour plan.
- C. Submit and update Progress Schedules and sub-schedules in accordance with Section 01310 - Construction Schedules.
- D. Discuss Sequence of Work and Notice Required at Progress Meetings.

1. Review with and obtain Engineer's and Owner's input to Contractor's initial scheduling of Work sequence during preconstruction conference.
2. Review any changes in scheduling at regularly scheduled progress meetings.
3. Schedule additional construction meetings required to discuss Work sequence.
4. Refer to Section 01310 Construction Schedules for additional requirements on Progress Schedules.

UNDERGROUND OBSTRUCTIONS

- A. Exact locations and depth of utilities have not been verified prior to construction. The project has a bid item to pay contractor to pothole and determine horizontal and vertical locations of selected utilities prior to commencement of any underground work in the area.
- B. Protect from damage any underground pipes, utilities, or structures encountered during construction.
- C. Restore any damaged underground obstructions to their original condition at no cost to the Owner unless evidence of other arrangements satisfactory to all parties is presented to the Owner.
- D. Before commencing Work, CALL for utility locates.
- E. Underground obstructions known to the Engineer are shown on the Drawings
 1. Locations shown may prove to be inaccurate and other obstructions not shown may be encountered.
 2. Contractor is responsible to verify actual locations and to protect or restore all underground obstructions encountered.

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

1.01 SUMMARY

This section describes the procedure for Application for Payment by the Contractor. This section establishes the basis of payment, application format, application content and application review process required by the Owner before they will process the application for actual payment.

If a bid item for a specific portion of the work does not exist, include the work in a related item.

1.02 RELATED SECTIONS

- A. Section 500 – Agreement
- B. Section 630 - Monthly Pay Estimate Summary
- C. Section 640 - Monthly Pay Estimate
- D. Section 650 - Request For Payment For Materials On Hand
- E. Section 660 - Contractor's Certification
- F. Section 700 - General Conditions: Progress Payments, Retainage and Final Payment
- G. Section 800 - Supplemental General Conditions
- H. Section 01700 - Contract Closeout

1.03 FORMAT AND DATA REQUIRED

- A. Submit Applications for Payment and all other required forms and information to the Engineer.
- B. Provide itemized data on continuation sheets.
- C. Format, schedules, line items, and values: Those of the approved Schedule of Values.

1.04 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Prepare Application for Payment and all other required information in accordance with terms and schedule established in the General Conditions, Supplemental General Conditions and the Agreement Between Owner and Contractor, or as otherwise negotiated between Owner and Contractor.
- B. Application Form

1. Required information completed, including that for Change Orders executed prior to the date of submittal of application.
 2. Summary of dollar values to agree with the respective totals indicated on the continuation sheets.
- C. Continuation Sheets.
1. Total list of all scheduled component items of Work, with item number and the scheduled dollar value for each item.
 2. Dollar value in each column for each scheduled line item when work has been performed.
 3. Each Change Order executed prior to the date of submission shall be listed at the end of the continuation sheets.
 4. List by Change Order number and description as for an original component item of work.
- D. Contractor shall execute certification with the signature of a responsible officer of the Contractor's firm.

1.05 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When Owner or Engineer requires substantiating data, Contractor shall submit suitable information with a cover letter identifying:
1. Project name and number.
 2. Application number and date.
 3. Detailed list of enclosures.
- B. Submit one (1) copy of data and cover letter for each copy of application.

1.06 SCHEDULE OF VALUES

- A. Refer to General Conditions for requirements.
- B. Where payment is to be based on unit bid prices, correlate Schedule of Values with bid items.
- C. Where payment is to be based on fixed price, correlate Schedule of Values with divisions and sections of specifications, unless otherwise approved by the Engineer.
- D. On Bid items to be paid as lump sum that may extend beyond a single pay estimate, a schedule of values shall be submitted to Owner a minimum of 10 days prior to Work on that item. Adequate detail shall be given to allow a value to

be placed on Work completed during any given pay estimate. Where payment is to be based on unit Bid prices, correlate schedule of values with divisions and sections of Specifications, unless otherwise approved by the Engineer. If separate payment is to be requested for materials suitably stored but not installed, paid invoices for the item shall be submitted.

- E. The Schedule of Values line item for mobilization shall be paid for as a lump sum and shall include all fixed costs for the Work; by way of example, mobilization and de-mobilization, bond and insurance costs, etc. The first partial pay request shall include not more than 75% of this Bid amount; 25% of this Bid amount shall be paid on the final pay request.

1.07 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Contractor shall complete Application form as specified for progress payments.
- B. Continuation sheets used for presenting the final statement of accounting as specified in Section 01700-Contract Closeout.

1.08 SUBMITTAL PROCEDURE

- A. Submit Application for Payment and all required information to Engineer for review in accordance with the established schedule. Application and all related forms shall be properly executed by signature of a responsible officer of the Contractor's firm.
- B. Engineer to review and verify Application for Payment within established schedule. Contractor shall make corrections noted by Engineer and re-submit three copies of Application to Engineer.
- C. When Engineer finds the Application complete and correct, Engineer will transmit two copies of the complete Application packet to Owner for processing.

1.09 BASIS OF PAYMENT

Progress payments will be made on the basis of Engineer's opinion of completed work of individual project components, plus suitably stored materials on-hand, per the approved Schedule of Values and in accordance with the terms of the General Conditions and Agreement

A. LUMP SUM PRICES

- 1. Where lump sum prices are given for a described portion of the work, that price shall cover all materials, equipment and labor necessary to acquire, deliver, store and install that portion of the work, complete and in place, as shown and indicated in the drawings and as described in the Project Manual.
- 2. Quantities given in the bid form are estimates for the purpose of evaluating bids. Consequently, some differences may arise in actual and bid quantities.

3. Quantities given for lump sum items, including earthwork, are estimates only. The Contractor should satisfy himself as to the actual quantities required to complete the work described in the plans and these specifications. Unit costs for earthwork will not be employed to determine payment.

B. UNIT PRICE BID ITEMS

1. Payment for work included in unit price bid items shall be based on the completed value of each unit in such quantity actually installed as measured and determined by the Engineer unless the approved Schedule of Values provides sufficient detail for measurement and payment of partial progress of work.
2. Unit pricing shall include all materials, equipment and labor necessary to complete the bid item as shown and indicated in the project documents.
3. Quantities given in the bid form are estimates for the purpose of evaluating bids. Consequently, some differences may arise in actual and bid quantities.
4. Contractor or Owner may request re-negotiation of Unit Price for an item if the actual field measured work done for that item differs from the estimated quantity by more than 50% under the following terms:
 - a) Contractor shall not make any claim for damages for any work item for which the actual field measurement does not differ from the estimated quantity by more than 50%, higher or lower.
 - b) Re-negotiated Unit Prices shall be based on actual costs to Contractor for the specific work item plus a reasonable allowance for overhead and profit.
 - c) Re-negotiating the Unit Price shall not increase or decrease the Unit Price by more than 10 percent.
 - d) Contractor shall submit to Owner satisfactory data substantiating the actual costs and overhead rate to perform the Work covered by the Unit Price being re-negotiated..
5. No payment will be made if the entire bid item is unused.

C. MINOR CONTRACT REVISIONS

1. If provided on the Bid Schedule, the Minor Contract Revisions line item is for the sole use of Owner at Owner's discretion for minor changes to the project.
2. The Contractor's shall include the dollar amount provided by the Owner for Minor Contract Revisions in his base bid total.
3. The intent of this line item is provide the Owner's designated project manager a mechanism to approve minor changes to the work, either from

Contractor requested changes or from Owner modification, without unnecessary project delay and without further approval by the Owner.

4. The Owner shall retain all unused monies in this line item.
5. The Owner shall direct Contractor in writing when this line item is to be used along with the amount to be included in the Application for Payment.

D. ALLOWANCE

1. If provided on the Bid Schedule, an Allowance line item is for the sole use of Owner at Owner's discretion for changes to the project.
2. Allowance line items shall be administered per conditions of GC-11.02.
3. The Owner shall direct Contractor in writing when this line item is to be used along with the all pertinent specifying information for purchase by contractor.
4. Contractor shall submit purchase receipts documenting the cost of owner requested materials with pay application for reimbursement.

1.10 BID ITEMS

A. **Bid Item # 1C and 1H - Mobilization and Demobilization**

1. *Description*
 - a) This line item is for contractor mobilization and demobilization costs.
2. *Specific inclusions, exclusions or special considerations*
 - a) This line item can include costs for insurance, bonds, sanitary facilities, record drawings, street cleaning, subsistence costs if needed and other elements of the work not included elsewhere or specifically called for to be paid for elsewhere
3. *Payment Basis*
 - a) Lump Sum – 60% on first pay request, 40% on the final pay request.

B. **Bid Item # 2-H - Remove Curb and Gutter**

1. *Description*
 - a) This line item is for the removal and disposal of concrete curb and gutter.
2. *Specific inclusions, exclusions or special considerations*
 - a) This line item shall include all labor, materials and equipment involved with the removal and legal disposal of existing concrete curb and gutter. The work includes saw cutting to a vertical line at edges to remain.

3. *Payment Basis*
 - a) Per Linear Foot as measured in the field prior to removal.

C. Bid Item # 2C and 3H - Remove Valley Pan

1. *Description*
 - a) This line item is for the removal and disposal of concrete valley pans.
2. *Specific inclusions, exclusions or special considerations*
 - a) This line item shall include all labor, materials and equipment involved with the removal and legal disposal of existing concrete valley pan. The work includes saw cutting to a vertical line at edges to remain.
3. *Payment Basis*
 - a) Per Square Foot as measured in the field prior to removal.

D. Bid Item # 4H - Remove Sidewalk and Concrete Flatwork

1. *Description*
 - a) This line item is for the demolition and removal of concrete slabs, sidewalk and driveway approaches .
2. *Specific inclusions, exclusions or special considerations*
 - a) This line item shall include all labor, materials, and equipment required to sawcut, remove and legally dispose of concrete surfaces. The work includes full depth sawcutting at joints where work is to remain.
3. *Payment Basis*
 - a) Per square yard as marked and measured prior to removal.

E. Bid Item # 3C and 5H - Full Depth Reclamation

1. *Description*
 - a) This line item is for the pulverization and reuse of existing paved street and base material.
2. *Specific inclusions, exclusions or special considerations*
 - a) Work includes pulverization of the existing asphalt surface (2" to 4" varying thickness) and mixing with minimum of 8" of underlying base material. The pulverized material shall equal a CDOT class 5 gradation and reach a minimum depth of 11".
 - b) Includes all labor, materials, and equipment required for the full depth reclamation (pulverization) of the existing asphalt surface.
 - c) The work includes the marking and avoiding damage to manholes, valves, valve boxes and other appurtenances that may be in the paved surface.
3. *Payment Basis*
 - a) Per square yard of paved surface where FDR was performed.

F. Bid Item # 4C and 6H - Geotextile Fabric (Geogrid)

1. *Description*
 - a) This line item is for placing of specified geotextile (geogrid) on a prepared subgrade.
2. *Specific inclusions, exclusions or special considerations*
 - a) This work includes all work to provide and place geogrid per the manufacturer's installation instructions.
 - b) Geogrid to be placed on compacted and prepared subgrade after successful passing of a proof roll.
3. *Payment Basis*
 - a) Per Square Yard

G. Bid Item # 5C and 7H – Class 5 Aggregate Road Base

1. *Description*
 - a) This line item is for the importation of Class 5 Aggregate Base Course where shown on the drawings or as approved in advance by the Town/Project Engineer.
2. *Specific inclusions, exclusions or special considerations*
 - a) Includes base course placement, where needed or shown. Includes material, placement and compaction per plans and specs.
 - b) Not included in this bid item is material paid for as part of "Subgrade Stabilization", bid item 24.
3. *Payment Basis*
 - a) Per tons of material placed as verified by certified weight ticket provided to Town's representative daily.

H. Bid Item # 6C and 8H - Ditch Improvements

1. *Description*
 - a) This line item is for equipment and labor to clean and regrade existing road shoulder ditches to facilitate drainage.
2. *Specific inclusions, exclusions or special considerations*
 - a) This line item shall include all additional costs associated cleaning, removal of organics, sands, gravels and other deleterious materials and to improve the drainage flow of Town road shoulder ditches. Also included is the hauling and legal disposal of deleterious materials off site.
3. *Payment Basis*
 - a) Linear foot of ditch cleaned and improved as approved and measured in the field prior to the work.

I. Bid Item # 7C and 9H – Culvert Cleaning

1. *Description*

a) This line item is for equipment and labor to clean existing culverts to facilitate drainage.

2. *Specific inclusions, exclusions or special considerations*

a) This line item shall include all additional costs associated cleaning and the removal of organics, rocks, sediment and other deleterious materials and to improve the drainage flow through existing culverts. Work includes the removal and disposal of removed materials.

3. *Payment Basis*

a) Linear foot of culvert cleaned.

J. Bid Item # 10H – New Curb and Gutter

Description

a) Concrete curb and gutter to line and grades as shown.

Specific inclusions, exclusions or special considerations

b) Includes all labor, materials, sub-grade prep and compaction, finish and curing for standard curb and gutter. This includes all flush sections and transitions through driveways and around curb returns with ramps.

Payment Basis

c) Per linear foot as measured along the flow line of the gutter pan.

K. Bid Item # 11H – Concrete Flat Work

Description

a) Construction of concrete driveway and sidewalk extensions as shown on drawings.

Specific inclusions, exclusions or special considerations

b) Work includes subgrade prep and compaction, concrete placement, finish and curing. Work includes barricading or fencing to keep pedestrians off fresh concrete.

Payment Basis

c) Per Square Yard as measured in the field

L. Bid Item # 8C and 12H – New Valley Pan – 36”

Description

a) Construction of concrete valley pan as shown on drawings.

Specific inclusions, exclusions or special considerations

- b) Work includes all materials, subgrade prep and compaction, concrete placement, finish and curing.

Payment Basis

- c) Per linear foot of pan as measured in the field along center line of gutter.

M. Bid Item # 13H – Storm Inlet Box with Valley Pan Grate (Hunter Hill)

1. *Description*

- a) This line item is for the Drop Inlet Box and Valley Pan Grate where shown on the drawings. Provide shop drawing for approval.

2. *Specific inclusions, exclusions or special considerations*

- a) This line item shall include all labor, materials, equipment, backfill and compaction involved with the supply and installation of the drop inlet box and grate as shown and/or specified.

3. *Payment Basis*

- a) Per each box and grate.

N. Bid Item # 14H Storm MH and Type R Inlet – 5' (Hunter Hill)

1. *Description*

- a) This line item is for the Drop Inlet Box and Type R inlet where shown on the drawings. Provide shop drawing for approval.

2. *Specific inclusions, exclusions or special considerations*

- a) This line item shall include all labor, materials, equipment, backfill and compaction involved with the supply and installation of the inlet box and grate as shown and/or specified.

3. *Payment Basis*

- a) Per each box and grate.

O. Bid Item # 9C - Storm Inlet Box with Valley Pan Grate (Cinnamon)

1. *Description*

- a) This line item is for the Drop Inlet Box and Valley Pan Grate where shown on the drawings. Provide shop drawing for approval.

2. *Specific inclusions, exclusions or special considerations*

- a) This line item shall include all labor, materials, equipment, backfill and compaction involved with the supply and installation of the drop inlet box and grate as shown and/or specified.
- b) The work includes box provisions for 4" underdrain piping.

3. *Payment Basis*

- a) Per each box and grate.

P. Bid Item # 15H – 18” HDPE Pipe/Culvert

1. *Description*
 - a) This line item is for the supply and placement of an 18” diameter HDPE storm drain piping. The work includes the placement to line and grade, bedding, backfill and flushing of the new pipe.
2. *Specific inclusions, exclusions or special considerations*
 - a) Includes all equipment, labor & material for the trenching, placement of pipe, backfill, and compaction. Supply and placement of bedding material (class 6 road base) to elevations shown in the project drawings shall be included in this bid item.
 - b) Pipe shall be installed per manufacturer requirements.
3. *Payment Basis*
 - a) Per linear foot of pipe placed as measured in the field

Q. Bid Item # 10C – 12” HDPE Pipe/Culvert

1. *Description*
 - a) This line item is for the supply and placement of an 12” diameter storm drainpipe. The work includes the placement to line and grade, bedding, backfill and flushing of the new pipe.
2. *Specific inclusions, exclusions or special considerations*
 - a) Includes all equipment, labor & material for the trenching, placement of pipe, backfill, and compaction. Supply and placement of bedding material (class 6 road base) to elevations shown in the project drawings shall be included in this bid item.
 - b) Pipe shall be installed per manufacturer requirements.
3. *Payment Basis*
 - a) Per linear foot of pipe placed as measured in the field

R. Bid Item # 16H – 18” Flared End Section

1. *Description*

This line item is for the supply and installation of flared end sections.
2. *Specific inclusions, exclusions or special considerations*
 - a) The work includes all materials, equipment, labor, and work to install flared end sections.
3. *Payment Basis*
 - a) Per each.

S. Bid Item #11C – 12” Flared End Section

1. *Description*

This line item is for the supply and installation of flared end sections.

2. *Specific inclusions, exclusions or special considerations*
 - a) The work includes all materials, equipment, labor, and work to install flared end sections.
3. *Payment Basis*
 - a) Per each.

