

**CITY OF GREELEY
INVITATION FOR BID**

CENTENNIAL PARK IMPROVEMENTS – PHASE 0.5

BID #FD21-02-028

DUE MARCH 2, 2021 BEFORE 2:00 P.M.



Serving Our
Community
It's A Tradition

*The Office of the Purchasing Manager is a service division
established to build effective partnerships through efficient and responsive
procurement processes to obtain high quality
goods and services for the best value.*

SECTION 00110
BID #FD21-02-028

INVITATION FOR BID

The City of Greeley, Colorado is requesting **sealed** bids for Centennial Park Improvements - Phase 0.5 **before 2:00pm MST on March 2, 2021** via electronic submission and a Zoom meeting be held at which time and place all bids will be publicly opened and read aloud. No late or faxed bids will be accepted. It is the responsibility of the vendor to ensure the solicitation documents are delivered to the correct address as noted in the Solicitation Documents. Solicitations delivered to other City of Greeley email addresses may be deemed as late and not accepted.

Instructions for electronic submittal.

Email your Bid Response to purchasing@greeleygov.com. purchasing@greeleygov.com Submit your Bid response to this email only – please do not email to multiple people. Only email's sent to will be considered as responsive to the invitation to bid. Emails sent to other City emails may be considered as non-responsive and may not be reviewed.

Bids shall be submitted in a single Microsoft Word or PDF file under 20MB

The Bid number and Project name **must be noted** in the subject line, otherwise the Bid may be considered as non-responsive to the Bid.

Electronic submittals will be held, un-opened, until the time and date noted in the Bid documents or posted addenda.

The City of Greeley disseminates all bids through the Rocky Mountain E-Purchasing System site. Go to <http://www.RockyMountainBidSystem.com>, then "Bid Opportunities" and then select "The City of Greeley". Bids submitted to the City of Greeley must include Sections 00120, 00130, 00140 and 00160. Addenda must be acknowledged in Section 00120 of the bidding documents. Bidders failing to acknowledge any and all addenda may be considered non-responsive.

An optional pre-bid meeting will be held on **2/16/21 at 3:30pm** via a Zoom meeting. All prospective bidders are encouraged to attend.

Invitation to a scheduled Zoom meeting.

Join Zoom Meeting

<https://greeleygov.zoom.us/j/81969758454>

Meeting ID: 819 6975 8454

Passcode: 354372

Dial by your location

+1 253 215 8782 US (Tacoma)

+1 312 626 6799 US (Chicago)

+1 346 248 7799 US (Houston)

+1 669 900 6833 US (San Jose)

Each bid shall be accompanied, by a bidder's bond executed by a surety company authorized to do business in Colorado, made payable to the City of Greeley, Colorado or by a certified check drawn on a bank which is insured by the Federal Deposit Insurance corporation made payable to the City of Greeley, Colorado, in an amount not less than five percent (5%) of the proposal sum as security that the successful bidder will enter into a contract to construct this project in accordance with the plans and specifications, and give bonds in the sum as hereafter provided. Checks accompanying bids not accepted will be returned.

The successful responsive and responsible bidder will be required to furnish a satisfactory performance bond and payment bond in the amount of the contract sum.

No bid shall be withdrawn after the opening of the bids without the consent of the City of Greeley, Colorado, for a period of sixty (60) days after the scheduled time of the receiving the bids.

All proposals will be confidential until a contract is awarded and fully executed. At that time, all proposals and documents pertaining to the proposals will be open for public inspection, except for the material that is proprietary or confidential. However, requests for confidentiality can be submitted to the Purchasing Contact provided that the submission is in accordance with the following procedures. This remains the *sole responsibility* of the offeror. The Purchasing Contact will make no attempt to cure any information that is found to be at a variance with this procedure. The offeror may not be given an opportunity to cure any variances after proposal opening.

Neither a proposal in its entirety, nor proposal price information will be considered confidential/proprietary. Questions regarding the application of this procedure must be directed to the Purchasing Contact listed in this RFP.

*"Public Viewing Copy: The City is a governmental entity subject to the Colorado Open Records Act, C.R.S. §§ 24-72-200.1 et seq. ("CORA"). Any bids/proposals submitted hereunder are subject to public disclosure by the City pursuant to CORA and City ordinances. Vendors may submit one (1) additional complete bid/proposal clearly marked "FOR PUBLIC VIEWING." In this version of the bid/proposal, the Vendor may redact text and/or data that it deems confidential or proprietary pursuant to CORA. Such statement does not necessarily exempt such documentation from public disclosure if required by CORA, by order of a court of appropriate jurisdiction, or other applicable law. Generally, under CORA trade secrets, confidential commercial and financial data information is not required to be disclosed by the City. Bids/Proposals may not be marked "Confidential" or "Proprietary" in their entirety. **All provisions of any contract resulting from this request for proposal will be public information.**"*

The City of Greeley retains the right to reject any and all bids and to waive any informality as deemed in the best interest of the city.