T. Bid Item # 17H – Electrical Conduit (1-1/2” Dia.)

1. *Description*

This line item is for the supply and installation of electrical conduit only.
2. *Specific inclusions, exclusions or special considerations*
 - a) The work includes all materials, equipment, labor, and work to install the electrical conduit from within 3’ of an existing light pole to the location of the wayfinding sign. The depth of bury is 24”.
 - b) Both ends of the conduit shall terminate at grade with long radius sweeps and caps.
3. *Payment Basis*
 - a) Per linear foot as measured in the field.

U. Bid Item #12C and #18H - 3” Hot Mix Asphalt

1. *Description*
 - a) 3” Thickness of Hot Bituminous Pavement to the lines and grades as shown. The 3” thickness is measured after compaction.
2. *Specific inclusions, exclusions or special considerations*
 - a) Includes all labor, materials, equipment, subgrade and base prep to furnish and place Hot Mix Asphalt (HMA). The work includes density testing for contractor quality control.
3. *Payment Basis*
 - a) Per Ton of HMA as verified by certified weight tickets provided to the owners representative daily.

V. Bid Item #13C and 19H – Subgrade Stabilization

1. *Description*
 - a) This item is for over excavation and stabilization of subgrade deemed by the engineer to be unstable.
2. *Specific inclusions, exclusions or special considerations*
 - a) Includes all equipment, labor, excavation and materials necessary for the removal of poor subgrade and replacement per the section as shown in the drawing details. The work includes subgrade compaction and final proof rolling.
3. *Payment Basis*
 - a) Per square yard as defined by the owners’ representative prior to the over excavation work.

W. **Bid Item #20H – Traffic Control (Hunter Hill)**

1. *Description*
 - a) This line item is for the traffic control work associated with the Hunter Hill 2024 Rehabilitation work.
2. *Specific inclusions, exclusions or special considerations*
 - a) This line item shall include all labor, materials and equipment involved with traffic control and detouring during the work. Contractor shall provide a traffic control and detour plan for Town approval at least two weeks in advance of the need.
3. *Payment Basis*
 - a) Lump Sum.- progress payments based on percentage of project completed.

X. **Bid Item #14C – Traffic Control (Cinnamon)**

1. *Description*
 - a) This line item is for the traffic control work associated with the Cinnamon Mountain Road 2024 Rehabilitation work.
2. *Specific inclusions, exclusions or special considerations*
 - a) This line item shall include all labor, materials and equipment involved with traffic control and detouring during the work. Contractor shall provide a traffic control and detour plan for Town approval at least two weeks in advance of the need.
3. *Payment Basis*
 - a) Lump Sum.- progress payments based on percentage of project completed.

Y. **Bid Item #15C and 21H – Construction Staking/Survey**

1. *Description*
 - a) This line item is for the construction survey/staking for the completion of the work per plans and specifications.
2. *Specific inclusions, exclusions or special considerations*
 - a) This line item shall include all labor, materials and equipment involved with construction staking and project layout per plans and specifications.
3. *Payment Basis*
 - a) Lump Sum.- progress payments based on percentage of project completed.

Z. **Bid Item #16C and 22H Minor Contract Revisions**

1. *Description*
 - a) This line item shall be used at Owner's discretion to cover minor contract revisions.

2. *Specific inclusions, exclusions or special considerations*
 - a) This item pays for minor contract revisions as directed and approved by the Town in advance.
3. *Payment Basis*
 - a) Individual payments per Owner direction and approval.

Cinnamon Mountain Road – Alternate 1

AA. Bid Item #28 – Clearing and Grubbing

1. *Description*
 - a) Clearing and grubbing for cul-de-sac improvements.
2. *Specific inclusions, exclusions or special considerations*
 - a) Includes all labor, materials, and equipment for clearing and grubbing. Also includes removal and disposal of excess cleared materials and trees. Clearing and grubbing includes tree removal with calipers of 6" or less.
3. *Payment Basis*
 - a) Lump Sum

BB. Bid Item # 29 – 18" HDPE Pipe/Culvert

1. *Description*
 - a) This line item is for the supply and placement of an 18" diameter HDPE storm drain piping. The work includes the placement to line and grade, bedding, backfill and flushing of the new pipe.
2. *Specific inclusions, exclusions or special considerations*
 - a) Includes all equipment, labor & material for the trenching, placement of pipe, backfill, and compaction. Supply and placement of bedding material (class 6 road base) to elevations shown in the project drawings shall be included in this bid item.
 - b) Pipe shall be installed per manufacturer requirements.
3. *Payment Basis*
 - a) Per linear foot of pipe placed as measured in the field

CC. Bid Item # 30 – 18" Flared End Section

1. *Description*

This line item is for the supply and installation of flared end sections.
2. *Specific inclusions, exclusions or special considerations*

- a) The work includes all materials, equipment, labor, and work to install flared end sections.
- 3. *Payment Basis*
 - a) Per each.

DD. Bid Item # 31 – Rip Rap Inlet/Outlet Protection

- 1. *Description*
 - a) This line item includes all work to haul and place rip rap.
- 2. *Specific inclusions, exclusions or special considerations*
 - a) Includes all labor, materials, equipment, subgrade and base prep to furnish and place rip rap (4" to 8" well graded).
- 3. *Payment Basis*
 - a) Per square yard.

EE. Bid Item # 32 - Full Depth Reclamation

- 1. *Description*
 - a) This line item is for the pulverization and reuse of existing paved street and base material.
- 2. *Specific inclusions, exclusions or special considerations*
 - a) Work includes pulverization of the existing asphalt surface (2" to 4" varying thickness) and mixing with minimum of 8" of underlying base material. The pulverized material shall equal a CDOT class 5 gradation and reach a minimum depth of 11".
 - b) Includes all labor, materials, and equipment required for the full depth reclamation (pulverization) of the existing asphalt surface.
 - c) The work includes the marking and avoiding damage to manholes, valves, valve boxes and other appurtenances that may be in the paved surface.
- 1. *Payment Basis*
 - a) Per each.

FF. Bid Item # 33 – Class 5 Aggregate Road Base

- 1. *Description*
 - a) This line item is for the importation of Class 5 Aggregate Base Course where shown on the drawings or as approved in advance by the Town/Project Engineer.
- 2. *Specific inclusions, exclusions or special considerations*
 - a) Includes base course placement, where needed or shown. Includes material, placement and compaction per plans and specs.
 - b) Not included in this bid item is material paid for as part of "Subgrade Stabilization", bid item 24.
- 3. *Payment Basis*

- a) Per tons of material placed as verified by certified weight ticket provided to Town's representative daily.

GG. Bid Item # 34 - 3" Hot Mix Asphalt

1. *Description*
 - a) 3" Thickness of Hot Bituminous Pavement to the lines and grades as shown. The 3" thickness is measured after compaction.
2. *Specific inclusions, exclusions or special considerations*
 - a) Includes all labor, materials, equipment, subgrade and base prep to furnish and place Hot Mix Asphalt (HMA). The work includes density testing for contractor quality control.
3. *Payment Basis*
 - a) Per Ton of HMA as verified by certified weight tickets provided to the owners representative daily.

HH. Bid Item # 35 - Geotextile Fabric (Geogrid)

1. *Description*
 - a) This line item is for placing of specified geotextile (geogrid) on a prepared subgrade.
2. *Specific inclusions, exclusions or special considerations*
 - a) This work includes all work to provide and place geogrid per the manufacturer's installation instructions.
 - b) Geogrid to be placed on compacted and prepared subgrade after successful passing of a proof roll.
3. *Payment Basis*
 - a) Per Square Yard

II. Bid Item # 36 – Rockery Retaining Wall

1. *Description*
 - a) This line item is for the complete placement and construction of the rockery retaining wall as shown and/or specified.
2. *Specific inclusions, exclusions or special considerations*
 - a) Includes all subgrade prep, drainage rock, filler material and buttressing rock of the size and shape called for.
 - b) Limits of rock placement shall be field determined by owners representative and engineer prior to placing of buttress rock.
3. *Payment Basis*
 - a) Per square foot of rock face as measured in the field.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.01 SUMMARY.

- A. Requirements. The Contractor shall submit to the Engineer for approval all submittals required by the Contract Documents. Submittal shall be submitted on form 01300-A.
- B. Form 01300-A includes an area for the Contractor to check that he has verified that the material or equipment meets the Specification requirements or deviates from the Specification for the reasons listed. A line also exists for the Contractor to sign the submittal. If the areas are not checked or the submittal is unsigned, it will be returned disapproved.
- C. The Contractor shall review and approve all shop and layout Drawings, product data, samples, materials, manuals and plans required to be submitted by the Contract Documents. Approval by the Contractor dictates that he has verified all materials, field measurements with those shown on the Drawings, and similar items. Approval also indicates that the Contractor has coordinated Information contained in the submittal with work requirements of all trades and with the Contract Documents. The Contractor's submissions to the Engineer shall be timely so as to not delay the Work.
- D. The Contractor is required to submit five hard copies of each submittal or re-submittal for approval. The Engineer will return two copies to the Contractor. The Engineer may request up to an additional five copies of manuals by notifying the Contractor in writing and such copies will be at no extra cost.

1.02 SUBMITTAL CONTENT.

- A. The submittal number shall be numbered sequentially, and re-submittals shall have a letter designation starting with the letter designation "B" for the first resubmittal.
- B. Submittals will be returned to the Contractor marked either "NET" which means that No Exceptions Taken, or the submission is approved, "MCN" which indicates Make Corrections Noted, and that the submittal is approved subject to incorporation of the comments shown on the submittal, "A&R" which is Amend and Resubmit, and "R" which is Rejected, or the submittal is disapproved for the reasons shown or listed and shall be resubmitted. One other notation may be shown as "N" which is Noted, for a submittal that does not require Engineer approval but will be placed in the project files.
- C. Reviewed submittals will be returned to the Contractor with the Engineer's comments, if any. The Engineer's review is for general conformance with the Contract Documents only and all Work is still subject to the detailed requirements

of the Contract Documents. The Engineer's review is to help the Contractor find or discover errors and omissions. The Engineer's review does not relieve the Contractor of the obligation and responsibility to coordinate and plan the details of the Work and fulfill the intent and purpose of the Contract. The Engineer's review shall not relieve the Contractor of the responsibility for accuracy, proper fit or proper functioning and performance of the Work. The Engineer reserves the right to require written conformation from the Contractor that the comments placed on submittals stamped "MCN" were actually or will be implemented. The Engineer will make every reasonable effort to process and return each submittal within 15 days after receipt in the Engineer's office, but with the following qualifications:

1. Large or multiple submittals may require additional time.
 2. Contractor may prioritize submittals and Engineer will review and return them in the order of highest priority.
 3. If requested by the Contractor, individual drawings from large submittals with numerous drawings may be returned as they are reviewed rather than waiting for the entire review to be completed.
 4. The need for re-submissions or delays in obtaining the Engineer's review or approval shall not entitle the Contractor to a time extension for Contract completion.
- D. The Contractor shall make all corrections and changes to submittals as required by the Engineer and resubmit until approved. The Contractor shall review submittals returned by the Engineer and shall determine if changes requested by the Engineer result in extra cost. He shall notify the Engineer in writing within 5 days of receiving a returned submittal if the Contractor believes extra costs will be incurred along with the reasons for such belief. Failure of the Contractor to notify the Engineer of the extra costs, or if the Contractor proceeds with the Work, ordering materials, products or equipment or delivery to the site, waives the Contractor claim for compensation.
- E. Only the Contractor shall make submissions to the Engineer. All data and correspondence prepared by Subcontractor and suppliers shall be submitted through the Contractor. The Contractor shall prepare submittals with sufficient information, and in such a manner, that no more than two submittals are necessary to obtain the Engineer's approval. If more than two submittals are required, the Owner reserves the right to deduct the cost of the Engineer's time to review all additional re-submittals (after re-submittal number two) from moneys due the Contractor.
- F. The Contract Drawings are diagrammatic and show the general arrangement of the complete construction Work. The Contractor shall review the Drawings and Specifications and shall include any and all Work required to provide a complete and operable facility. The Contractor shall be responsible for preparing and submitting to the Engineer for review, all general arrangement drawings showing the interrelationships between civil construction and all mechanical, electrical and instrumentation equipment to be installed. Should there be a need to deviate from the Contract Drawings and Specifications, the Contractor shall submit

written details, comparisons with the contract requirements, reasons for all changes, an explanations as to why the proposed change is equal or better than the Contract requirement and any reduction or increase in cost for the change to the Engineer for approval before making such changes. All extra costs to make the changes to structures, electrical, mechanical, piping and other items associated with a change shall be borne by the Contractor. In the event of varying interpretations of the Contract Documents, the Engineer's interpretation shall govern.

1.03 REQUIRED SUBMITTALS

- A. Submittal Schedule. The Contractor shall submit to the Owner for approval a detailed schedule listing all submittals to the Owner. This schedule shall include, but is not limited to, shop drawings and related data; layout drawings; materials, equipment, and fixture lists; certificates of compliance; spare parts data; sample materials and equipment manuals; test procedure plan and test results. The schedule shall indicate the type of item, Contract requirement reference; the Contractor's scheduled dates for submitting the above items and projected procurement dates. The Contractor shall revise and resubmit schedules as necessary to the Owner for monitoring.
- B. Shop Drawings. For storm drain inlets.
- C. Concrete and hot mix asphalt materials
- D. Piping, aggregates and geogrid materials
- E. Schedule of Values. Refer to General Conditions for requirements.
- F. Construction Schedule. See Section 01310 – Construction Schedule.
- G. Progress Reports. During the performance of the Work, the Contractor shall submit to the Owner a written monthly progress report on or before the fifth of each month covering the previous month. Such progress reports shall include:
 - 1. A copy of the construction schedule outlining progress to date for the previous major items of Work.
 - 2. A narrative summary indicating the status of Work performed and other pertinent activities indicating the actual percentage of Work completed and an estimate of the percentage of Work to be completed in the succeeding month; problem areas and recommended solutions, and manpower hours used by trade. If the Work has fallen behind schedule, the Contractor shall state how the time is to be made up to remain on schedule. Include construction photographs.
 - 3. The progress report shall include a procurement and delivery schedule, listing items approved, ordered, delivered and installed, for equipment, products and materials.

4. If a progress report is not submitted, the Owner reserves the right to withhold payment until delivered.
- H. Traffic Control Plan. See Section 01570 - Traffic Control.
- I. Materials and Equipment Manual. See Section 01725 - Materials and Equipment Manuals.
- J. Certificates of Compliance. Certificates required for demonstrating proof of compliance with Specification requirements, including mill certificates, shall be provided by the Contractor. It shall be the Contractor's responsibility to review and approve all certificates before submissions are made to ensure compliance with the Contract requirements. Each certificate shall be signed by an official authorized to certify on behalf of the manufacturing company and shall contain the name and address of the Contractor, the project name and location and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if, the material is later found not to meet the specific requirements.
- K. Manufacturer's Certified Reports. Where the Contract Documents require an equipment manufacturer or his authorized representative to be present at installation and startup, such manufacturer shall submit a notarized written report with respect to his equipment certifying that 1) the equipment has been properly installed and lubricated under his supervision, 2) the equipment is in accurate alignment, 3) he was present when the equipment was placed in operation, 4) he has checked, inspected and adjusted the equipment as necessary, 5) the equipment is free from any undue stress imposed by connecting piping or anchor bolts, 6) has been operated under full load conditions and operated satisfactorily, 7) he has inspected the equipment during the operational demonstrations and system validation testing to the extent specified and 8) is fully covered under the terms of the guarantee.
- L. Spare Parts Data. The Contractor shall furnish spare parts data for each different item of equipment furnished. The data shall include a complete list of parts and supplies that are either normally furnished at no extra cost with the purchase of the equipment, or specified herein to be furnished as part of the contract; and a list of additional items recommended by the manufacturer to assure efficient operation for a period of 180 days or as otherwise stated in the individual Specification section, at the particular installation. The foregoing shall not relieve the Contractor of any responsibilities under the guarantee specified.
- M. Samples. After award of the Contract, the Contractor furnish for approval samples required by the Specifications. The Contractor shall prepay all shipping charges of samples. Materials, products or equipment for which samples are required shall not be used in the Work until approved in writing. Each sample shall have a label or tag indicating:
- Name of project building or facility, project title and address.

- Name of Contractor and, if appropriate, name of Subcontractor.
 - Identification of material, product or equipment with Specification section.
 - Place of origin.
 - Name of producer and brand.
 - Samples of finish materials shall have additional markings that will identify them in regard to installed location.
1. Approval of a sample shall be only for the characteristics or use named in such approval and shall not be construed to change or modify any Contract requirement. Substitutions will not be permitted unless they are approved in writing.
 2. Approved samples in good condition will be marked for identification and may be used in the Work. Materials, products and equipment incorporated in the Work shall match the approved samples. Other samples not destroyed or damaged in testing or not approved, will be returned to the Contractor at his expense if so requested at time of submission.
 3. Failure of any material to pass the specified tests will be sufficient cause for refusal to consider, under this Contract agreement, any further samples of the same brand or make of that material. The Owner reserves the right to disapprove any material, product or equipment which has previously has proven unsatisfactory in service.
 4. Samples of various materials, products or equipment delivered on the site or in place may be taken by the Owner for testing. Samples failing to meet Contract requirements will automatically void previous approvals of the items tested. The Contractor shall replace such materials, products or equipment found to have not met Contract requirements, or there shall be proper adjustment of the Contract price as determined by the Owner.