Questions pertaining to the project may be directed to Doug Clapp via email: doug.clapp@greeleygov.com or at 970-350-9792. Deadline to receive questions is **February 18, 2021** by 4:00pm.

Doug Clapp
Purchasing Manager

Section 00120

BID PROPOSAL

PROJECT: Centennial Park Improvements – Phase 0.5 – FD21-02-028

The Undersigned, having become familiar with the local conditions affecting the cost of the work, plans, drawings, and specifications attached herewith, and with advertisement for bids, the form of bid and proposal, form of bond, all of which are issued and attached and on file in the office of the Project Manager, hereby bid and propose to furnish all the labor, materials, necessary tools, and equipment and all utility and transportation service necessary to perform and complete in a workmanlike manner all of the work required in connection with the construction of the items listed on the bidding schedule in accordance with the plans and specifications as prepared by the City of Greeley, Colorado, for the sums set forth in the Bidding Schedule.

The total bid shall be the basis for establishing the amount of the Performance and Payment Bond for this project. The total bid is based on the quantities shown in the bid proposal form and the dimensions shown on the plans.

The undersigned has carefully checked the Bidding Schedule quantities against the plans and specifications before preparing this proposal and accepts the said quantities as substantially correct, both as to classification and the amounts, and as correctly listing the complete work to be done in accordance with the plans and specifications.

The undersigned, agrees to complete and file a Performance and Payment Bond after receipt of notice of award and further agrees to complete the contract by June 31, 2021 with anticipated notice to proceed being April 1, 2021. Notice to proceed will not be issued until adequate Performance and Payment Bonds and other required documents are on file with the City of Greeley.

NOTE: Bidders should not add any conditions or qualifying statements to this bid as otherwise the bid may be declared irregular as being non responsive to the Invitation for bids. The following numbered Addenda have been received and the bid, as submitted, reflects any changes resulting from those Addenda: _____

ATTEST

DATE

COMPANY NAME

BY

SIGNATURE

TITLE

CITY OF GREEELEY CENTENNIAL PARK PHASE 0.5 - BID TAB

BASE BID

CONTRACT ITEM NO.	MGPEC ITEM NO.	CONTRACT ITEM	UNIT	PROJECT TOTALS	ITEM COST	TOTAL COST
1010		MOBILIZATION	LS	1		
1010		CONSTRUCTION SURVEYING	LS	1		
2220		REMOVAL OF CONCRETE	SY	269		
2223		CLEARING AND GRUBBING	SF	3,484		
2225		UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	167		
2225		IMPORT EMBANKMENT MATERIAL (FOR LANDSCAPE BERMS)	CY	90		
2620		SANITARY FACILITY	EA	1		
2622		BUS STOP SHELTER	EA	1		
2810		SILT LOG (12 INCH)	LF	850		
2810		VEHICLE EROSION CONTROLTRACKING PAD	EA	1		
2810		TOPSOIL (IMPORT)	CY	50		
2810		CONCRETE WASHOUT STRUCTURE	EA	1		
3310		SIDEWALK CHASE DRAIN (24 INCH WIDE)	EA	2		
3310	31	CONCRETE SIDEWALK (8 INCH)	SY	18		
3310	31	CONCRETE SIDEWALK (5 INCH)	SY	510		
2810		Soil Amendment (4CY/1,000SF in shrub areas)	CY	8		
2810		Wood Mulch	SF	1,700		
2810		Ornamental Grasses and Perennials	EA	22		
2810		Shrubs (5 Gal.)	EA	34		
2810		Ornamental Trees (1.5" Cal)	EA	10		
2810		Soil Amendment (2CY/1,000SF in native seed areas)	CY	60		
2810		Landscape Boulders	EA	23		
2810		River Boulders	EA	25		
2810		Tree Protection	LS	1		
2810		Native Seed with Hydromulch	SF	30,000		
2810		Salt Tolerant Native Seed	SF	7,000		
2810		Sod	SF	1,400		
2810		Cobble Mulch	SF	1,300		
2810		Crusher Fines	SF	850		
2810		Rain Garden Growing Media	CY	26		
2810		Ornamental Grasses and Perennials	EA	47		
2810		Shrubs (5 Gal.)	EA	34		
2810		River Cobbles (4-6") With Weed Barrier	CY	60		
2810		Ornamental Trees (1.5" Cal)	EA	11		
2810		Deciduous Trees (2" Caliper)	EA	5		
2810		Irrigation Sleeving	LF	110		
2810		1.5" PVC CL200 Irrigation Mainline	LF	250		
2810		Backflow Assembly	EA	1		
2810		Winterization Assembly	EA	1		
2810		Quick Coupling Valve Assembly	EA	1		
2810		1" Remote Control Valve Assembly	EA	1		
2810		Drip Remote Control Valve Assembly	EA	2		
2810		1" PVC CL200 Lateral Pipe	LF	150		
2810		1" PVC CL200 Header Pipe	LF	275		
2810		Inline Drip Tubing	LF	2,150		
2810		Drip Flush Valve Assembly	EA	7		
2810		Pop-Up Short Radius Rotor Sprinkler Assembly	EA	7		
2810		Control Wire	LF	1,000		
2810		2" irrigation Mainline	LF	285		
2810		2" Isolation Gate Valve	EA	3		
2810		Quick Coupling Valve Assembly	EA	3		
2810		Air Vacuum Relief Valve Assembly	EA	2		
2810		1" Remote Control Valve Assembly, incl. Decoder	EA	6		
2810		1.5" Remote Control Valve Assembly, incl. Decoder	EA	7		
2810		Drip Remote Control Valve Assembly, incl. Decoder	EA	2		
2810		2" PVC CL200 Lateral Pipe	LF	430		
2810		1.5" PVC CL200 Lateral Pipe	LF	300		
2810		1.25" PVC CL200 Lateral Pipe	LF	420		
2810		1" PVC CL200 Lateral Pipe	LF	2,150		
2810		1" PVC CL200 Header Pipe	LF	30		
2810		Inline Drip Tubing	LF	200		
2810		Drip Flush Valve Assembly	EA	2		
2810		Pop-Up Short Radius Rotor Sprinkler Assembly	EA	117		
2810		Pop-Up Large Radius Sprinkler Assembly	EA	15		
2810		Pop-Up Spray Sprinkler Assembly	EA	103		
2810		Two-Wire Cable, incl. Grounding	LF	300		
				TOTAL BASE BID		

ALTERNATE BID - TURN LANE

1010		MOBILIZATION	LS	1		
1010		CONSTRUCTION SURVEYING	LS	1		
1010		TRAFFIC CONTROL, MANAGEMENT, DEVICES, FLAGGING	LS	1		
2210		RESET TRAFFIC SIGNAL POLE	EA	1		
2210		TRAFFIC SIGNAL CONTROLLER	EA	1		
2220		REMOVAL OF ASPHALT PAVEMENT	SY	46		
2220		REMOVAL OF CONCRETE	SY	35		
2225		UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	140		
2227		SUB-BASE	CY	60		
2229	13	AGGREGATE BASE COURSE (CLASS 5)	TON	107		
2575	20	HOT MIX ASPHALT PATCH (GR.S)(ASPH.)(100)(PG 64-28)(7-INCH)	TON	18		
2575	20	HOT MIX ASPHALT (GR. S)(ASPH.)(100)(PG 64-28)(5-INCH)	TON	61		
2613		HIGH MAST FOUNDATION	EA	1		
2614		PEDESTRIAN PUSH BUTTON POST ASSEMBLY	EA	1		
2618		GROUND SIGN PANEL AND POST - R3-7R	EA	1		
2618		GROUND SIGN PANEL AND POST - R3-5R	EA	1		
2618		PAVEMENT MARKING PAINT	GAL	14		
2618		PREFORMED THERMOPLASTIC PAVEMENT MARKING (90 MILS)	SF	558		
3310	31	CORNER CURB RAMP TYPE 1B	EA	2		
3310	31	CURB AND GUTTER - VERTICAL FACE	LF	263		
				TOTAL ALT BID		
				TOTAL BID		

Total Bid (written out):

Vendor Name:

Authorized Signature:

Print Name:

Phone Number:

Fax Number:

Email Address:

Date:

SECTION 00160

NOTICE OF PRE-BID CONFERENCE

Centennial Park Improvements – Phase 0.5 – FD21-02-028

A pre-bid conference will be held:

On February 16, 2021 at 3:30 p.m., via Zoom meeting. All bidders are highly encouraged to attend.

Invitation to a scheduled Zoom meeting.

Join Zoom Meeting

<https://greeleygov.zoom.us/j/81969758454>

Meeting ID: 819 6975 8454

Passcode: 354372

Dial by your location

+1 253 215 8782 US (Tacoma)

+1 312 626 6799 US (Chicago)

+1 346 248 7799 US (Houston)

+1 669 900 6833 US (San Jose)

Representatives of the City of Greeley will be present to answer questions.

Each bidder shall submit the following declaration of attendance, along with the other bid documents.