N. Miscellaneous Submissions.

1. Accident reports shall be submitted in 3 copies as soon after the accident as possible.
2. The Contractor shall submit an organization chart of his construction team for approval not later than 14 days after the beginning of mobilization or prior to any construction activity on the site. It shall show executive, administrative, and construction supervision broken into trades and crews shall include Subcontractors and shall:
 - a) Include all personnel from ownership through project manager to foreman level and designate the extent of authority and responsibility and those who can receive field orders, sign documents, etc.
 - b) Describe personnel duties.
 - c) Provide qualifications and experience of those not included in prequalification documents.

- d) Contractor shall update the organization chart whenever key people are changed. The Engineer may interview any of the Contractor's proposed staff prior to approval.
3. Insurance Certificates. Refer to General Conditions and Supplemental General Conditions for submittal requirements. Submit updated certificates as necessary to verify current coverage.

01300-A SUBMITTAL TRANSMITTAL FORM
(This form to be enclosed with ALL Submittals)

		Seq. #	
Submittal Description:		Submittal #	
Specification Section:	Routing	Date Sent	Date Rec'd
OWNER:	Contractor/Engineer		
PROJECT:			
CONTRACTOR:			

We are sending you: Attached
 Under separate cover via _____
 Submittals for review and comment
 Product data for information only

Remarks:

Item	Copies	Date	Section No.	Description	Review Action (1)	Reviewer Initials	Review Comments Attached

(1) **Note:** **NET**=No exceptions taken; **MCN**=Make corrections noted; **A&R**=Amend & resubmit; **R**=Rejected, Develop Replacement
 Attach additional sheets if necessary.

Contractor

Certify either A or B:

- A** We have verified that the material or equipment contained in this submittal meets all the requirements, including coordination with all related Work, specified (no exceptions).
- B** We have verified that the material or equipment contained in this submittal meets all the requirements specified, except for the attached revisions.

#	Deviation

Certified by: _____ Date: _____
 Contractor's Signature

END OF SECTION

SECTION 01310

CONSTRUCTION SCHEDULES

PART 1 GENERAL

1.01 SUMMARY

- A. Within ten (10) days after effective date of agreement or by the pre-construction conference, the Contractor shall submit a critical path project schedule covering the duration of the project, beginning with the Notice to Proceed and indicating Substantial Completion and "Contract Completion". The purpose of the Project Schedule shall be to:
1. Assure adequate planning, scheduling and reporting during the execution of the Work by the Contractor.
 2. Assure coordination of the Work of the Contractor and various Subcontractors at all tiers.
 3. Establish a critical path for the completion of the Work to assist the Contractor, Owner, and Engineer in monitoring the progress of the Work and evaluating proposed changes to the Contract Duration and the Project Schedules resulting from changes in the Work and/or potential weather delays.
 4. Assist in the coordination of construction activities so as to complete the Work within the Contract Time.
- B. The Project Schedule shall be based upon the Critical Path Method (CPM) for planning, scheduling and progress reporting of the Work.
- C. The Project Schedule shall include a graphic network prepared by the Contractor. The Contractor shall transmit all schedule submissions to the Owner or his representative as both a printed or plotted pure logic diagram and a bar chart with an accompanying computer disk of the schedule. The computer disk shall be in a file format published by Primavera Project Planner (Windows versions), Primavera Sure Trak, or Microsoft Projects.
- D. The Contractor shall provide a Network, which shall be a reasonable representation of how the Work is planned to be performed and shall be used to monitor the progress of the work of the Contract. All costs associated with the development and maintenance of the schedule shall be borne by the Contractor.

1.02 SCHEDULING

- A. The Contractor shall submit a preliminary Project Schedule as stated above. The Owner or his representative shall review the preliminary Project Schedule and

return comments to the Contractor within ten (10) working days after receipt. The Contractor then shall have five (5) working days to review the schedule and return it to the Owner or his representative for review. The five (5) working day review and review cycles shall continue until an acceptable schedule is received by the Owner.

The owner's review of the project schedule is for compliance with this article and other contractor requirements. Acceptance by the owner of the contractor's project schedules does not relieve the contractor of any of his responsibility whatsoever for the accuracy or feasibility of the project schedule, or of the contractor's ability to meet the contract completion date, nor does such acceptance expressly or impliedly warrant, acknowledge or admit the reasonableness of the activities, logic, duration or, when included, cost loading of the contractor's project schedule. An approved schedule shall be required prior to submission of the first progress payment in accordance with the Contract Documents. The following guidelines must be met:

1. The Project Schedule shall contain a sufficient number of activities to allow effective monitoring of the progress of the work.
2. Each activity shall contain only the work of a single trade or subcontractor.
3. Each activity shall be less than fifteen (15) working days in duration. Procurement and material delivery, surveying and shop drawing approvals may exceed fifteen (15) working days in duration. Activities exceeding fifteen (15) working days in duration shall be separated into two or more individual activities of less than sixteen (16) working days by area, type of work, etc. to allow for effective monitoring of the Work.
4. Each activity shall include a description of the work, original duration, contractor or subcontractor performing the work, the equipment and manpower required to do the work, all specific area, phasing or milestone classifications and the activity's relationship to other activities (contained in the Methods Statement).
5. The Project Schedule shall begin with the Notice to Proceed and end with Contract completion activities. A critical path (zero float path) through Contract completion must be generated.
6. Normally anticipated weather conditions shall be included in the Project Schedule.
7. Anticipated utility relocation activities must be shown in the schedule as they affect the contractor's activities.
8. Failure by the Contractor to include any element of work required for performance of the Contract shall not excuse the Contractor from completing all work within the Contract Time.
9. Work times shall be included showing number of days per week, shifts per

day and hours per shift.

10. The Project Schedule shall contain activities for the anticipated submittal cycle of equipment or materials that could affect timely completion of the project.
11. The schedule shall include activities for anticipated procurement and delivery of material or equipment with lead times greater than three (3) weeks.
12. The progress schedule shall include all activities for all work on the project, including subcontracted work, delivery dates for critical material, submittal and review periods, milestone requirements and no work periods. Where the project has specific phases, each phase shall be described separately for each salient feature.

1.03 METHODS STATEMENT

- A. A Methods Statement shall be included for all work items that fall on the critical path of the construction schedule. This Methods Statement shall be a detailed narrative describing each feature and all work necessary to complete the feature. The Methods Statement shall be submitted with the Construction Schedule. The following format is required.
 1. Feature: name of the feature.
 2. Responsibility: Contractor, subcontractor, supplier, utility, etc. responsible of the feature.
 3. Procedures: procedures to be used to complete the work. The procedure to be used shall include general information regarding methods such as forming, excavation, placing, heating, curing, backfill and embankment, trenching, protecting the work, etc. When separate or different procedures are to be employed by the Contractor due to seasonal or project phasing requirements, such differing procedures shall be described in the procedure statement.
 4. Production Rates: the planned quantity of work per day for each feature.
 5. Labor Force: the labor force planned to do the work.
 6. Equipment: the number, types, and capacities of equipment planned to do the work.
 7. Work Times: the planned time for the work to include:
 - a) Number of work days per week.
 - b) Number of shifts per day.
 - c) Number of hours per shift.

- B. At the Owner's request, the Contractor shall update the Methods Statement, or any part thereof, and submit it with the next monthly schedule update.

1.04 PROJECT SCHEDULE UPDATES

- A. The Project Schedule updating shall be done on a monthly basis. The revision shall indicate actual progress to date, changes resulting from change orders, and planned changes necessary to complete the Work in accordance with the Contract Documents.
- B. Should the Project Schedule update indicate that the project is more than ten (10) days behind schedule it shall be revised to indicate the means which the Contractor shall use to regain the Contract Completion Date.
- C. Updating the Project Schedule to reflect actual progress made up to the date of a schedule update shall not be considered revisions to the Project Schedule.
- D. Failure by the Contractor to update the schedule shall result in a material breach of contract and will also result in the withholding of progress payments until an acceptable update is submitted by the Contractor and accepted by the Owner.

1.05 TIME IMPACT ANALYSIS FOR CHANGE ORDERS, DELAYS & CONTRACTOR REQUESTS

- A. When Change Orders are initiated or delays are experienced a Time Impact Analysis shall be completed to determine the effect on the Contract Completion Date. The durations of effected activities shall be altered as mutually agreed upon and the schedule recalculated. The Contract Completion Date will not be extended unless the schedule recalculation indicates a completion date beyond the current Contract Completion Date. A delay must impact the critical path of the Project Schedule as a condition to extending the Contract Completion Date.
- B. Delays caused by weather shall be reviewed at the monthly update meetings. Seasonal weather conditions shall be considered and included in the planning and scheduling of all work influenced by high or low ambient temperatures, wind, and/or precipitation to ensure completion of all work within the Contract Time. Seasonable weather conditions shall be determined by an assessment of average historical climatic conditions.
- C. Float is not for the exclusive use or benefit of either the Owner or the Contractor. Extension of the Contract Time will be granted only to the extent the equitable time adjustments to the activity or activities affected by the Change Order or delay exceeds the total (positive or zero) float of a critical activity (or path) and extends the Contract Time as set forth in the Contract.

1.06 SUBMITTALS

- A. The number of opaque reproductions required by the CONTRACTOR plus four (4) copies which will be retained or distributed by the OWNER/ENGINEER.

1. Do not submit fewer than five (5) copies.

B. Distribution

1. After review, ENGINEER will distribute copies of schedules to:

- a) Two (2) copies to OWNER.
- b) One (1) copy to Resident Project Representative.
- c) One (1) copy to be retained in ENGINEER's file.
- d) One (1) copy to CONTRACTOR to be kept on file at CONTRACTOR's field office.
- e) Remainder to CONTRACTOR for his distribution following modifications if required.

C. Schedule recipients will report promptly to ENGINEER and CONTRACTOR, in writing, any problems anticipated by the projections shown on the schedules.

END OF SECTION

SECTION 01570

TRAFFIC CONTROL

PART 1 GENERAL

1.01 SUMMARY

- A. This work shall consist of furnishing, installing, moving, maintaining and removing temporary traffic signs, advance warning signs, barricades, channelizing devices, delineators, and flagmen as required by the latest revision of the "Manual on Uniform Traffic Control Devices for Streets and Highways" and the latest revisions of the Colorado Supplement thereto, in accordance with the Drawings and these Specifications.
- B. Temporary and short duration road closures will be allowed with advance approval from the Town.

1.02 REFERENCE STANDARDS.

- A. Federal Highway Administration; Manual on Uniform Traffic Control Devices.
- B. Colorado Department of Transportation, Standard Specifications for Road and Bridge Construction, current version; Subsection 107.10 and Section 630.
- C. Colorado Department of Transportation, Standard Plans, S Standards, current version.

1.03 SUBMITTALS

- A. Review, by Engineer or Owner, of the Contractor's Traffic Control Plan (TCP) and Methods of Handling Traffic (MHT's) in no way limits or removes from the Contractor the full responsibility for the safe and effective handling of traffic both vehicular and pedestrian through or around the project.
- B. Traffic Control Plan. Traffic control, both vehicular and pedestrian, through the construction area is the responsibility of the Contractor. The Contractor shall prepare a Traffic Control Plan (TCP) to be submitted with the return of the signed agreement. The TCP shall include a schedule of traffic control devices to be used on the project, general layout of devices, situations that may require use of flaggers and/or pilot cars, and methods of notifying public of impending traffic changes. The Engineer or Owner will review the TCP for general coordination of the project.
- C. Methods of Handling Traffic (MHT). The Contractor shall control traffic in accordance with the Traffic Control Plan (TCP). To implement the TCP, the Contractor shall develop and submit a method for handling traffic (MHT) for each different phase of construction, which shows the Contractor's proposed construction phasing and proposed traffic control devices consistent with the TCP. If at any time the Contractor desires to change the MHT, it shall be considered a different phase requiring a new MHT.

- D. Each MHT shall be submitted to the Engineer/Owner before the corresponding phase of construction will be allowed to begin. The initial MHT shall be submitted a minimum of 10 days prior to the start of work on the project. All successive MHT's shall be submitted to allow reasonable time for review. MHT's for work in CDOT rights-of-ways shall be submitted a minimum of thirty (30) days prior to commencement of related work.
- E. The Contractor shall continually review their methods of handling traffic. If revisions are needed for the safe movement of traffic through or around the work areas, the Contractor shall implement the revisions immediately. The Contractor shall notify the Engineer/Owner of all changes made.

PART 2 PRODUCTS

2.01 GENERAL

- A. All materials shall conform to the applicable portions of the Reference Standards.

2.02 BARRICADES

- A. Minimum 8' wide on movable skids.

2.03 DETOURS

- A. As required by the project.

2.04 ROAD RESTRICTIONS

- A. As required by the project.

2.05 FLAGMEN

- A. Certified flaggers only. Provide as needed, as directed by Engineer or as stated on Drawings to control traffic encroaching in construction zone.

2.06 BARRICADES, CHANNELIZING DEVICES, FLASHING WARNING LIGHTS

- A. Provide for all work areas, open trenches, lane closures, equipment and material storage, etc., and as called for on the Drawings and located within limits of construction. Protection to be in place 24 hours per day and device inspection shall be seven days per week.

2.07 TRAFFIC CONTROL MANAGEMENT

- A. Provided by a certified traffic control supervisor on a 24-hours-per-day basis. An after hours contact shall be provided for every calendar day from the first placement of traffic control devices until all devices are removed. Any changes to this contact shall be submitted to the Engineer and to Dispatch Services.

END OF SECTION

SECTION 01580

CONSTRUCTION SURVEYING

1.01 SUMMARY

- A. This work consists of the construction surveying, calculating, and staking necessary for the construction of all elements of the project. The Contractor is ultimately responsible for all project construction surveying utilizing employees or subcontractors experienced and competent in the performance of construction surveying. Work within Public or Private Right-of-Ways (Town of Mt. Crested Butte) must be performed under the supervision of a Professional Land Surveyor (PLS) who is experienced and competent in construction surveying and registered in the State of Colorado.
- B. The Contractor shall be responsible for paying and coordinating construction staking directly for all work efforts. The Town will set project site control for the contractors' use on a one-time basis.

The Town Engineer will provide digital information sufficient to facilitate Machine Control grading. This will consist of sufficient control points for GPS calibration, the horizontal and vertical road alignment and 2D linework for centerline of road and edges of concrete Curbs and Valley Pans in .dxf format as well as a .xml file of the finished grade surface.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

3.01 GENERAL

- A. The Contractor shall furnish all personnel, materials, and traffic control necessary to perform the required construction surveying. All surveying equipment shall be calibrated prior to the start of work. EDM's, total stations, and GPS receivers, shall be checked on a National Oceanic and Atmospheric Administration (NOAA) calibrated baseline.
- B. The horizontal and vertical control for this project has been established as shown on the plans. All available information defining the extent of that control is provided on the plans or is available from the Project Engineer.
- C. A Pre-survey Conference shall be held, along with the preconstruction meeting, prior to performing any survey work. The Engineer, Contractor's Superintendent, Contractor's Surveyor (PLS) and Party Chief shall attend. A surveying work schedule shall be submitted to the Engineer for review prior to the preconstruction conference.
- D. The Contractor shall check all established control points, and verify and

document their accuracy, prior to using them for construction surveying control.

3.02 CONTRACTOR SURVEYING

- A. The Contractor shall perform all construction surveying and staking that is necessary for construction of the project. Construction surveying and staking shall be based on the survey control established and provided by the Engineer.

3.03 STAKING

- A. Acceptable staking placement intervals for the various construction survey control operations are described in the CDOT Survey Manual. Stationing shall be established in the field on centerline with or without an approved offset.

3.04 ACCURACY AND TOLERANCES

- A. Accuracy of surveys and survey tolerances shall be as specified in the Contract or the CDOT Survey Manual. If a discrepancy should occur, the higher degree of accuracy or the more restrictive tolerance shall apply.

3.05 RESPONSIBILITY AND INSPECTION

- A. Supervision and coordination of construction surveying is the Contractor's responsibility. The Engineer may inspect the Contractor's surveying; however, such inspection will not relieve the Contractor of any responsibility for accuracy or completeness of work. The Contractor shall check the work to verify the accuracy and include documentation of this check in the Survey Records. All Contractor surveying inaccuracies, errors, or omissions shall be corrected at the Contractor's expense. Engineer's inspection or the Contractor's corrections shall not entitle the Contractor to additional cost to the Owner or contract time extension.

3.06 RESET CONTROL AND STAKES

- A. Control points, benchmarks, existing property corner monuments and other significant stakes that are damaged, destroyed, or made inaccessible by the progress of construction shall be replaced, transferred or re-established at the Contractor's expense.

3.07 CHANGES

- A. All changes in lines and grades required by field conditions, and all discrepancies in grades, alignment, location, or dimensions detected by the Contractor shall be immediately submitted to the Engineer in writing.

END OF SECTION

SECTION 02101

REMOVAL OF STRUCTURES AND OBSTRUCTIONS

PART 1 GENERAL

1.01 SUMMARY

- A. This Work shall consist of furnishing all labor, equipment, materials and miscellaneous items for the removal and satisfactory disposal of all fences, signs, structures, old pavements, roads, sidewalks, retaining walls and any other obstructions identified for removal.
- B. This Work shall include saw cutting of concrete and asphalt in reasonably close conformity with the dimensions of these Specifications to create lines of weakness in order to facilitate removal.

1.02 SUBMITTALS

- A. Copies of written agreements for disposal areas will be given to the Engineer before work begins.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

3.01 GENERAL

- A. Contractor shall meet with Owner and engineer, with plans in hand, to determine extent of concrete removals. The Contractor shall remove and dispose of all identified items in a legal manner. The limits of removal for asphalt and concrete materials shall be identified and measured in the field prior to the work.