I have attended the pre-bid conference _____

I have not attended the pre-bid conference _____

Name of Contracting Organization

Authorized Signature

Date

SECTION 00210

NOTICE OF AWARD

DATE:

TO:

Re: **Centennial Park Improvements – Phase 0.5 – FD21-02-028**

Dear Contractor:

The City of Greeley, Colorado (hereinafter called "the Owner") has considered the bids submitted for referenced work in response to its Invitation for Bids. You are hereby notified that your bid has been accepted for items and prices stated in the Bid Schedule in the amount of \$_____. You are required to execute the Contract Agreement, provide the necessary insurance certificates, the Performance and Payment Bonds within ten (10) days from the date of this Notice. If you fail to execute said Contract Agreement and furnish the necessary insurance certificates and bonds within the time allotted from this date, the Owner will be entitled to consider your rights arising out of the Owner's acceptance of your bid as abandoned and to demand payment of bid guaranty as damages. The Owner will be entitled to such other rights as may be granted by law. You are required to return an acknowledged copy of this Notice of Award and enclosures to Purchasing.

CITY OF GREELEY, COLORADO

By: Joel Hemesath

Title: Director of Public Works

ACKNOWLEDGMENT: Receipt of the foregoing Notice of Award accompanied with a Performance and Payment Bond form and a signed copy of the Contract Document is hereby acknowledged this _____ day of _____, 20_____.

Bidder: _____

By: _____

SECTION 00310

CONTRACT

THIS AGREEMENT made and entered into this _____ day of _____, 20____, by and between the City of Greeley, Colorado, and under the laws of the state of Colorado, party of the first part, termed in the Contract Documents as the "Owner" and _____ party of the second part, termed in the Contract Documents as "Contractor."

WITNESSETH: In consideration of monetary compensation to be paid by the Owner to the Contractor at the time and in the manner hereinafter provided, the said Contractor has agreed, and does hereby agree, to furnish all labor, tools, equipment and material and to pay for all such items and to construct in every detail, to wit:

PROJECT: **Centennial Park Improvements – Phase 0.5 – FD21-02-028**

at the price bid on the Proposal Form of \$ _____ all to the satisfaction and under the general supervision of the Project Manager for the City of Greeley, Colorado.

The Contract Documents consist of this Agreement, the Conditions of the Contract (General, Supplementary and other Conditions), the Drawings, the Specifications, all Addenda issued prior to and all Modifications issued after execution of this Agreement. These form the Contract, and all are as fully a part of the Contract as if attached to this Agreement or repeated herein.

The Project Manager named herein shall interpret and construe the Contract Documents, reconciling any apparent or alleged conflicts and inconsistencies therein; and all of the work and all details thereof shall be subject to the approval and determination of the Project Manager as to whether or not the work is in accordance with Contract Documents. Said City Project Manager shall be the final arbiter and shall determine any and all questions that may arise concerning the Contract Documents, the performance of the work, the workmanship, quality of materials and the acceptability of the completed project. The decision of the Project Manager on all questions shall be final, conclusive and binding.

AND FOR SAID CONSIDERATION IT IS FURTHER PARTICULARLY AGREED BETWEEN THE PARTIES TO THIS AGREEMENT.

1. That construction and installation of the above enumerated work for the Owner shall be completed and ready for use in accordance with the time of completion described in the Bid form of this Contract. That the above enumerated work shall begin within ten (10) days of the official "Notice to Proceed". (Contract shall become void if work is not started at specified time.)

2. That said work and materials for the project covered by the Contract Documents shall be completely installed and delivered to the Owner, within the time above stated, clear and free from any and all liens, claims, and demands of any kind.
3. The full compensation to be paid the Contractor by the Owner pursuant to the terms of this Contract shall be payable as provided in the Contract Documents.
4. This Contract consists of the following component parts, all of which are as fully a part of the Contract as herein set out verbatim, or if not attached, as if hereto attached:

- Section 00110: Invitation for Bid
- Section 00120: Bid Proposal
- Section 00130: Bid Schedule
- Section 00140: Bid Bond
- Section 00160: Pre-bid meeting
- Section 00210: Notice of Award
- Section 00310: Contract
- Section 00320: Performance Bond
- Section 00330: Payment Bond
- Section 00340: Certificate of Insurance
- Section 00350: Lien Waiver Release
- Section 00360: Debarment/Suspension Certification Statement
- Section 00410: Notice to Proceed
- Section 00420: Project Manager Notification
- Section 00430: Certificate of Substantial Completion
- Section 00440: Final Completion
- Section 00510: General Conditions of the Contract
- Section 00520: Subcontractors List
- Section 00620: Special Provisions

Addenda Number _____ Inclusive

Any modifications, including change orders, duly delivered after execution of this Agreement.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed as of the day and year first above written.