3.02 DISPOSAL

- A. It is the contractor's responsibility to dispose of all materials that are not deemed salvageable.
- B. Where portions of structures are to be removed, the remaining portions shall be prepared to fit new construction. The work shall be done in accordance with Drawings, and in such manner that materials to be left in place shall be protected from damage; all damage to portions of structures to remain in place shall be repaired by the Contractor at his expense. Reinforcing steel projecting from the remaining structure shall be cleaned and aligned to provide bond with new extension.

3.03 SALVAGE

- A. Not applicable.

3.04 SAWING OF CONCRETE

- A. The sawing of concrete shall be done carefully, and all damages to concrete remaining in place, due to Contractor's operations, shall be repaired by the Contractor at his expense and as directed by Project Engineer. An effective dust control method must be utilized throughout concrete sawing operations. The minimum depth of saw cut in concrete shall be two (2) inches or to the depth of the reinforced steel, whichever occurs first, unless otherwise designated.

3.05 SAFETY

- A. Operations that may damage or constitute a hazard to the traveling public will not be permitted. Contract shall abide by OSHA standards.

3.06 REMOVAL OF PAVEMENT, SIDEWALKS, CURBS, ETC.

- A. All concrete pavement, sidewalks, curbs, gutters, etc., designated for removal, shall be broken into pieces, the size of which shall not exceed approximately 400 pounds or 3 square yards of surface area, and shall be disposed of off site by Contractor in a legal manner.
- B. All pulverized asphalt as a result of the full depth reclamation work shall be used as new road base and/or otherwise remains the property of the Town of Mt. Crested Butte.
- C. Where old concrete construction abuts new concrete construction, edges of pavement sidewalks, curbs, etc., to be left in place shall be sawn to a true line with a vertical face (see sawing of concrete).
- D. Asphalt and bituminous pavements to be cut to the full depth of pavement with a vertical face in a straight line parallel to the limit of excavation. Cuts shall be made with flat bladed air hammer or saw, or as approved in writing by Engineer, so as to provide a straight, true cut. Concrete pavements, including curbs, gutters and sidewalks, to be saw cut to the full depth of pavement with a vertical face in a straight line parallel to the limit of excavation. An effective method of dust control shall be utilized throughout concrete sawing operations.

END OF SECTION

SECTION 02200

EXCAVATION AND EMBANKMENT

PART 1 GENERAL

1.01 SUMMARY

- A. Work to be performed under this section shall include all labor, equipment, materials and miscellaneous items necessary to perform all clearing and grubbing, excavation, backfilling, compacting, testing and related work not specified elsewhere, as shown on the Drawings and required by the Specifications.
- B. All work within the rights-of-way of the Federal Government, the Colorado Division of Highways, County Governments or Municipal Governments shall be completed in compliance with requirements issued by those agencies. All such requirements shall take precedence over these Specifications. It shall be the Contractor's responsibility to secure all required permits and pay all costs thereof to complete work in accordance with specifications.

1.02 REFERENCE STANDARDS

- A. Colorado Department of Transportation, "Standard Specifications for Road and Bridge Construction," latest edition.

1.03 SUBMITTALS

- A. The Contractor shall prepare and submit information for all imported fill material.

1.04 FIELD CONDITIONS

- A. Existing Utilities. Underground utilities, except service lines, known to the Engineer have been shown on the Drawings. Locations are approximate, only, and may prove to be inaccurate. The Contractor is responsible for verification of the existence, location and protection of all utilities within the construction limits.
 - 1. Before commencing with work, the Contractor shall notify all public and private companies who may have utilities within the project limits. The Contractor shall coordinate with these entities all excavation performed. The Contractor shall obtain all permits required by utility owners.
 - 2. In the event of damage to any existing utility, the Contractor shall be solely responsible for the repair and payment for repair of all such damage.
 - 3. The Contractor shall make arrangements for and pay all costs for relocation of utilities requiring relocation as indicated on the Drawings. Should utility obstructions, not shown on the Drawings, be encountered and require relocation, the Contractor shall notify the Owner and the Engineer and shall make arrangements necessary for such relocation.

The Owner shall pay the costs for such relocation.

- B. Existing Improvements. The Contractor shall restore or protect from damage all existing improvements encountered in performance of the work. Improvements damaged as a result of this work shall be restored to original condition or better, as determined by the Engineer.
 - 1. Adjacent property shall be protected by the Contractor from any damage. The Contractor shall be held solely liable for any damage to adjacent property and shall be responsible for all costs resulting from repair of such damage.
- C. Soil Conditions. It shall be the responsibility of the Contractor to examine soil conditions and characteristics, including the presence of groundwater that will be encountered within the limits of construction.

1.05 PROTECTION OF WORK

- A. Safety. All excavations shall be protected by barricades, lights, signs, etc. as required by governing federal, state and local safety codes and regulations.
- B. Sheeting, shoring and bracing. Except where banks are cut back on a stable slope, provide and maintain sheeting, shoring and bracing systems necessary to protect adjoining grades and structures from caving, sliding, erosion or other damage, and suitable forms of protection against bodily injury, all in accordance with applicable codes and governing authorities.
 - 1. Remove sheeting and shoring systems as excavations are backfilled in a manner to protect the construction or other structures, utilities or property. Do not remove any sheeting after backfilling.
 - 2. Sheeting and shoring systems shall be structurally designed and sufficiently braced to provide necessary restraining of retained backfill. Prior to installation of such systems, methods of installation and materials proposed shall be discussed with and approved by Engineer. All systems shall be in strict compliance with local, state and federal safety regulations. Contractor is solely liable for non-compliance.
- C. Site Drainage. Excavation to be protected from surface water drainage at all times. At no time shall excavated area be allowed to fill with storm water runoff. Contractor shall provide proper, temporary drainage structures at his cost to detour runoff from excavated areas.

1.06 BLASTING

- A. NOT ALLOWED

1.07 CONSTRUCTION IN STREETS

- A. When construction operations are located within streets, make provisions at cross streets and walks for free passage of vehicles and pedestrians. Do not

block streets or walks without prior approval. Pedestrian routing plans shall be shown on Traffic Control Plans.

PART 2 PRODUCTS

- A. All materials for construction fills and backfills shall meet specified requirements for gradation and other factors defining suitability for the intended use. All classes of suitable material shall be free from perishable matter, debris, frozen material and stones and/or cemented pieces larger than permitted by the specified gradation. Classification of materials shall be as follows:

2.01 EXCAVATION

- A. Excavation shall consist of the excavation of all materials of whatever character required for the Work, obtained within the right-of-way, including surface boulders and excavation for ditches and channels not being removed under some other item.

2.02 MATERIALS FOR EMBANKMENT

- A. Embankment material shall consist of approved material acquired from excavations, hauled and placed in embankments in reasonably close conformity with the line, grades, thicknesses and typical cross sections shown on the plans or as designated.
- B. When source of embankment material is not designated on the plans, approval of the source will be contingent on the material having a resistance value of at least that shown on the plans, when tested by the Hveem Stabilometer, and a maximum dry density of not less than 90 pounds per cubic foot.

2.03 TOPSOIL

- A. Topsoil shall consist of selectively excavated, loose, friable loam reasonably free of admixtures of sub-soil, refuse, stumps, roots, rocks, brush, weeds or other material which would be detrimental to the proper development of vegetative growth; topsoil to be free of any stone or rock greater than 3" in size.

PART 3 EXECUTION

3.01 CLEARING AND GRUBBING

- A. Preservation of Existing Conditions.

The Engineer will establish right-of-way lines and construction lines and Owner shall designate all trees, shrubs, plants and other things to remain. The Contractor shall preserve all things designated to remain. Paint required for cut or scarred surfaces of trees or shrubs selected for retention shall be an approved asphaltum base paint prepared especially for tree surgery.

- B. Clearing and Grubbing

Clear and/or grub all surface objects and all trees, stumps, roots and other protruding obstructions, not designated to remain, except undisturbed stumps and roots and non-perishable solid objects which will be a minimum of two feet below subgrade or slope embankment. Outside cut or fill limits, but within construction limits, stumps may be left at finish grade if allowed by Engineer.

1. Except in areas to be excavated, backfill stump holes and other holes from which obstructions are removed, with embankment material and compacted in accordance with Section 3.05.

C. Disposal

If perishable material is burned, burn under the constant care of competent watchmen at such times and in such a manner that the surrounding vegetation, the other adjacent property or anything designated to remain within the right-of-way, will not be jeopardized. Burning shall be done in accordance with the obtained burn permit and applicable laws and ordinances.

1. When permitted, materials and debris which cannot be burned and perishable materials may be removed from the site and disposed of at approved locations off the project. The Contractor shall make all necessary arrangements with property owners for obtaining suitable disposal locations and the cost involved shall be included in the unit price bid.
2. All merchantable timber in the clearing area, which has not been removed from the right-of-way prior to the beginning of construction, shall become the property of the Contractor, unless otherwise specified.

D. Scalping

Scalp areas where excavation or embankment is to be made. Scalping shall include the removal of material such as brush, roots, sod, grass, residue or agricultural crops, sawdust, and other vegetable matter from the surface of the ground.

E. Hedges

Hedges shall be pulled or grubbed in such a manner as to assure complete and permanent removal. Scattered hedge or shrubs not classified as hedge shall be removed as specified for hedge.

F. Topsoil

Strip topsoil from all areas to be disturbed by construction. Topsoil to be stockpiled separately from excavated materials.

3.02 CONSTRUCTION REQUIREMENTS

- A. The excavation and embankments required shall be finished to smooth and uniform surfaces. Materials shall not be wasted without permission of the

Engineer. The Engineer reserves the right to change grade lines, cut slopes or fill lines during the progress of the Work.

3.03 EXCAVATION

- A. Material outside of the limits of excavation will not be disturbed. Prior to beginning excavation operations in any area, all necessary clearing and grubbing in that area shall have been performed in accordance with these Specifications. The Contractor shall not excavate beyond the dimensions and elevations established. Common excavation shall include all materials of whatever nature encountered in the work for construction of excavations to the lines and grades called for on the Drawings. Structure excavation shall include all earthwork required for the construction of structures to the lines and grades called for on the Drawings. If any areas are inadvertently over-excavated, fill such over-excavation with embankment material and compact in accordance with Section 3.05.
1. Tolerances. In those areas upon which a subbase material is required, upon which finished landscaping improvements, including sod or lawn seeding, or upon which a structure is to be constructed directly, deviation of not more than 1 inch shall be permitted when tested with a 16-foot straight edge. Deviation from grade shall not exceed 1 inch at any point.
 - a) In those areas upon which a base course material is required, deviation of not more than 0.04 foot shall be permitted when tested with a 16-foot straight edge. Deviation from grade shall not exceed 0.04 foot at any point.
 - b) In those areas where no additional construction, other than topsoil addition and native seeding will occur, the finished surface shall be smooth and shall not deviate from grade by more than 0.5 foot at any point.
 2. Groundwater Control. Contractor to maintain facilities on site to remove all groundwater from excavated area and keep water below the bottom of the excavation to a point such that a firm base for equipment or concrete installation exists. Facilities shall be maintained until all backfilling is in place at least 24 inches above anticipated water levels before groundwater removal. All water removal shall be subject to approval by the Engineer.
 - a) Removal of water by well point, sump or trench diversions, intermittent pumping, or sump with submersible pumps is considered incidental to excavation work for this project.
 3. Stockpile Excavated Material. Excavated material to be stockpiled so as not to endanger the work or public safety. Maintain existing vehicular and pedestrian traffic with minimum disruption. Maintain emergency access and access to existing fire hydrants and water valves. Maintain natural drainage courses and street gutters.
 - a) Backfill material to be segregated from stock piled topsoil and

unusable backfill materials.

4. Over-excavation. Whenever the site is over-excavated more than 0.1' to eliminate point bearing by rocks or stones beneath proposed structures, unsuitable materials or when grade tolerances are exceeded, the Contractor is to re-establish grade using Class 1 Backfill (CDOD Section 703.08 - Class 1). Compaction shall be to 95% maximum density. All work to re-establish grade shall be at the Contractor's expense.
5. Unstable Materials. Materials which are not capable of supporting superimposed loadings are defined as unstable materials. Should unstable materials be encountered during excavation, immediately notify Engineer. If, in the opinion of the Engineer, unstable soil excavation is required and the Contractor could not have reasonably been expected to discover the existence of such materials during his site investigation, then a contract price for Unstable Soil Excavation shall be negotiated between Owner & Contractor. No payment shall be made for materials excavated prior to notification of the Engineer and negotiation of payment for extra work.
 - a) Inclusion of a bid item for Unstable Soil Excavation indicates such excavation is anticipated. The Contractor is to notify the Engineer prior to any unstable soil excavation; no payment shall be made for excavation prior to authorization of Engineer.
6. Rock Excavation. Rock excavation shall be defined as removal of boulders in excess of three (3) cubic yards or solid or fractured rock, which requires techniques, such as blasting or jacking for removal, other than those which are being employed by the Contractor or are normally used in excavation, such as use of excavators (50,000 pound machine similar to a Cat 325), trenchers, draglines, etc. Should unanticipated rock conditions be encountered, immediately notify the Engineer. If in the opinion of the Engineer, rock excavation is required and the Contractor had in fact made a diligent and determined effort to remove the material using normal excavation procedures as stated above and the Contractor could not have reasonably been expected to determine the existence of such material during his site investigation, then a contract price for Rock Excavation shall be negotiated between the Contractor and the Owner. No payment shall be made for excavation performed prior to determination of a negotiated price.
 - a) Rock shall be removed to a 4" depth below grade. In addition, all rock loosened during jacking, blasting, etc. shall be removed and stored on site. For payment purposes, maximum depth to be paid for shall be 12" below required grade. All over-excavation shall be replaced as specified in Subsection 3.03, D. Inclusion of a bid item for Rock Excavation indicates such excavation is anticipated. Contractor to notify Engineer prior to any rock excavation; no payment shall be made for excavation prior to notification.
7. Disposal of Excess Excavation. Contractor to dispose of excess

excavation off-site. Disposal in any case shall be the sole responsibility of the Contractor.

3.04 EMBANKMENT AND BACKFILLING

- A. Do not begin embankments until construction below grade has been approved, underground utility systems have been inspected, tested and approved and trash and debris have been cleaned from the excavation.
- B. Place approved excavated material in successive uniform maximum loose layers not exceeding 8 inches for the full width of the cross-section in all accessible areas. Place material in successive uniform loose layers not exceeding 4 inches in areas not accessible or permitted for the use of self propelled rollers or vibrators. Do not place fill on muddy or frozen subgrade, or until subgrade is approved by the Engineer.
- C. Plow, step, or bench sloped surfaces steeper than 4:1 on which fill or backfill is to be placed in such a manner that fill material will adequately bond with existing surfaces. Scarify all surfaces to receive backfill to a depth of 6" before filling.
- D. Construct fills and embankments to the lines and grades indicated on the Drawings within tolerances stated in Section 3.03. A, above.
- E. Use suitable materials removed from the excavation prior to obtaining material from borrow areas.
- F. Where otherwise suitable material is too wet, aerate, dry or blend to provide the moisture content specified for compaction.

3.05 COMPACTION

- A. During placing and/or compacting operations of earth or earth-and-rock mixtures, the moisture content of materials in the layers being compacted shall be near optimum and uniform throughout the layer. In general, maintain the moisture content of the material being placed and compacted within 2% of optimum condition as determined as ASTM Standard D698.

- 1. **Compaction Equipment.** Perform all compaction with approved equipment well suited to location and material being compacted. Use heavy vibratory rollers or sheepsfoot rollers where heavy equipment is authorized. Do not operate heavy equipment closer to structures than a horizontal distance equal to height of backfill above bottom of structure foundation. Compact remaining area with hand tampers suitable for material being compacted. Place and compact backfill around pipes with care to avoid damage.

Compact fill materials to following densities at optimum moisture content based on ASTM D698 or AASHTO T99:

- a) Structure fill under or within 5' horizontally of all concrete structures: 95%.

- b) Backfill beneath or within 5' horizontally or within the area defined by a line extended at an angle of 1:1 of existing or proposed pavements, roadways, sidewalks, curbs, utility lines, retaining wall bases, or other improvements: 95%
 - c) Backfill within lagoon berm: 95%
 - d) Backfill within public or designated rights-of-way: 90% or as shown on the Drawings.
 - e) Backfill within undeveloped, green or undesignated area: 85%.
 - f) Backfill for any fill for overcut grading in areas of lot/home construction: 95%.
2. Jetting. Jetting and water inundation are generally not permitted methods of compaction. The Engineer may allow jetting under certain field conditions. Techniques including depth of lifts, amount of water to be used, penetration of hose jet, etc., shall be at the direction of the Engineer. No jetting will be allowed on materials with a 200-minus gradation of greater than 15%. Contractor shall pay cost of all water used, soil classification testing and compaction testing and any retesting or re-compaction required. No jetting shall be done prior to written approval and direction of the Engineer.
3. Maintenance. Contractor to maintain all embankment in satisfactory condition during the extent of the contract and warranty period. All surface deterioration determined to be the responsibility of the Contractor and all settlement shall be repaired at once by the Contractor upon notice by the Owner. All costs for repair and all liability as a result of surface deterioration or settlement shall be the responsibility of the Contractor.