City of Greeley, Colorado

Contractor_____

Approved as to Substance

Authorized Signature

City Manager-Roy Otto

Printed Name

Reviewed as to Legal Form
OFFICE OF THE CITY ATTORNEY

Title

By: _____
City Attorney-Doug Marek

Certification of Contract
Funds Availability

Interim Director of Finance-Robert Miller

SECTION 00320

PERFORMANCE BOND

Bond No. _____

KNOWN ALL MEN BY THESE PRESENTS: that

(Firm) _____

(Address) _____

(an Individual), (a Partnership), (a Corporation), hereinafter referred to as "the Principal", and

(Firm) _____

(Address) _____

hereinafter referred to as "the Surety", are held and firmly bound unto the CITY OF GREELEY, 1000 10th Street, Greeley, CO. 80631, a Municipal Corporation, hereinafter referred to as "the Owner" in the penal sum of _____ 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 present.

THE CONDITIONS OF THIS OBLIGATION are such that whereas the Principal entered into a certain Contract Agreement with the Owner, dated the _____ day of _____, 20_____, a copy of which is hereto attached and made a part hereof for the performance of City of Greeley Project,

Centennial Park Improvements – Phase 0.5 – FD21-02-028

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said Contract Agreement during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without Notice to the Surety and during the life of the guaranty period, and if he shall satisfy all claims and demands incurred under such Contract Agreement, and shall fully indemnify and save harmless the Owner from all cost 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, and 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 Agreement 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 Agreement or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument is executed this _____ day of _____, 20____.

PROVIDED, FURTHER, that no final settlement between the Owner and Contractor shall abridge the right of any beneficiary hereunder, whose claims may be unsatisfied.

IN PRESENCE OF:

PRINCIPAL

_____ By: _____

(Corporate Seal)

(Address)

IN PRESENCE OF:

OTHER PARTNERS

_____ By: _____

_____ By: _____

_____ By: _____

IN PRESENCE OF:

SURETY

_____ By: _____

(Attorney-in-Fact)

(SURETY SEAL)

(Address)

NOTE: Date of Bond must not be prior to date of Contract Agreement. If Contractor is Partnership, all partners should execute bond.

IMPORTANT: Surety Company must be authorized to transact business in the State of Colorado and be acceptable to the Owner.

SECTION 00330

PAYMENT BOND

Bond No. _____

KNOWN ALL MEN BY THESE PRESENT: that

(Firm) _____

(Address) _____

(an Individual), (a Partnership), (a Corporation), hereinafter referred to as "the Principal", and

(Firm) _____

(Address) _____

hereinafter referred to as "the Surety", are held and firmly bound unto the CITY OF GREELEY, 1000 10th Street, Greeley, Co. 80631, a Municipal Corporation, hereinafter referred to as "the Owner", in the penal sum of

_____ 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 CONDITIONS OF THIS OBLIGATION are such that whereas the Principal entered into a certain Contract Agreement with the Owner, dated the _____ day of _____, 20_____, a copy of which is hereto attached and made a part hereof for the performance of

Centennial Park Improvements – Phase 0.5 – FD21-02-028

NOW, THEREFORE, if the Principal shall 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 Agreement, and any equipment and tools, consumed, rented 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 Agreement 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 Agreement or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument is executed this _____ day of _____, 20____.

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

IN PRESENCE OF:

PRINCIPAL

_____ By: _____

(Corporate Seal)

(Address)

IN PRESENCE OF:

OTHER PARTNERS

_____ By: _____

_____ By: _____

_____ By: _____

IN PRESENCE OF:

SURETY

_____ By: _____

(Attorney-in-Fact)

(SURETY SEAL)

(Address)

NOTE: Date of bond must not be prior to date of Contract Agreement. If Contractor is Partnership, all partners should execute Bond.

IMPORTANT: Surety Company must be authorized to transact business in the State of Colorado and be acceptable to the Owner.

CERTIFICATE OF LIABILITY INSURANCE

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER ABC Insurance Company P. O. Box 1234 Anywhere, USA	CONTACT NAME:		
	PHONE (A/C, No, Ext):	FAX (A/C, No):	
E-MAIL ADDRESS:			
PRODUCER CUSTOMER ID #:			
INSURED Sample Certificate	INSURER(S) AFFORDING COVERAGE		NAIC #
	INSURER A : Financial Rating of A		
	INSURER B :		
	INSURER C :		
	INSURER D :		
	INSURER E :		
	INSURER F :		

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR _____ _____ GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$100,000 MED EXP (Any one person) \$5,000 PERSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000 \$
	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS						COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$ \$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DEDUCTIBLE RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$ \$ \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y / <input checked="" type="checkbox"/> N If yes, describe under DESCRIPTION OF OPERATIONS below						<input checked="" type="checkbox"/> WC STATU-TORY LIMITS <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$100,000 E.L. DISEASE - EA EMPLOYEE \$100,000 E.L. DISEASE - POLICY LIMIT \$500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

City of Greeley is named as Additional Insured on General Liability. Waiver of subrogation is included on Work Compensation. This insurance is primary and noncontributory to insurance policies held by the City.

CERTIFICATE HOLDER

CANCELLATION

City of Greeley
 1000 10th St
 Greeley, CO 80631-3808

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

SECTION 00350

LIEN WAIVER RELEASE

TO: City of Greeley, Colorado (hereinafter referred to as "the OWNER".)

FROM: (hereinafter referred to as "the CONTRACTOR")

PROJECT: **Centennial Park Improvements – Phase 0.5 – FD21-02-028**

1. The CONTRACTOR does hereby release all Mechanic's Liens Rights, Miller Act Claim (40 USCA 270), Stop Notice, Equitable Liens and Labor and Material Bond Rights resulting from labor and/or materials, subcontract work, equipment or other work, rents, services or supplies heretofore furnished in and for the construction, design, improvement, alteration, additions to or repair of the above described project.
2. This release is given for and in consideration of the sum of \$ and other good and valuable consideration. If no dollar consideration is herein recited, it is acknowledged that other adequate consideration has been received by the CONTRACTOR for this release.
3. In further consideration of the payment made or to be made as above set forth, and to induce the OWNER to make said payment, the CONTRACTOR agrees to defend and hold harmless the OWNER, employees, agents and assigns from any claim or claims hereinafter made by the CONTRACTOR and/or its material suppliers, subcontractors or employees, servants, agents or assigns of such persons against the project. The CONTRACTOR agrees to indemnify or reimburse all persons so relying upon this release for any and all sums, including attorney's fees and costs, which may be incurred as the result of any such claims.
4. It is acknowledged that the designation of the above project constitutes an adequate description of the property and improvements for which the CONTRACTOR has received consideration for this release.
5. It is further warranted and represented that all such claims against the CONTRACTOR or the CONTRACTOR's subcontractors and/or material suppliers have been paid or that arrangements, satisfactory to the OWNER and CONTRACTOR, have been made for such payments.
6. It is acknowledged that this release is for the benefit of and may be relied upon by the OWNER, the CONTRACTOR, and construction lender and the principal and surety on any labor and material bond for the project.

7. In addition to the foregoing, this instrument shall constitute a *** (full, final and complete) *** (partial) release of all rights, claims and demands of the CONTRACTOR against the OWNER arising out of or pertaining to the above referenced project. If partial, all rights and claims on the project are released up to and including the _____ day of Month, 20 ____ .

Dated this _____ day of _____, 20____.

CONTRACTOR

By: _____

Title: _____

STATE OF _____)
)ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____,
20____ by _____.

My Commission expires:

Notary Public

***Strike when not applicable

SECTION 00360

Centennial Park Improvements – Phase 0.5 – FD21-02-028

Debarment/Suspension Certification Statement

The proposer certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any Federal, State, County, Municipal or any other department or agency thereof. The proposer certifies that it will provide immediate written notice to the City if at any time the proposer learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstance.

DUNS # (Optional) _____

Name of Organization _____

Address _____

Authorized Signature _____

Title _____

Date _____

SECTION 00410

NOTICE TO PROCEED

Month , 20

TO: NAME

PROJECT: **CENTENNIAL PARK IMPROVEMENTS – PHASE 0.5 – FD21-02-028**

To Whom It May Concern:

You are hereby notified to commence work on the above-referenced project in accordance with the Contract Agreement dated Month , 20 .

You are to complete this project by Month , 20

CITY OF GREELEY, COLORADO

By: _____

Title: _____

Signature

SECTION 00420

PROJECT MANAGER NOTIFICATION

_____, 20____

TO:

PROJECT: **Centennial Park Improvements – Phase 0.5 – FD21-02-028**

The Owner hereby designates _____ as its Project Manager and authorizes this individual, under the authority of the Director of Public Works to make all necessary and proper decisions with reference to the project. Contract interpretations, change orders and other requests for clarification or instruction shall be directed to the Project Manager. The Director of Public Works shall be authorized to bind the Owner with respect to any decision made in accordance with the contract document.

CITY OF GREELEY, COLORADO

By: _____

Title: _____

SECTION 00430

CERTIFICATE OF SUBSTANTIAL COMPLETION

TO: CONTRACTOR

PROJECT: CENTENNIAL PARK IMPROVEMENTS – PHASE 0.5 – FD21-02-028

Project or designated portion shall include: Describe Scope.

The work performed under this contract has been reviewed and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby established as Month , 20 .

The date of commencement of applicable warranties required by the Contract Documents is stipulated in Section 00440 - Certificate of Final Acceptance.

DEFINITION OF DATE OF SUBSTANTIAL COMPLETION

The Date of Substantial Completion of the Work or designated portion thereof is the date certified by the Project Manager when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for the use for which it is intended, as expressed in the Contract Documents.