3.06 PROOF ROLLING

- A. Proof rolling with a heavy rubber-tired roller will be required for all paved and graveled travel ways. Proof rolling shall be done after specified compaction has been obtained. Areas found to deflect excessively and those areas which failed shall be ripped, scarified, wetted if necessary and re-compacted to the requirements for density and moisture at the Contractor's expense. Equipment to be used for proof rolling may also be fully loaded, tandem axle dump truck or water truck or rubber-tired roller with equivalent loading characteristics.

3.07 SURFACE RESTORATION

- A. All existing surface improvements and site conditions disturbed or damaged during construction are to be restored to a condition equal to pre-construction condition. All restoration costs are considered incidental to excavation and backfill.
 - 1. Improvements. Replace, repair or reconstruct all improvements as required. Work will not be accepted until restoration is accepted by Engineer and all affected property owners.
 - 2. Final Grading. The Contractor is to re-establish existing final grade or finish to final grades as modified and shown on the Drawings. The

Contractor is to backfill to proper subgrade elevation with backfill material to allow placement of surface improvements or materials.

3. Roadways. All roadways to be restored to original condition with material types removed. Materials and methods to conform to Section 02222 - Embedment and Base Course Aggregate; and Section 02612 - Hot Bituminous Pavement. Additional requirements are:
 - a) Minimum base course material on gravel roadways or minimum depth gravel beneath hard surface roadways to be 8", unless shown otherwise on Drawings.
 - b) Minimum asphalt pavement surfacing to be 3", unless shown otherwise on the Drawings.
 - c) Minimum concrete pavement surfacing to be 6", unless shown otherwise on Drawings.

4. Green Areas. Place excavated topsoil from the roadway (or from pits) directly upon constructed cut and fill slopes without the use of stockpiles whenever conditions and the progress of construction will permit.
 - a) Do not place topsoil until the areas to be covered have been properly prepared and grading operations in the area have been completed.
 - b) Place and spread topsoil at locations and to the thickness shown on the plans. Key to the underlying material by the use of harrows, rollers or other equipment suitable for the purpose.
 - c) Apply water to the topsoil at the locations and in the amounts designated. Apply in a fine spray by nozzles or spray bars in such manner that it will not wash or erode the topsoil areas.
 - d) All loose exposed rock larger than three inches shall be removed from slopes that are to receive topsoil.
 - e) See Section 02821, Revegetation and Section 02830 Trees, Plants, Seeding and Erosion Control.

3.08 INSPECTION AND TESTING

- A. Inspection and testing to be performed at the direction of the Engineer and by a Geotechnical Engineering Firm, respectively. Contractor to cooperate fully with all persons engaged in testing. Contractor to excavate as required to allow testing. Contractor to backfill all test excavations in accordance with these Specifications.

3.09 DENSITY TESTING AND CONTROL

- A. Reference Standards. Density/moisture relationships to be developed for all soil types encountered according to ASTM D698 or AASHTO T99.
- B. Field Testing. Testing for density during compaction operations to be done in accordance with ASTM D2922 using nuclear density methods.
- C. Frequency of Testing. Frequency of testing to be done at the direction of the Engineer.

- D. Retesting. In the event of failure to meet compaction criteria, Contractor shall re-excavate and re-backfill at direction of Engineer. All retesting to be paid for by Contractor and to be performed by Geotechnical firm approved by the Engineer.

3.10 PAYMENT FOR TESTING

- A. Owner responsible for all costs of initial testing of backfill. Contractor to pay all costs of any retesting required.

END OF SECTION

SECTION 02221

TRENCHING, BACKFILLING AND SUBGRADE COMPACTION

PART 1 GENERAL

1.01 SUMMARY

- A. Work to be performed under this section shall include all labor, equipment, materials and miscellaneous items necessary to perform all excavation, trench backfilling and compaction, compaction of subgrades (after FDR), underground pipelines, conduits, cables and appurtenances shown on the Drawings and specified herein.
- B. Subgrade prep after Full Depth Reclamation (FDR) includes blading pulverized asphalt mixed with existing road base off to one side, subgrade compaction, proof rolling with a loaded water truck, placement of specified geotextile material, replacing moved road base mix, shaping/grading/compacting and proof rolling a second time. This is further specified in spec section 02610 Full Depth Reclamation.

1.03 FIELD CONDITIONS

- A. Existing Utilities. Underground utilities, except service lines, known to the Engineer have been shown on the Drawings. Locations are approximate only and may prove to be inaccurate. The Contractor is responsible for verification of the existence, location and protection of all utilities within the construction area. The drawings identify areas of potential conflict for contractor potholing per bid item 2.
 - 1. Before commencing with work, the Contractor shall notify all public and private companies who may have utilities within the project limits. The Contractor shall coordinate with these entities all excavation performed. The Contractor shall obtain all permits required by utility owners.
 - 2. In the event of damage to any existing utility, the Contractor shall be solely responsible for the repair and payment for repair of all such damage, to known utilities or utilities identified for "pothole" locating by the Contractor.
- B. Existing Improvements. The Contractor shall restore or protect from damage all existing improvements encountered in performance of the work. Improvements damaged, as a result of this work shall be restored to original condition or better, as determined by the Engineer.
 - 1. Adjacent property shall be protected by the Contractor from any damage. The Contractor shall be held solely liable for any damage to adjacent property and shall be responsible for all costs resulting from repair of such damage.

- C. Soil Conditions. It shall be the responsibility of the Contractor to examine soil conditions and characteristics, including the presence of groundwater that will be encountered within the limits of construction. The contractor shall expect and be prepared to manage ground water that could enter excavations at about 3' or deeper.

1.04 PROTECTION OF WORK

- A. Safety. All excavation shall be protected by barricades, lights, signs, etc., as required by governing federal, state and local safety codes and regulations.
- B. Sheet piling, Shoring and Bracing. Where trench walls are not excavated at a stable slope, the Contractor shall provide and maintain support sufficient to prevent caving, sliding or failure and property or bodily damage. Any damage due to inadequate support shall be repaired at the sole expense of the Contractor.
 - 1. Under normal construction conditions, support shall be removed as work progresses. Support shall remain installed if directed by the Engineer or if pipe does not have sufficient strength to support backfill based on trench width as defined by the sheet piling. Sheet piling shall not be removed after the start of backfilling.
 - 2. Use of a movable trench shield or coffin box will not be allowed where pipe strength is insufficient to support backfill as defined by the trench width after the trench shield is removed.
 - 3. The Contractor shall be held solely responsible for any violation of applicable safety standards. Particular attention is called to minimum requirements of OSHA and COSH (Colorado Occupational Safety and Health).
- C. Site Drainage. Excavation to be protected from surface water at all times. At no time shall excavated area be allowed to fill with storm water runoff. Contractor shall provide proper, temporary drainage structures at their cost to detour runoff from excavated areas.

1.05 BLASTING

- A. No blasting shall be allowed.

1.06 CONSTRUCTION IN STREETS

- A. When construction operations are located within streets make provisions at cross streets and walks for free passage of vehicles and pedestrians. Do not block streets or walks without prior approval or per the Contractors approved traffic control plan.

PART 2 PRODUCTS

2.01 EMBEDMENT MATERIAL

- A. Pipeline bedding and immediate cover material shall comply with the appropriate classes as listed below and as illustrated in the Construction Drawings:
1. Storm Drain Piping – Native material free from rocks greater than 3” in diameter.
 2. Storm Drain Piping crossing roads: Where storm drain piping is in the road backfill shall be 1000 psi flow fill to 3” above the top of the pipe. Piping crossing the road and within 5’ of the road edge shall receive flow fill.
 3. Irrigation Piping – Native material free from rocks greater than 2” in diameter. Irrigation piping crossing roads shall be backfilled with flow fill as described above.
 4. Backfill above piping in roadways or below concrete shall be with recycled asphalt road base or class 5 road base and compacted to 95% modified proctor.

2.03 CONCRETE FOR EMBEDMENT (FLOW FILL)

- A. Flow-Fill is a self-leveling low strength concrete material composed of cement, fly ash, aggregates, water, chemical admixtures and/or cellular foam for air-entrainment. Flow-fill shall have a slump of 7 to 10 inches, when tested in accordance with ASTM C143. For the Mt Crested Butte projects, the Flow-Fill shall have a minimum compressive strength of 75 psi at 28 days, when tested in accordance with ASTM D4832. Removability Modulus shall equal 1.65.

2.04 BACKFILL MATERIAL

- A. Characteristics - Native materials free from debris, organic matter, rock as noted above and frozen material. Uniformly graded sufficient to allow proper compaction.
- B. Trench Backfill Gradation in roadways – Flow fill to above pipe and then class 5 road base or recycled asphalt meeting class 5 gradation, compacted to 95 modified proctor.
- C. Trench Backfill Gradation in no roadway shall be with embedment material as noted above and no rock greater than 6-inch diameter in top 12 inches of backfill.
1. Note, in select areas the engineer may direct the contractor to flow fill storm drain piping. In all cases, flow fill will be paid for per the Flow Fill bid item, only within roadways or where directed.

PART 3 EXECUTION

3.01 SITE PREPARATION

- A. Full depth reclamation as specified elsewhere.

- B. Asphalt and concrete removals where shown on the drawings or as directed in the field.

3.02 TRENCH EXCAVATION

- A. Limits of Excavation. Trenches to be excavated along lines and grades shown on the Drawings, or as modified in the field by the Engineer.
 - 1. Minimum trench width to be the outside diameter of the pipe or conduit plus 16 inches. This minimum can be less where flow fill is to be used.
 - 2. Maximum trench width to be the outside diameter of the pipe or conduit plus 24 inches for all pipes or conduits with outside diameter of 24 inches or less, and plus 30 inches for all pipes or conduits with outside diameters greater than 24 inches.
- B. Groundwater Control. Contractor to maintain facilities on-site to remove all groundwater from trench and keep water at least 12 inches below the trench bottom to a point such that a firm base for pipe or conduit installation exists. Facilities shall be maintained until all concrete is cured and backfilling is in place at least 24 inches above anticipated water levels before water removal is discontinued; all water removal shall be subject to approval by the Engineer.
- C. Stockpile Excavated Material. Excavated material to be stockpiled so as not to endanger the work or public safety. Maintain existing vehicular and pedestrian traffic with minimum disruption. Maintain emergency access and access to existing fire hydrants and water valves. Maintain natural drainage courses and street gutters.
 - 1. Backfill material to be segregated from stockpiled topsoil and unusable backfill materials.
- D. Excavation for Appurtenances. Excavation to be done in accordance with these Specifications and as shown on the Drawings. Adequate working clearances to be maintained around appurtenances. Provisions for base and bottom preparations shall apply to all appurtenances. Precautions to be taken to maintain trench widths in the vicinity of adjacent pipelines and conduits.

3.03 BOTTOM PREPARATION

- A. Undisturbed Foundation. Where soils are suitable and have adequate strength, bottom to be graded and hand-shaped such that pipe barrel rests uniformly on undisturbed soil. All rocks or stones, which may result in a point bearing on the pipe, shall be removed.
 - 1. Undisturbed grades shall be within 0.1 feet \pm tolerance. Soils for final pipe grade placed within these limits shall be fine granular (100% passing No. 4 sieve) or may be native materials, hand compacted to 95% maximum density.

- B. Bell Holes. Material to be removed to allow installation of all fitting and joint projections without affecting placement of pipe.
- C. Over-excavation. Whenever trench is over-excavated to eliminate point bearing by rocks or stones or when undisturbed grade tolerances of 0.1' are exceeded, the Contractor is to re-establish grade using Class 6 aggregate bedding material. Compaction shall be 95% maximum density. All work to re-establish grade shall be at the Contractor's expense.
- D. Unstable Materials. Materials incapable of supporting superimposed loadings are defined as unstable materials. Should unstable materials be encountered during excavation, immediately notify Engineer. If, in the opinion of the Engineer, unstable soil excavation is required and the Contractor could not have reasonably been expected to discover the existence of such materials during his site investigation, then a contract price for Unstable Soil Excavation shall be negotiated between Owner and Contractor. No payment shall be made for materials excavated prior to notification of the Engineer and negotiation of payment for extra work.
- E. Inclusion of a bid item for Unstable Soil Excavation indicates such excavation is anticipated. The Contractor is to notify the Engineer prior to any unstable soil excavation; no payment shall be made for excavation prior to authorization of Engineer.

3.04 BACKFILLING

- A. All storm drain piping and other conduits that are placed within road traffic lanes shall be backfilled with a flowable fill to a minimum of 4" above the top of pipe.
- B. Tamping Equipment. Except immediately next to the pipe, mechanical or air operated tamping equipment to be used. Hand equipment, such as T-bar, to be used to pipe if necessary. Care to be taken when compacting under, along side and immediately above pipe to prevent crushing, fracturing or shifting of the pipe. The Contractor is to note densities required for materials being backfilled and shall use appropriate approved equipment to obtain those densities.
 - 1. Wheel rolling is not considered to be an adequate compaction technique to meet these Specifications and will not be allowed. Where 85% compaction is required, wheel rolling may be considered. Before acceptance, the Contractor shall backfill a portion of the trench and pay for density testing to verify adequacy of the proposed backfill techniques.
 - 2. A hydro hammer may be allowed to obtain the specified density up to 4' in depth. The Contractor will be required to re-excavate those areas that have been tamped so that density tests can be taken to insure that the specified intensity is being obtained full depth.
- C. Moisture Control. Generally maintain moisture of backfill material with $\pm 2\%$ of optimum moisture content as determined by ASTM D698. Maintain closer tolerances as needed to obtain densities required.

- C. Compaction. Maximum density (100%) based on ASTM D698 or AASHTO T99.
1. Bedding Material, including material used for over-excavation of any kind: 95%.
 2. Select Material: 95%.
 3. Backfill beneath existing or proposed pavement, roadways, sidewalks, curbs, utility lines and other improvements or within 5' horizontally of such improvements: 95%.
 4. Backfill within public or designated right-of-way: 90% or as shown on the Drawings.
 5. Backfill within undeveloped, green or undesignated area: 85%.
 6. Backfill for any fill over over-cut grading in areas of lot/home construction: 95%.
- D. Placing Backfill. The maximum loose lifts of backfill material to be placed in the reverse order as removed and as follows: use smaller lifts where necessary to obtain required densities:
1. Bedding and select material: 6" (or see Section 3.03A).
 2. Backfill Material: 12" where 95% compaction required; 24" where less than 95% compaction required.
- E. Backfilling Appurtenances. Backfilling to be done generally at the same time as adjacent pipelines. Backfilling procedure to conform to this section. Use special techniques or materials as shown on drawings.
- F. Disposal of Excess Excavation. Contractor to dispose of excess excavation off site. Disposal in any case shall be the sole responsibility of the Contractor.
- G. Maintenance of Backfill. Contractor to maintain all backfill in a satisfactory condition during the extent of the contract and warranty period. All surface deterioration determined to be the responsibility of the Contractor and all settlement shall be repaired at once by the Contractor upon notice by the Owner. All costs for repair and all liability as a result of surface deterioration or settlement shall be the responsibility of the Contractor.

3.05 SURFACE RESTORATION

- A. All existing surface improvements and site conditions disturbed or damaged during construction to be restored to a condition equal to pre-construction condition. All restoration costs are considered incidental to excavation and backfill.
1. Improvements. Replace, repair or reconstruct all improvements as required. Work will not be accepted until Engineer and all affected

property owners accepts restoration. Improvements include, by example, other utilities, culverts, structures, curb and gutter, mailboxes, signs, sprinkler systems, etc.

2. Final Grading. The Contractor is to re-establish existing final grade or finish final grades as modified and shown on the Drawings. The Contractor is to backfill to proper subgrade elevation with backfill material to allow placement of surface improvements or materials.

3.06 COMPACTION

- A. It should be fully understood that it will be the sole responsibility of the Contractor to achieve the specified densities for all embedment and backfill material placed. Contractor will be responsible for ensuring that correct methods are being used for the placement and compaction of said materials. Correct backfill methods include, but are not limited to:
 1. Use of proper equipment for existing soil condition encountered.
 2. Moisture content of existing soils; determination if water should be added or if soil should be air dried to reduce moisture content.
 3. Thickness of backfill lift.
 4. Use of flowable fill materials.
- B. Contractor may, at his own expense, have an approved geotechnical engineer monitor the methods of backfill and compaction used to ensure that the desired densities are being obtained.
- C. Inspection and testing will be performed as directed by the Engineer. The owner will provide quality assurance testing for the owner's benefit. The contractor shall provide the project quality control testing. Owner testing will be conducted as a quality control check to verify the Contractor's compliance with the standards indicated in the Specifications.

3.07 INSPECTION AND TESTING

- A. Inspection and testing to be performed at the direction of the Engineer. Contractor to cooperate fully with all persons engaged in testing. Contractor to excavate as required to allow testing. Contractor to backfill all test excavations in accordance with these Specifications. Any areas that require a specified density, including fill, backfill, trenches, embankments, road base, hot bituminous pavement, backfill for structures, shall be tested.

3.08 DENSITY TESTING AND CONTROL

- A. Reference Standards. Density/moisture relationships to be developed for all soil types encountered according to ASTM D698 or AASHTO T99.

- B. Field Testing. Testing for density during compaction operations to be done in accordance with ASTM D2922 using nuclear density methods.
- C. Frequency of Testing. Minimum of one (1) test every 250' trench per lift or as directed by Engineer. Contractor to excavate to depths required by Engineer for testing and backfill test holes to density specified. Testing to be paid for by Owner.
- D. Retesting. In the event of failure to meet compaction criteria, Contractor shall re-excavate and re-backfill at direction of Engineer. All retesting to be paid for by Contractor and to be performed by soils testing firm approved by the Engineer.

3.09 PAYMENT FOR TESTING

- A. Owner responsible for all costs of initial testing of backfill and subgrade as a owner quality assurance. Contractor to pay all costs of any retesting required. Proof rolling is the responsibility of the contractor and will be included within the bid item to which the work pertains. The contractor shall provide their own quality control testing.

END OF SECTION

SECTION 02222

EMBEDMENT AND BASE COURSE AGGREGATE

PART 1 GENERAL

1.01 SUMMARY

- A. This work shall consist of furnishing and placing one or more courses of aggregate on the prepared surface in accordance with these Specifications in reasonably close conformity with the lines, grades and typical cross sections shown on the drawings or established by the Engineer in the field.
- B. For this project, aggregate is defined as the product generated on site from the Full Depth Reclamation of the existing asphalt surfaces.
- C. Imported aggregates (class 6 road base) is primarily for additional material used along the shoulders and as directed by the engineer and approved by the Town.

1.02 REFERENCE STANDARDS

- A. Colorado Department of Transportation "Standard Specifications for Road and Bridge Construction," latest edition.

1.03 SUBMITTALS

- A. Aggregates. Certified statement from independent testing laboratory, acceptable to Engineer, of material compliance.

PART 2 PRODUCTS

- A. Aggregate used for pipeline bedding, base course and sub-base course and specified by Class in other sections of this Specification shall conform to the gradation schedule shown below.

CLASSIFICATION TABLE FOR AGGREGATE BASE COURSE*

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves						
	LL not greater than 35			LL not greater than 30			
	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
4 inch	----	100	----	----	----	-----	-----
3 inch	----	95-100	----	----	----	----	----
2½ inch	100	----	----	----	----	----	----
2 inch	95-100	----	----	100	----	----	----
1½ inch	----	----	----	90-100	100	----	----
1 inch	---	----	----	95-100	----	100	----
¾ inch	----	----	----	50-90	----	100	----
No. 4	30-65	----	----	35-50	30-70	30-65	----
No. 8	----	----	----	----	----	25-65	20-85
No. 200	3-15	3-15	20 max.	3-12	3-15	3-12	5-15

* Reproduced from Colorado Department of Transportation Standard Specifications for Road and Bridge Construction.

PART 3 EXECUTION

3.01 PLACING

- A. The base course material shall be placed on the previously prepared subgrade at the locations and in the proper quantities to conform to the typical cross sections as shown on the Drawings and as directed by the Engineer. Placing and spreading shall be done by means of spreader machine, moving vehicle, motor grader or other approved equipment methods. The material shall be placed without segregation. Any segregated areas shall be removed and replaced with uniformly graded material at the Contractor's expense.
- B. The base material may be placed in lifts of up to 6 inches, providing that after compaction, uniform density is obtained throughout the entire depth of the lift. If the required depth exceeds 6 inches, it shall be placed in two or more lifts of approximately equal thickness. If uniform density cannot be obtained by 6-inch lifts, the maximum lift shall not exceed 4 inches in final thickness.

3.02 COMPACTING

- A. Rolling will be continuous until the base material has been compacted to not less than 95% of maximum density as determined by ASTM D698 or AASHTO T99. Water shall be uniformly applied as necessary during compaction to obtain optimum moisture content and to aid in consolidation. The surface of each layer shall be maintained during the compaction operations in such a manner that a uniform texture is produced and the aggregates are firmly keyed.
- B. The finished base course surface shall be smooth and free of ruts and irregularities and true to grade and crown as shown on the plans or as directed by the Engineer. The final surface shall be finished with a surface smoothness tolerance of $\frac{1}{4}$ inch, measured as vertical ordinate from the face to a ten-foot straight edge. The base course shall be maintained in this condition by watering, drying, rolling or blading as necessary, or as the Engineer may direct, until the surface material is placed.

3.03 INSPECTION AND TESTING

- A. Inspection and testing to be performed at the direction of the Engineer. Contractor to cooperate fully with all persons engaged in testing. Contractor to excavate as required to allow testing; Contractor to backfill all test excavations in accordance to these Specifications.

3.04 DENSITY TESTING AND CONTROL

- A. Reference Standards. Density/moisture relationships to be developed for all soil types encountered according to ASTM D698 or ASSHTO T99.

- B. Field Testing. Testing for density during compaction operations to be done in accordance with ASTM D2922 using nuclear density methods.
- C. Frequency of Testing. Conduct a minimum of one test for each layer of specified depth of fill or backfill as follows:

Foundations:	For each 100 lineal feet or less of trench.
Slabs on Grade:	For each 2,000 square feet or less of building area.
Pavement and Walks:	For each 2,000 square feet or less.
All Other Areas:	For each 5,000 square feet or less.
Utility Trenches:	For each 250 lineal feet or less of trench.

3.05 PAYMENT FOR TESTING

- A. Owner is responsible for all costs of initial testing of backfill. Contractor to pay for all costs of any retesting required.

END OF SECTION

SECTION 02520

DRAINAGE PIPE, INLET GRATES AND INLET BOXES

1.00 GENERAL

1.01 Scope. Work under this section includes furnishing, and installing, storm drainage pipe, grates and inlets boxes.

1.02 Reference Standards.

- o CDOT Specifications for Road and Bridge Construction Section 707 and M-Standards
- o AASHTO HS-20 rating for inlet boxes and grates.
- o Manhole and Box Type – Precast Concrete or approved equal.
 - 1.. Reference Standard - ASTM C478
 - 2. Size – as shown on the drawings

1.04 Submittals. Product data including catalogue cut sheets, dimensions and descriptive literature. Provide concrete storm drain box shop drawings for approval. For Cinnamon Mountain inlet structures, provide provision for 4" underdrains to enter alongside the 12" piping.

1.05 Protection of Work. All pipe and appurtenances shall be carefully handled, stored and protected in such a manner as to prevent damage to materials and protective coatings and linings. At no time shall such materials be dropped or dumped into trench.

Precaution shall be taken to prevent foreign matter from entering the pipe and appurtenances prior to and during installation. Place no debris, tools, clothing or other materials in the pipe during installation.

2.00 MATERIALS

This item covers the types of material that will be required for the construction and installation of storm drainage pipe and manholes/boxes. All material used shall be in accordance with applicable standards of the American National Standards Institute (ANSI), the American Society of Testing and Materials (ASTM) and the American Association of State Highway Transportation Officials (AASHTO).

Drain inlet boxes and grates are shown on the drawings.

2.01 Precast Concrete Inlet Boxes

A. Concrete Rings/Cones/boxes

1. Type – Precast.
2. Reference Standard - ASTM C478.
3. Size - as indicated on drawings or required based on grate fit.

B. Inlet Boxes

1. Shall be precast or cast-in-place, shop drawings and submittals required.
2. Reference Concrete Standard - ASTM C150 Type II modified or Type V.

C. Joints

1. Type - Rub'r Nek preformed gasket as manufactured by K.T. Snyder Co., Inc., Houston, Texas or equal.

2. Cement Mortar Material Reference Standard - One part Portland Cement, Type II, modified with three parts of sand. Cement mortar to be used with concrete grade rings only.

D. Grade Adjustment Rings

1. Type - Precast ASTM C150 Type II modified concrete.
2. Size - Not less than 6" wide x heights to allow for two-inch adjustments.
3. Alternate - HDPE grade rings.

E. Lids and drain inlet grates.

- a. Manhole lids and grates shall be HS-20 traffic rated. Valley pan inlet grates and area inlet grates as shown and indicated on the drawings.

2.02 Smooth Interior Corrugated High Density Polyethylene Pipe.

- A. Pipe. Storm drain piping shall meet AASHTO HS-20 traffic loading with one foot of cover. ADS N-12 or HP Storm Pipe or approved equal.

Nominal Sizes: 12" to 30" diameter (see drawings and bid schedule)

Pipe shall have a full circular cross-section, with an outer corrugated pipe wall and an essentially smooth inner wall (waterway). Corrugations for sizes listed may be either annular or spiral. Corrugation type must compliment the bands and fittings supplied with the pipe.

All sizes shall conform to the AASHTO M330 and ASTM F2736

- B. Fittings.

The fittings shall not reduce or impair the overall integrity or function of the pipe. Fittings may be either molded or fabricated and meet manufacturers strict guidelines. Only fittings supplied or recommended by the pipe manufacturer shall be used.

- C. Installation of the pipe specified above shall be in accordance with ASTM Recommended Practice D2321, per manufacturer recommendations and as covered elsewhere in these specifications.

2.04 Surface Drainage Inlets and Standard (H-20) Grates

- A. 12" and 18" Pipe. PVC surface drainage inlets include the drain basin sized as indicated on the drawings. The ductile iron grates for each of these shall be considered an integral part of the surface drainage inlet and shall be furnished by the same manufacturer. The surface drainage inlets shall be as manufactured by Nyloplast a division of Advanced Drainage Systems, Inc. or approved equal.

Nominal Sizes: 12" to 18" diameter (see drawings and bid schedule)

The grates and frames furnished for all surface drainage inlets shall be ductile iron and shall be sized specifically for each basin so as to provide a round bottom flange that closely matches the diameter of the surface drainage inlet. Ductile iron used in the manufacture of the grates shall conform to ASTM A536 grade 70-50-05. Grates shall be black.

B. Installation – Install per manufacturers standard details and instructions.

3.00 METHODS AND PROCEDURES

3.01 Cleaning and Inspection.

A. Clean all pipe and appurtenances thoroughly of all foreign material and inspect for cracks, flaws or other defects prior to installation. Mark all defective, damaged or unsound materials with bright marking paint and remove from job site.

3.02 Pipe Installation.

A. Pipe shall be laid in straight sections and true to lines and grades on plans. Jointing of the pipe shall be made in accordance with the directions of the manufacturer of the pipe and the manufacturer of the coupling.

4.00 QUALITY CONTROL - FIELD

4.01 Inspection and Testing.

A. Line, grade and inverts are critical to the function of this storm drain system. The Town and/or Engineer will check line and grade. Sections not meeting grade requirements shall be replaced or corrected by the Contractor.

5.00 MEASUREMENT AND BASIS OF PAYMENT

See spec section 01025 "Measurement and Payment.

End of Section

SECTION 02610

FULL DEPTH RECLAMATION

1.00 GENERAL

1.01 Scope: Work to be performed under this section shall include all labor, equipment, materials and miscellaneous items necessary to perform Full Depth Reclamation (pulverization) of the existing Roads within the Town of Mt Crested Butte.

1.02 Full Depth Pulverization: The existing asphalt mat shall be pulverized, and mixed with the existing subgrade, base course, or combination thereof to a total depth of 10 inches, with a self-propelled rotary type reclamation machine. Existing asphalt mat thicknesses averages 3" to 4". The mixing machine shall make as many passes as required to uniformly mix the asphalt, subgrade, existing base course, or combination thereof to the required thickness. Mixing of the different materials shall create a homogenous mixture. The particle sizes of the pulverized asphalt mat shall meet the class 5 aggregate base course definition as noted below and within the CDOT construction Manual.

1.03 Compaction and Materials Testing: The Town will provide materials testing. The Town's consultant will test the sub grade, pulverized base coarse and subgrade for their own quality assurance purposes. The contractor has the option to provide testing for their own benefit. The contractor shall perform all proof rolling. The sub grade and the full depth pulverized, or reclaimed road base shall be proof rolled by the contractor after sub grade prep/compaction and after final road base prep prior to paving. The Owner and/or Engineer shall be present during proof rolling operation.

2.00 MATERIALS

2.01 Final product shall equal a class 5 gradation as noted below:

CLASSIFICATION TABLE FOR AGGREGATE BASE COURSE

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves						
	LL not greater than 35			LL not greater than 30			
	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
4 inch	----	100	----	----	----	----	----
3 inch	----	95-100	----	----	----	----	----
2½ inch	100	----	----	----	----	----	----
2 inch	95-100	----	----	100	----	----	----
1½ inch	----	----	----	90-100	100	----	----
1 inch	---	----	----	95-100	95-100	100	----
¾ inch	----	----	----	50-90	----	100	----
No. 4	30-65	----	----	35-50	30-70	30-65	----
No. 8	----	----	----	----	----	25-65	20-85
No. 200	3-15	3-15	20 max.	3-12	3-15	3-12	5-15

3.00 METHODS AND PROCEDURES

11" of the pulverized mixture shall be bladed or otherwise moved to allow for compaction and proof rolling of the sub grade. The sub grade shall be moisture conditioned, rolled and compacted prior to proof rolling with a loaded 1500-gallon single axel water truck or approved equal. The Project Engineer shall observe the proof rolling. Subgrade that is overly wet shall be opened and allowed to dry to optimum moisture prior to compaction and subsequent proof roll or other testing. Sub grade areas that "pump" or otherwise are determined to be unsatisfactory, after being properly moisture conditioned, shall be excavated and the pumping material replaced per the subgrade stabilization detail. A bid item for "Subgrade Stabilization" is included for this purpose.

When proper mixing has been accomplished, the mixture shall then be bladed, shaped, wetted or dried, and rolled to meet a minimum of 95 percent of the maximum dry density determined in accordance with AASHTO T-180 Method D (modified proctor).

4.00 FIELD QUALITY CONTROL/ASSURANCE

4.01 Inspection and Testing. The contractor is solely responsible for Quality Control and the means and methods to achieve project requirements. They must take whatever means they deem necessary to assure the quality of the final product.

Owner will provide Quality Assurance testing for their own purposes. Contractor to cooperate fully with all persons engaged in testing.

5.00 MEASUREMENT AND BASIS OF PAYMENT

See Bid Schedule

END OF SECTION

SECTION 02612 HOT BITUMINOUS PAVING

1.00 GENERAL

1.01 Scope. Work to be performed under this section shall include all labor, equipment, materials and miscellaneous items necessary to furnish and install one or more courses of hot bituminous mixture constructed on a prepared surface in accordance with the Specifications and as shown on the Drawings. The finished product shall be in close conformity with the lines, grades, thickness, and typical cross sections shown on the Drawings or as established in the field.

Included in the paving work is the resetting to the new grades all cleanouts, manholes, valve boxes and storm drain inlets encountered within the work.

The project mix design shall be a SX75 PG58-28 or approved equal. Asphalt thickness, after final compaction/rolling is 3" for Hunter Hill Road, Snowmass Road and Cinnamon Mountain Road.

1.02 Reference Standards. All work is to be performed in accordance with the "Colorado Department of Transportation - Standard Specifications for Road and Bridge Construction", latest revision, and as modified herein. The reference Specifications are not reproduced in their entirety.

1.03 Submittals.

A. Mix Design. Provide complete mix design by independent testing laboratory, including certifications of all material compliance. The job-mix formula for each mixture shall establish a single percentage of aggregate passing each required sieve size, a single percentage of bituminous material to be added to the aggregate, and a single temperature for the mixture at the discharge point of the plant.

Submitted mix design shall be sealed by a Professional Engineer in the State of Colorado. This mix design shall meet Colorado Department of Transportation (CDOT) standards.

B. Tack Coat. Certification of material or compliance with CDOT manual section 407.

C. Prime Coat. Certification of material for compliance with CDOT manual section 407.

2.00 MATERIALS

2.01 Composition of Mixture. Reference Section 403.02 (further reference 401.02 through 401.06) Section 702, Section 703, and Section 704, with revisions and additions as follows:

A. Aggregate. The proposed job-mix gradation shall be in accordance with Table 703-04 Grading SX. The weight of lime, if used, shall be included in the total weight of the material passing the No. 200 sieve. The restricted zone boundaries given in the Asphalt Institute's Superpave Series No. 2 (SP-2) Manual, Appendix

B are to be used as guidelines in mix design development. However, the job-mix gradation is not required to pass above or below the restricted zone boundaries.

For Gradings S, SX, and SG, a percentage of the aggregate retained on the No. 4 sieve shall have at least two mechanically induced fractured faces when tested in accordance with Colorado Procedure 45-98. The angularity of the fine aggregate shall be a minimum of 45.0% when determined according to CP L-5113, Method A. Aggregate samples representing each aggregate stockpile shall be non-plastic if the percent of aggregate passing the Number 4 sieve is greater than or equal to 10 percent by weight of the individual aggregate sample. Plasticity will be determined in accordance with AASHTO T 90.

The material shall not contain clay balls, vegetable matter, or other deleterious substances. The aggregate for Grading S, SX, and SG shall have a percentage of wear of 45 or less when tested in accordance with AASHTO T 96.

- B. Bituminous Material (binder). Asphalt cement to be Performance Grade (PG) 58-28 or as determined by the mix design and approved by the engineer.
- C. Design Gyration. N (design) equals 75. Contractor to provide to the Engineer, a job mix composition meeting this section. Submittal shall include testing results sufficient to show compliance. Testing shall be under the certification of an independent testing laboratory acceptable to the Engineer. The mix design shall have been completed within the preceding 12 months.
- D. Reclaimed Asphalt Pavement (RAP) is allowed in hot mix asphalt (HMA) up to a maximum binder replacement of 23 percent for all lifts, provided all specifications for HMA are met. Fine Aggregate Angularity requirements shall apply only to the virgin fraction of the fine aggregate. The RAP shall not contain clay balls, vegetable matter, or other deleterious substances, and must meet the uniformity requirements as outlined elsewhere. Refer to the CDOT Standard Specifications (section 401) for additional requirements.
- E. The Contractor shall prepare a quality control plan outlining the steps to be taken to minimize segregation of HBP. This plan shall be submitted to the Engineer prior to beginning the paving operations. When the Engineer determines that segregation is unacceptable, the paving shall stop and the cause of segregation corrected before paving operations will be allowed to resume.