A list of items to be completed or corrected, prepared by the Contractor and verified and amended by the Project Manager is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. The date of commencement of warranties for items on the attached list is as stipulated in Section 00440 – Certificate of Final Acceptance.

The Owner shall operate and maintain the Work or portion of the Work described above from the Date of Substantial Completion and be responsible for all costs associated with the completed work excluding cost related to warrantee work.

The Contractor will complete or correct the Work on the list of items attached hereto within
days from the above Date of Substantial Completion.

Contractor

Owner

(Note--Owner's and Contractor's legal and insurance counsel should review and determine insurance requirements and coverage; Contractor shall secure consent of surety company, if any.)

SECTION 00440

CERTIFICATE OF FINAL ACCEPTANCE

TO: **CONTRACTOR**

PROJECT NAME: **CENTENNIAL PARK IMPROVEMENTS – PHASE 0.5 – FD21-02-028**

The work performed under this contract has been reviewed and found to meet the definition of final acceptance. This Certificate of Final Acceptance applies to the whole of the work.

The Date of Final Acceptance of the Project designated above is hereby established as: Month _____, 20____ at 2:00 pm. This date is also the date of commencement of applicable warranties associated with the Project described above and as required by the Contract Documents.

DEFINITION OF DATE OF FINAL ACCEPTANCE

The Date of Final Acceptance of the Work is the date certified by the City of Greeley's Project Manager when the work is 100% complete, in accordance with the Contract Documents, as amended by change order(s), or as amended below:

Amendment to the Certificate of Final Completion (if any): Describe Amendments.

The Contractor and/or the City Of Greeley shall define any claims or requests for additional compensation above (or as attachments to this document).

Final Acceptance shall not be achieved until the Contractor provides the City Of Greeley with all contract specified Contractor and Sub-contractor close out documents including final lien waivers, releases, insurances, manuals, training, test results, warranties, and other documents required by the Contract Documents, as amended.

Upon issuance of the Certificate of Final Acceptance the Contractor may submit an application for payment requesting final payment for the entire Work. Liquidated damages (if any) will be assessed at this time.

Contractor's acceptance of the final payment shall constitute a waiver by the Contractor of all claims arising out of or relating to the Work; except as noted under 'Amendment to the Certificate of Final Acceptance' above.

Agreed:

_____, 20____ _____, 20____
Contractor's Representative DATE Project Manager (COG) DATE

SECTION 00510

CITY OF GREELEY GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION (REVISED MAY 2020)

ARTICLE 1 DEFINITIONS

- 1.1 **Bidder:** An architect, engineer, individual, firm, partnership, corporation or combination thereof, submitting a Bid for the Work.
- 1.2 **Change Notice:** A document issued to the Contractor specifying a proposed change to the Contract Documents. Unless otherwise expressly stated on the face of the Change Notice, a Change Notice is a proposal which may result in a Change Order.
- 1.3 **Change Order:** A document issued to the Contractor modifying the Contract.
- 1.4 **Construction Contract:** The Contract Documents, including the Contract for construction (hereinafter “the contract”) executed by the Contractor and the Owner covering the performance of the Work including the furnishing of labor, superintendence, materials, tools and equipment as indicated in the Contract Documents.
- 1.5 **Contract Documents:** Documents applicable to and specific to the construction of an individual Project, including the Contract and all other documents executed by the Contractor and Owner covering the performance of the work including but not limited to Specifications, Insurance Requirements, Contract Drawings, Conditions of the Contract (General and Supplementary), Owner Contractor Agreement, all Addenda, all change orders issued after execution of the Contract, Performance and Payment Bonds, and any other special provisions.
- 1.6 **Contract Drawings(Project Drawings):** Contract drawings, The plans, to include but not limited to plans, profiles, typical cross sections, general cross-sections, elevations, schedules, schematics, notes and details which show locations, character, dimensions, and details of the Work.
- 1.7 **Contractor:** The individual, firm, partnership, or corporation, or combination thereof, private, municipal, or public, including joint ventures, which, as an independent contractor, has entered into a contract with the Owner, who is referred to throughout the Contract Documents by singular number and masculine gender.
- 1.8 **Days:** Unless otherwise designated, days mean calendar days.