2.02 Prime Coat. Reference Section 702.

- A. Prime coat shall be cut-back asphalt type MC-70 (ASTM D2026) or approved equal. Apply at a rate of 0.20 to 0.35 gallons per square yard. Test application rate on a small section of road prior to whole scale application.

2.03 Tack Coat. Reference Section 702 of the CDOT Standard Specifications.

- A. Tack Coat to be SS-1h (ASTM D977) or CSS-1h (AASHTO M208). Application rate can vary depending upon surface conditions.

2.04 Pavement Marking. To be completed by others.

2.05 Tables.

The design mix for hot bituminous pavement shall conform to the following:

TABLE 403-1

Property	Test Method	Value For Grading			
		S()	SG()	SX()	Patching
Air Voids, percent at: N (initial) [for information only] N (design)	CPL 5115	3.5 – 4.5	3.5 – 4.5	3.5 – 4.5	3.5 – 4.5
Lab Compaction (Revolutions): N (initial) [for information only] N (design)	CPL 5115	☐	☐	75	☐
Stability, minimum	CPL 5106			28	
Aggregate Retained on the 4.75 mm (No. 4) Sieve with at least 2 Mechanically Induced fractured faces, % minimum	CP 45	☐	☐	70	☐
Accelerated Moisture Susceptibility Tensile Strength Ratio (Lottman), minimum	CPL 5109 Method B	80	80	80	80
Minimum Dry Split Tensile Strength, kPa (psi)	CPL 5109 Method B	205 (30)	205 (30)	205 (30)	205 (30)
Grade of Asphalt Cement, Top Layer		PG__	PG__	PG 76-28	PG__
Voids in the Mineral Aggregate (VMA) % minimum	CP 48	See Table 403-2	See Table 403-2	See Table 403-2	See Table 403-2
Voids Filled with Asphalt (VFA), %	AI MS-2	☐	☐	65-80	☐
Dust to Asphalt Ratio					
Fine Gradation	CP 50	0.6 – 1.2	0.6 – 1.2	0.6 – 1.2	0.6 – 1.2
Coarse Gradation		0.8 – 1.6	0.8 – 1.6	0.8 – 1.6	0.8 – 1.6

Note: AI MS-2 = Asphalt Institute Manual Series 2

Note: The current version of CPL 5115 is available from the Region Materials Engineer.

Note: Mixes with gradations having less than 40% passing the 4.75 mm (No. 4) sieve shall be approached with caution because of constructability problems.

Note: Gradations for mixes with a nominal maximum aggregate size of one-inch or larger are considered a coarse gradation if they pass below the maximum density line at the #4 screen.

Gradations for mixes with a nominal maximum aggregate size of ¾ inch or smaller are considered a coarse gradation if they pass below the maximum density line at the #8 screen.

TABLE 403-2

Minimum Voids in the Mineral Aggregate (VMA)			
Nominal Maximum Size*, mm (inches)	***Design Air Voids **		
	3.0%	4.0%	5.0%
25.0 (1)	11	12	13
19.0 (¾)	12	13	14
12.5 (½)	13	14	15

* The Nominal Maximum Size is defined as one sieve larger than the first sieve to retain more than 10%.

** Interpolate specified VMA values for design air voids between those listed.

***Extrapolate specified VMA values for production air voids beyond those listed.

3.00 METHODS AND PROCEDURES

Reference Section 403.03 (further reference 401.07 through 401.20) and Section 407.04 through 407.08.

- A. Maximum compacted pavement depth per pass to be done in 2 equal lifts for pavement that is more than 3” thick, or as specified elsewhere.
- B. Prime not required unless indicated on Drawings. Prepared base course or subgrade surfaces receiving pavement courses shall be primed at Contractor's expense if the surface has deteriorated, due to traffic, weather or time lapse between surface preparation and placement of bituminous materials, such that in the opinion of the Engineer, use of prime coat is required.
- C. Tack coat required between lifts, on all abutting old pavement surfaces and for overlays on existing pavements unless waived by Engineer. Application rate shall be 0.05 to 0.10 gallons per square yard diluted. Dilution shall be one-part tack emulsion to one part water.

All cut asphalt surfaces that are to butt new pavement sections shall be tacked with a liberal application of tack coat prior to paving.

3.01 Compaction. The plant mix bituminous pavement shall be compacted by rolling. The number, weight and type of rollers furnished shall be that which is sufficient to obtain the required density while the mixture is in a workable condition. Compaction shall begin immediately after the mixture is placed and be continuous until the required density is obtained. When the mixture surface temperature falls below 185 degrees F, no further compaction effort will be permitted unless approved.

All roller marks shall be removed with the finish rolling. Use of vibratory rollers with the vibrator on will not be permitted during surface course final rolling and will not be permitted on any rolling on

bridge decks covered with waterproofing membrane.

Pavement shall be compacted to a density of 92 percent to 96 percent of the maximum theoretical density, determined according to AASHTO T209. Field density determinations will be made in accordance with Colorado Procedure 44 or 81.

Along forms, curbs, headers, walls and all other places not accessible to the rollers, the mixture shall be thoroughly compacted with mechanical tampers.

Any mixture that becomes loose and broken, mixed with dirt, or is in any way defective, shall be immediately removed and replaced with fresh hot mixture, and compacted to conform with the surrounding area.

3.02 Surface Tolerances. Section 401.20. No skin patching will be allowed.

3.03 Pavement Marking. Reference CDOT Section 627 and as contained in the Contract Documents. PAVEMENT MARKING IS NOT INCLUDED IN THIS CONTRACT.

4.00 FIELD QUALITY CONTROL/ASSURANCE

4.01 Inspection and Testing. Contractor is solely responsible for Quality Control. They must take whatever means they deem necessary to assure the quality of the product. During paving and asphalt rolling, contractor shall have a qualified materials tester providing density checks on the in place asphalt.

Owner will provide Quality Assurance testing in addition to the contractors efforts. Contractor to cooperate fully with all persons engaged in testing.

4.02 Density Testing and Control.

- A. See Section 3.01, Compaction, above.
- B. Field Testing. Testing for density during compaction operations to be done using nuclear density methods.
- C. Frequency of Testing. Minimum of one (1) test every 10,000 square feet or as directed by Engineer.
- D. Retesting. In the event of failure to meet compaction criteria, Contractor shall recompact and/or replace defective work at direction of Engineer. All retesting to be paid for by Contractor, and to be performed by testing firm approved by the Engineer.

5.00 MEASUREMENT AND BASIS OF PAYMENT

See Bid Schedule

END OF SECTION

SECTION 02626

CONCRETE VALLEY PAN, SIDEWALK, and CURB and GUTTER

PART 1 GENERAL

1.01 SUMMARY

- A. This Work shall include furnishing all materials, labor, equipment and miscellaneous items necessary for the construction of concrete valley pans, curbing sidewalk, handicap ramps, trail or any combination thereof, all in accordance with these Specifications and in close conformity with the lines, grades, and typical sections as shown on the Construction Drawings or established in the field.

PART 2 PRODUCTS

- A. The materials shall conform to the requirements specified in the following:
 - 1. Section 03300 – Cast in Place Concrete.

2.01 CONCRETE MATERIALS

- A. See Section 03300 for complete Specification.

2.03 FIBERMESH

- A. See Section 03300 for complete Fiber requirements. Use shall be in accordance with manufacturer's recommendations.

PART 3 EXECUTION

3.01 EXCAVATION

- A. Excavation shall be made to the required depth and width to permit the installation and bracing of the forms. The subgrade shall be shaped and compacted to a firm even surface conforming to the section shown on the Construction Drawings. Material determined to be unsuitable or non-compact by the Engineer will be removed and replaced. Proof rolling and compaction testing, by the contractor and observed by the engineer will be used to verify compaction.

3.02 FORMS

- A. Forms shall be wood or metal and shall extend for the full depth of the concrete. All forms shall be straight, free from warp and of sufficient strength to resist the pressure of the concrete without springing. Bracing and staking of forms shall be such that the forms remain in alignment both horizontally and vertically until removal. Satisfactory slip forms may be used when approved. Use of curbing machine will be permitted providing line and grade tolerances can be met.

- B. Steel plates that can be shaped to the desired radius shall be used on all short radii. Open joints shall be formed with a steel separator plate conforming to the section being installed.
- C. Oil and clean all forms prior to placement of concrete.

3.03 MIXING AND PLACING

- A. The foundations shall be thoroughly moistened immediately prior to the placing of the concrete. Compaction of the concrete shall have thorough consolidation achieved by tamping, spading, vibrating or other acceptable methods. Forms shall be left in place until the concrete has set sufficiently to prevent deformation due to removal. Upon removal of the forms, the curb face shall be immediately finished to a uniform surface. In the case of matching existing concrete finishes, an approved method shall be used.

3.04 FINISHING

- A. The surface shall be floated with a wood or magnesium float and given a light broom finish. No plastering of the surface will be permitted. All outside edges of slabs and joints shall be rounded to a ¼-inch radius with the exception of Cross Walks. The joint between asphalt and crosswalk shall be vertical and tight. Broom marks to be perpendicular to traffic or pedestrian flow for installation of sidewalk. Broom marks to be parallel to traffic flow for installation of valley pan, curbing and cross walks.

3.05 JOINTS

- A. Expansion joints shall be made using ½" pre-molded expansion joint. Construction joints, using ½" pre-molded joint filler, shall be placed at the end of a day's run or during a day's work if there is more than a 30 minute delay in concrete delivery.
- B. Construction joints shall be formed around all appurtenances such as manholes, utility poles, adjacent structures, etc., extending into or abutting the Work. Pre-molded expansion joint filler ¼" thick shall be installed in these joints. Expansion joint filler shall be installed between concrete sidewalks and any fixed structure.
- C. Dummy joints (contraction joints) shall be made by a forming tool to a depth of ¼ of the section with a width of ⅛" to ¼". Open joints shall be made with a separator plate, ⅛" to ¼" in width. Dummy joints in lieu of open joints will be permitted with use of curbing machine.
- D. Joint spacing shall be located as follows:
 - 1. Expansion joints: Every 100' on center; at end of corner radius; at driveway sections; as shown on Construction Drawings.
 - 2. Construction joints: As required during construction; at appurtenances and structures through or abutting Work.

3. Dummy or open joints: Every 10' on center for curb and gutter and curbside; equal to width of sidewalk for sidewalk; as shown on Construction Drawings.

3.06 CURING

- A. Immediately upon completion of the finishing, concrete shall be moistened and kept moist for a minimum of 72 hours. In lieu of wetting, use of a membrane-curing compound, at the direction of the Engineer, will be permitted with an approved product submittal.

3.07 FIELD QUALITY CONTROL

- A. Tolerances
All paved surfaces shall not vary more than 1/4" in 10' when measured with a 16' straight edge.
- B. Contractor shall be responsible for having the air, slump, time verification and concrete temperature recorded at the time of each pour for each truck. Concrete batch tickets shall be verified for time of batching and loads that exceed the specified time limits shall be rejected and not used.
- C. Concrete Strength

The Owners Material Testing Consultant will take field samples for the purpose of testing concrete strength, air and slump for the owners' quality assurance. All substandard strength concrete shall be removed and replaced at Contractor's expense.

END OF SECTION

SECTION 02700

FINISHED GRADING AND RESTORATION

PART 1 GENERAL

1.01 SUMMARY

- A. This Work shall consist of finish grading, restoration of grounds and cleanup. This shall be a continuous process from project start-up to final acceptance of the Work by the Engineer.

PART 2 PRODUCTS

2.01 GENERAL CLEANUP

- A. Cleanup shall include the regrading, resurfacing, rebuilding and replacing of all surfaces on which construction took place, and rebuilding or replacing any areas disturbed by the construction. The streets or roads where disturbed shall be resurfaced by the Contractor, including both gravel and oil roads, and shall be replaced in as good or better condition than that at the start of construction. The Engineer shall be the sole judge as to whether streets, roads or property have been restored to a condition as good or better than at the start of construction.
- B. The Contractor shall, at all times, keep property on which Work is in progress free from accumulation of waste material or rubbish caused by employees or caused by the Work, and he shall carry on a constant program to maintain Work area, structure sites, right-of-ways and the surface of streets and roads in a condition satisfactory to the appropriate authority, grantor of the right-of-way, and the Engineer.
- C. Preliminary cleanup shall commence as soon as the construction site is occupied by the Contractor (including his employees, supplies, materials or equipment) and shall be a continuous process, if necessary, in order that the site of the Work shall have an appearance and/or utility equal to or better than the start of the Work.
- D. Upon completion of the Work, the Contractor shall remove all remaining rubbish, tools, equipment, scaffolds and surplus materials from the job and leave the Work area clean and free of debris.

PART 3 EXECUTION

3.01 GENERAL

- A. All driveways, retaining walls, concrete flatwork, drainage ditches, trees, shrubs, and other miscellaneous items shall be returned to as good as or better than original conditions, if they are damaged by Work.

END OF SECTION

SECTION 03300

CAST-IN-PLACE-CONCRETE

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes. Work to be completed under this section shall include all labor, equipment, plant and materials necessary to furnish and install all poured-in-place concrete, together with all miscellaneous and appurtenant items, as shown on the Construction Drawings and as specified herein.

1.02 REFERENCES

- A. Except as modified or supplemented herein, all Work shall conform to the following standards, latest edition. Refer to standards for detailed requirements.
1. ACI 318 - Building Code Requirement for Reinforced Concrete.
 2. ACI 301 - Specifications for Structural Concrete for Buildings.
 3. ACI 350 - Code Requirements for Environmental Engineering Concrete Structures.
 4. ACI 347 - Recommended Practice for Concrete Formwork.
 5. ACI 305 - Recommended Practice for Hot Weather Concreting.
 6. ACI 306 - Recommended Practice for Cold Weather Concreting.
 7. Publication SP-2, ACI Manual for Concrete Inspection.
 8. ASTM A 615 -Standard Specifications for Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
 9. ASTM A 185 -Specifications for Welded Steel Fabric for Concrete Reinforcement.
 10. ASTM C 618 Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete.

1.03 SUBMITTALS

The following shall be submitted to and approved by the Engineer prior to beginning any concrete work.

- A. Concrete Batch Plant Certification. The production facility supplying hydraulic cement concrete shall have a current certification of Ready Mix Concrete Production Facilities from the National Ready Mixed Concrete Association or be currently listed on CDOT's preapproved contractor list with a recent history of producing CDOT concrete mixes that appear within section 601 of the CDOT specifications manual specifically mix D in which case the same materials shall be used for the concrete on this project. Contractor will be required to provide all necessary documentation.
- B. Lab Design Mix. Prior to the start of Work, Contractor to submit a statement of the proportions for the concrete mixture. Statement to include:
1. Location & identification of aggregate source.
 2. Batch quantities for one (1) cubic yard of concrete, including:
 - a. Weight of fine aggregate in a saturated surface dry condition.

- b. Weight of coarse aggregate in a saturated surface dry condition.
 - c. Weight or number of 94 pound bags of cement
 - d. Weight or gallons of water.
 - e. Amount and description (including manufacturer, specific product name, and number) of all admixtures.
3. Test results on trial batch concrete made from the proposed mix design, including:
 - a. Cement factor in bags per cubic yard based on yield tests.
 - b. Water-cement ratio.
 - c. Percent of entrained air.
 - d. Consistency in inches of slump.
 - e. At least three 28-day compressive strength tests.
 4. Brand, type and place of manufacture of cement.
 5. Aggregate test results for grading, deleterious substances and physical properties using test procedures developed by ACI. Aggregate shall be free of substances that are deleteriously reactive with the alkali's in the cement in an amount sufficient to cause excessive expansion of the concrete. Acceptable aggregate shall be based on satisfactory evidence furnished by the Contractor that the aggregate is free from such materials. This evidence shall include service records of concrete of comparable properties under similar conditions of exposure and certified records of tests by a testing laboratory that meets the requirements of ASTM C 1077. Tests shall be made in accordance with ASTM C 1260.
 6. Prior to approval of mixture design, the Contractor shall submit written certification that the aggregate does not have a history of D-Cracking and that the aggregate is approved by a state Department of Transportation specifically addressing susceptibility to D-Cracking. If the aggregate is not approved by a state agency, the aggregates may be approved provided the aggregate is tested in accordance with ASTM C 666 and receives a durability factor of 95 percent or greater.
 7. Prior to approval of mixture design, the Contractor shall submit written certification that the aggregate does not have a history of alkali-aggregate reactivity and that the aggregate is approved by a state Department of Transportation. If the aggregate is not approved by a state agency, the aggregates may be approved provided the aggregate is tested in accordance with ASTM C 1260 and receives an expansion index of less than 0.10%, and has been shown to meet the quality requirements of ASTM C33 with the last two years.
- C. Materials Scaling. Scales shall be accurate within the allowable tolerances as prescribed by State law. The scales shall be sealed by the Measurement and Standards Section of the Colorado Department of Agriculture at least once each year, each time the scales are relocated, and as often as the Engineer may deem necessary.
- D. Reinforcing Steel. Product data sheet and statement of manufacturer's compliance with applicable standards.
- E. Construction Joint Location. Where not indicated on the construction plans the contractor shall provide a plan indicating the proposed location of all construction joints in slabs and walls for all fluid containing tanks. The contractor shall refer to "Section 3.03 – Construction, control, and Expansion Joints" for a detailed description of joint

placement and construction within structures. Construction Joint submittals are not required for structures other than fluid containing tanks

1.04 RECORD OF THE WORK

- A. Contractor to keep a record of time, date and location of each concrete pour and submit these records to the Engineer.

1.05 NOTICE OF INTENTION TO POUR

- A. Contractor shall notify the Engineer at least 48 hours before an intended cast-in-place concrete pour. No structural cast-in-place concrete shall be poured until all reinforcing, forms and foundation soils have been inspected by the Engineer.

1.06 PROTECTION OF THE WORK

- A. Contractor to be responsible for protection of all Work prior to acceptance. In place concrete shall not be subjected to loadings or stress prematurely.

1.07 STORAGE OF MATERIALS

- A. Cement and aggregate shall be stored in such a manner as to prevent deterioration or intrusion of foreign matter. Any material which has deteriorated or which has been damaged shall not be used for concrete.
- B. All reinforcing steel shall be stored in a dry location and protected from excessive accumulation of rust or scale.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Cement. All cement shall be Portland Cement Type II or V conforming to "Standard Specifications for Portland Cement" (ASTM C 150) or Type MS or HS conforming to "Standard Performance Specification for Hydraulic Cement" (ASTM C 1157). The same brand cement for all exposed cast-in-place concrete shall be used. Flyash conforming to ASTM C618 may be substituted for a portion of the cement; type and amount to be approved at time of mix design submittal.
- B. Stone Aggregate. Fine and course aggregate shall conform to "Specifications for Concrete Aggregates" (ASTM C33-61T). Fine aggregates shall be clean, hard, natural and free from all foreign matter. Course aggregate shall be sound, crushed rock or gravel, free from adherent coating, organic water or injurious amounts of flat or friable pieces.
- C. Water. Water used in mixing shall be potable, cleaned and free from deleterious amounts of oil, acids, alkalis and organic material.
- D. Admixtures. "Protex" as manufactured by Protex Industries, Inc. and conforming to Specifications of Air-Entraining Admixtures for Concrete (ASTM C260) is an approved air-entraining admixture. Other admixtures for retarding or accelerating concrete may be

used in strict accordance with manufacturer's recommendations and ASTM Specifications upon approval of the Engineer.

- E. Form Material. For unexposed concrete surfaces, forms may be undressed lumber free from excessive knots. For exposed surfaces, use wood or metal forms as required to give finish as specified.
- F. Reinforcing Steel. Reinforcing steel shall be deformed bars conforming to "Standard Specifications for Deformed and Plain Billet Steel Bars for Concrete Reinforcement" (ASTM A615) and shall be Grade 60.
- G. Waterstop. Waterstop shall be SikaSwell S-2 as manufactured by Sika Corporation or approved equal. Waterstop shall be bentonite-free.
- H. Epoxy Sealer for Construction Joints. Epoxy sealer shall be SikaGuard 62 as manufactured by Sika Corporation or approved equal.

PART 3 EXECUTION

3.01 CONCRETE MIX

- A. Proportions. Concrete is to be proportioned according to laboratory designed mixes using the type of aggregate, maximum water/cement (W/C) ratio, maximum aggregate size, minimum of twenty-eight (28) day ultimate compressive strength, and entrained air as follows:

<u>Mix No.</u>	<u>Location</u>	<u>W/C Ratio</u>	<u>Aggregate (Size No.)</u>	<u>Strength (psi)</u>	<u>Entrained Air (%)</u>
1	Walls, Footings, Structural Slabs	0.53	67	4000	NR
2	Basins	0.45	67	4000	5 to 7
3	Curb, Gutter, Flatwork	0.45	67	4500	5 to 7
4	Interior Flatwork	0.53	67	3500	NR

- B. Air Entrainment. An air-entraining agent shall be added to all stone concrete so as to entrain 5%-7% by volume. Air-entraining agents shall be in strict accordance with the recommendations of the manufacturer and the testing laboratory for the design mix to assure strength requirements are being fully met or exceeded.
- C. Mixing of Materials. The concrete shall be mixed until there is a uniform distribution of the materials and shall be discharged completely before the mixer is recharged. For job-mixed concrete, the mixer shall be rotated at the speed recommended by the manufacturer.
 - 1. For stone concrete, mixing shall continue for at least one minute after all materials are in the mixer. Ready mixed concrete shall be mixed and delivered in accordance with "Standard Specifications for Ready Mixed Concrete" (ASTM C94-69).

2. Sufficient time shall be allowed for proper mixing of the concrete to provide uniformity throughout the batch. Long delays in concrete placement shall be avoided and any concrete that has not been placed within 90 minutes after water has been added to the mix shall be rejected. The 90 minute time limit may be extended to 120 minutes if no water is added after 90 minutes and the concrete temperature prior to placement is less than 90 F. Over wet mixes shall be rejected and shall not be corrected by the addition of either aggregate or cement to the mixer. Mix not less than ten minutes in transit mix trucks after addition of the mixing water.
- D. Consistency. Slumps shall be minimum, consistent with placing requirements. Slump test shall be made in accordance with "Slump Test for Consistency of Portland Cement Concrete" (ASTM C143-58). Unless written approval is obtained from the Engineer, the maximum slump shall be four (4") inches.

3.02 COCNETE FORMS

- A. Forms shall conform to the shape, lines, grades and dimensions of the concrete as detailed on the Construction Drawings. All forms for exposed finished surfaces shall be built with the material needed to produce the form, texture and design specified in Concrete Finishes of this section.
- B. Design of Forms. Forms shall be sufficiently tight to prevent leakage of mortar and shall be properly braced or tied together so as to maintain the desired position. The formwork shall be designed for the loads outlined in Part 3, Section 102 of "Recommended Practice for Concrete Form Work" (ACI 347). The forms shall be oiled for ease of removal of forms after setting of concrete.
- C. Form Ties and Incidentals. All form ties shall be bolts and rods (adjustable for tightening) arranged so that no metal is within 3/4" of surface after removal of forms. No ties through exposed concrete will be allowed. Ties for water/wastewater structures (tanks, basins, channels etc.) shall be furnished with water resistant washers and cones, as manufactured by SYMONS, or approved equal. Ordinary wire ties will be allowed on building foundations with the specific approval of the Engineer. Set forms for all required anchors, bolt inserts, slots, sleeves, supports, etc., furnished under portions of this Specification and installed under this section.
- D. Removal of Forms. Forms shall not be disturbed until concrete has hardened sufficiently to permit their removal with safety. The removal of the forms shall be carried out in such a manner as to insure the safety of the structure. Unless otherwise permitted by the Engineer, forms shall not be removed until 24 hours after pouring.

3.03 CONSTRUCTION, CONTROL, AND EXPANSION JOINTS

Expansion, construction, and control joints shall be constructed in accordance with the construction drawings, and the specifications found in this section.

- A. Expansion joints - Unless otherwise indicated on the construction drawings, install one-half inch (1/2") thick asphalt impregnated fiberboard expansion joint filler (ASTM D1751)

wherever concrete slabs abut buildings or footings or as shown on the plan details. All expansion joint filler shall extend full depth of the slab.

- B. Control joints – control joints shall be placed in all non-fluid containing slabs-on-grade, and shall not be spaced more than 20 feet on center, or forming an area greater than 400 sq.ft. Control joints shall be sawn or trowel cut into concrete slab a maximum of 12 hours after the concrete has been placed.
- C. Construction joints – construction joints shall be constructed in accordance with the construction drawings and placed at a maximum spacing provided in the following table:

Fluid filled Tank - Walls	50 ft on-center maximum parallel spacing
Fluid filled Tank - Slabs	50 ft on-center maximum parallel spacing
Non-fluid containing structures - Walls	50 ft on-center maximum parallel spacing

Non-fluid containing structures – Slabs Construction joints shall be spaced in accordance to the latest ACI & IBC codes. Re: section 3.03, part B – Control joints.

3.04 CONCRETE PLACEMENT

- A. Preparation for Placing. Before placing concrete, all equipment for mixing and transporting concrete shall be cleaned and all debris and ice shall be removed from places to be occupied by concrete. Forms shall be properly treated and all reinforcement cleaned of ice and other coatings. Water shall be removed from place of deposit before concrete is placed.
- B. Conveying. Concrete shall be conveyed from the mixer to the place of final deposit by methods, which will prevent the separation or loss of the materials. Equipment for chuting, pumping, or pneumatically conveying concrete shall be of such size and design as to ensure a practically continuous flow of concrete at the delivery and without separation of the materials.
- C. Other Trades. Install by way of example, anchor bolts, reinforcing steel, pipe and conduit openings and sleeves, bearing plates, and knockouts as provided by other trades and as required by other trades. Provide minimum 7 days notice to Engineer, Owner, or other trades prior to requiring materials or detailing information. Installation to meet location, dimension and alignment requirements of other trades.
- D. Depositing. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to re-handling or flowing. The concreting shall be carried on at such a rate that the concrete is at all times plastic and flows readily into the space between the bars. No concrete that has been partially hardened or been contaminated by foreign matter shall be deposited on the Work, nor shall re-tempered concrete be used. When concreting is once started, it shall be carried on as a continuous operation until the placing of the panel or section is completed. Place concrete in approximately horizontal layers avoiding displacement of reinforcement above fresh concrete and formation of seams and planes of weakness in sections. When construction joints are necessary, they shall be located as specified in this section under Construction Joints. For

bonding fresh concrete, roughen and clean exposed surface and brush with neat cement grout. Place new concrete before grout takes initial set.

- E. Compaction. Place concrete in layers not over 24" deep; compact each layer by mechanical internal vibrating equipment supplemented by hand spading, rodding, tamping, as directed. Vibrators shall not be used to transport concrete inside forms. Limit vibration duration to the time necessary to produce satisfactory consolidation without causing objectionable segregation. Do not insert vibrator into lower courses that have begun to set.
- F. Weather Conditions. Unless adequate protection is provided and the Engineer's approval is obtained, concrete shall not be placed during rain, sleet, or snow. When the mean temperature falls below 40°F for 3 successive days, concreting shall conform to "Recommended Practice for Cold Weather Conditions: (ACI 306 R-78). Concrete placed in hot weather shall meet the standards of "Recommended Practice for Hot Weather Concreting (ACI 305R-77). Concrete is not to be placed under water. A suitable means shall be provided for lowering the water level below surfaces upon which concrete is to be placed. This may require excavating approximately 12 inches below the bottom of the concrete surface and refilling with gravel and compacting. The groundwater shall not be allowed to rise to the bottom of the concrete until 24 hours after the concrete has been completed. Water shall not be allowed to fall upon or run across the concrete during this period.
- G. Protection and Curing. Concrete protection and curing shall be in conformance with ACI 308-71. Immediately after placing or finishing, concrete surfaces not covered by forms shall be protected from loss of surface moisture. All concrete shall be kept in a moist condition for at least five (5) days after placement. Curing compounds may be used upon approval of the Engineer.

3.05 SLABS ON GRADE

- A. All slabs on grade shall be poured directly on prepared gravel sub grade where shown on the Construction Drawings. Construction joints shall be placed such that no section of slab is greater than 20 feet on a side. Finishes, Expansion & Control Joints & Protection shall be as specified under other sections of this section.
- B. Minimum four-inch (4") of screened crushed rock shall be installed under the entire slab unless otherwise directed by the Engineer. The grading requirements as per Section 02222 for the aggregate course shall apply.

3.06 CONCRETE FINISHES

- A. Patching. Patching shall be done on all concrete surfaces immediately after stripping forms; all exposed surfaces shall have fins and other projections carefully removed, offsets leveled, and voids saturated with water and patched to a true and even surface with a wood float. Patch all holes left by the removal of the form ties or bolts. Patching material shall be a stiff mixture of sand and cement, the color of which matches the concrete being patched. Any major area of faulty or honeycombed concrete shall be completely removed and patched at the direction of the Engineer. For water/wastewater structures (tanks, basins, etc.), surface voids larger than 1/4" diameter shall be patched.

- B. Floor slabs. All concrete slabs shall be screened to levels or grades indicated and float finished monolithically completely free from humps or pits. Slabs shall not show surface deviation in excess of one-quarter inch (1/4") when tested with a 10 ft. straightedge. Before the finish has set, the surface cement film shall be removed with a fine brush in order to have a fine-grained, smooth but sanded texture.
- C. Rubbed finish. All exposed concrete surfaces for water/wastewater structures (tanks, basins, etc.), shall have a rubbed finish. After removal of forms, rubbing of all exterior surfaces shall be started as soon as its condition will permit. Immediately before starting this Work, the concrete shall be kept thoroughly saturated with water. Sufficient time shall have elapsed before the wetting down to allow the mortar used in the pointing to thoroughly set. Surfaces to be finished shall be rubbed with a medium course carborundum stone, using a small amount of mortar on its face. The mortar shall be composed of cement and fine sand mixed in the same proportions as the concrete being finished. Rubbing shall be continued until all form marks, projections and irregularities have been removed, all voids filled and a uniform surface has been obtained. The paste produced by this rubbing shall be left in place.
- D. After all concrete above the surface being treated has been cast, the final finish shall be obtained by rubbing with a fine carborundum stone and water. This rubbing shall be continued until the entire surface is of a smooth texture and uniform color.
- E. After the final rubbing is completed and the surface has dried, it shall be rubbed with burlap to remove loose powder and objectionable marks.
- F. Chamfer. All exposed exterior corners shall receive 3/4" chamfer.

3.07 REINFORCING

- A. Placing Reinforcement. Reinforcing steel, at the time concrete is placed, shall be free from scale, rust or other coatings that will destroy or reduce bond. Reinforcement shall be accurately placed as shown on the Construction Drawings and shall be adequately secured in position by concrete or metal chairs and spacers.
- B. Reinforcing shall be furnished in the full lengths indicated on the Construction Drawings unless otherwise authorized by the Engineer. Splicing of bars, except where shown on the Construction Drawings or specified, shall not be permitted without written approval by the Engineer. Reinforcement placed in any member shall be inspected before any concrete is placed and the Engineer shall be notified 24 hours in advance before any concrete placement.
- C. The placing, fastening, splicing and supporting of reinforcing steel and welded wire fabric shall be in accordance with the Construction Drawings and the latest edition of the CRSI "Recommended Practice for Placing Reinforcing Bars" and in accordance with ACI 318-05. Bars shall be placed around all corners to splice steel in adjacent walls, footers and slabs (such detailing may not be shown on Construction Drawings).
- D. Concrete Protection & Reinforcement. Where not otherwise indicated on the Construction Drawings, the minimum thickness of concrete over the reinforcement shall be as follows:
 - 1. Concrete deposited against earth: 3"

2. Slabs and walls not exposed to weather or earth:
3. All other concrete placed in forms:
 - a. For bars larger than #5: 2"
 - b. For bars #5 or smaller: 1½"
4. Sanitary Structures: 2"

E. Bearing Plates, anchor bolts, etc. Place all bearing plates, anchor bolts, reinforcing rods and other structural items furnished by other trades. Contractor to provide 7-day notice to all such trades prior to affected pour. Installation to be within tolerances required by other trades.

3.08 FIELD QUALITY CONTROLS

- A. Concrete Tests. 6" x 12" (or 4" x 8") cylinders shall be taken at the point of placing in the forms, shall be job cured and tested in accordance with ASTM Standards by the Engineer. For each strength of concrete used, one set of four (4) cylinders for each day's pour, but not less than one (1) set of cylinders for each 50 cubic yards poured shall be taken. Two (2) cylinders at twenty-eight (28) days shall be tested to determine strength. One cylinder at seven (7) days, and one cylinder at fifty six (56) days may be tested as indicators at the direction of the Engineer. In addition, when in the opinion of the Engineer there is a possibility of the surrounding air temperature falling below 40° F; additional specimens to be cured under job conditions may be required.
- B. Enforcement of Strength Requirements. Should the strengths shown by the test specimens fall below the specified values, the Engineer shall have the right to require changes in proportions to apply on the remainder of the Work.
- C. If concrete fails to meet the strength requirements of this specification, the Engineer may order the Contractor to have a testing laboratory, acceptable to the Engineer, take and test core samples of questionable concrete. The Engineer may order all low-strength concrete removed and replaced if core strengths are below specified strengths. All costs connected with concrete coring and removal and replacement of low-strength concrete shall be borne by the Contractor.
 1. Contractor shall repair all core holes at his expense.
- D. Slump Tests. Engineer to conduct slump tests on each day's pour and on individual trucks whenever concrete consistency varies. Test failure shall be grounds for rejection of individual or batch loads.
- E. Air Content. Engineer to conduct air tests on each day's pour and on individual trucks as determined by the Engineer. Test failure shall be grounds for rejection of entire batch until satisfactory tests are obtained.

3.09 CONCRETE REPAIR

- A. Concrete Repair. In the event there are leaks as determined by the testing program as specified on the drawings, Contractor shall make repairs as necessary to satisfy the requirements of the program. Acceptable products are Sika, type and installation methods as recommended by the manufacturer for the specific application. Product and method of installation as selected by the Contractor shall be submitted to the Engineer for approval.

END OF SECTION



We provide innovative, practical solutions to make our clients successful while ensuring the health, safety and welfare of our neighbors. We develop and maintain lasting client relationships and are committed to our local communities.

GUNNISON
103 West Tomichi Ave., Suite A
Gunnison, CO 81230
970.641.5355
970.641.5358 fax