- 1.9 **Extra Work:** Work not provided for in the Contract as awarded but found to be essential to the satisfactory completion of the Contract, within its intended scope. Reimbursement for extra work is governed by Article 28, CHANGES, or Article 31, CONTRACTOR PROPOSALS.
- 1.10 **Field Order:** A written order issued to a contractor by the Owner, or Project Manager, effecting a minor change or clarification with instructions to perform work not included in the contract. The work will eventually become a Change Order. A field Order is an expedient process used in an emergency or need situation that in many cases does not involve an adjustment to the contract sum or an extension of the contract sum or an extension of the contract time.
- 1.11 **Final Acceptance:** The formal written acceptance by the Owner of the completed Work.
- 1.12 **Force Account:** A method of payment, other than lump sum or unit price, for Work ordered by Change Order or by written notice from the Owner. Reimbursement for force account work is governed by Article 36, FORCE ACCOUNT WORK.
- 1.13 **Furnishing:** Manufacturing, fabricating and delivering to the site of the Work materials, plant, power, tools, patterns, supplies, appliances, vehicles and conveyances necessary or required for the completion of the Work.
- 1.14 **General Conditions (GC):** A section of the Contract Documents which specifies, in general, the contractual conditions.
- 1.15 **General Terms:** Directed, required, permitted, ordered, designated, selected, prescribed or words of like import shall be understood to mean the direction, requirement, permission, order, designation, selection or prescription of the Project Manager. Approved, satisfactory, equal, necessary or words of like import shall be understood to mean approved by, acceptable to, satisfactory to, equal, necessary in the opinion of the Project Manager.
- 1.16 **Indicated:** A term meaning as shown on the Contract Drawings, or as specified and detailed in the Contract Documents.
- 1.17 **Installation, Install, or Installing:** Completely assembling, erecting and connecting material, parts, components, appliances, supplies and related equipment specified or required for the completion of the Work.
- 1.18 **Limit of Work:** Boundary within which the Work, excepting utility and drainage work in Public Right Of Way and Easements, is to be performed.
- 1.19 **Notice to Proceed:** Written notice from the Owner to the Contractor to proceed with the Work.
- 1.20 **Notice of Termination:** Written notice from the Owner to the Contractor to stop work under the Contract on the date and to the extent specified in the Notice of Termination.

- 1.21 **Owner:** The City of Greeley.
- 1.22 **Permanent Drainage Easement:** Area required to construct and maintain permanent drainage facilities for retention, release, and passage of surface water.
- 1.23 **Permanent Utility Easement:** Area required to construct and maintain utility facilities.
- 1.24 **Project:** That specific portion of the Work indicated in the Contract Documents.
- 1.25 **Project Manager:** The Owner's designated representative. The Project Manager has the authority to delegate portions of his responsibilities to others.
- 1.26 **Provide:** In reference to work to be performed by the Contractor, provide means furnish and install completely in place.
- 1.27 **Punch List:** Work determined to be incomplete or unacceptable at time of inspection for substantial completion.
- 1.28 **Samples:** Physical examples which illustrate materials, equipment, fixtures and workmanship which establish standards by which the Work will be judged.
- 1.29 **Schedule:** Acceptable schedules are BAR or GANTT Chart or CPM schedule.
- 1.30 **Shop Drawings:** Documents furnished by the Contractor to illustrate specific portions of the Work. Shop Drawings include drawings, diagrams, illustrations, schedules, charts, brochures, tables and other data describing fabrication and installation of specific portions of the Work.
- 1.31 **Specifications:** A document applicable to construction contracts containing the Technical Provisions.
- 1.32 **Subcontractor:** Any person, firm or corporation, other than the employees of the Contractor, who contracts with the Contractor to furnish labor, material or labor and materials, under this Contract.
- 1.33 **Special Provisions:** Provisions especially applicable to this Contract which invoke, modify and supplement the General Conditions which are included in the Contract Documents.
- 1.34 **Substantial Completion:** The state in the progress of Work when the Work, or a designated portion thereof, is sufficiently complete in accordance with the Contract Documents, so that Owner may access, occupy, use, and enjoy the Project, or designated portion thereof, for its intended purpose. Substantial Completion shall not occur until a temporary or permanent Certificate of Occupancy is issued and only minor punch list items remain for such Work.

1.35 **Technical Provisions:** Those provisions which specify the materials and execution of construction for work entering into the project.

1.36 **Work:** The construction, labor, materials, equipment, and contractual requirements as indicated in the Contract Documents, including alterations, amendments, or extensions thereto made by authorized changes.

1.37 **Work Site:** The area enclosed by the Limit of Work indicated in the Project Drawings and boundaries of local streets and public easements in which the Contractor is to perform work under the Contract. It shall also include areas obtained by the Contractor for use in connection with the Contract, when contiguous to the Limit of Work.

ARTICLE 2 INTERPRETATION

2.1 The documents comprising the Contract Documents are complementary and indicate the construction and completion of the Work. Anything mentioned in the Contract Specifications and not shown on the Contract Drawings, or shown on the Contract Drawings and not mentioned in the Contract Specifications, shall be of like effect as if shown or mentioned in both.

2.2 Where "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the specifications or drawings accompanying this Contract unless stated otherwise.

2.3 References to Articles or Sections include sub articles or subsections under the Article Reference (for example, a reference to Article 2 is also a reference to 2.1 through 2.9, and references to paragraphs similarly include references to subparagraphs).

2.4 **Referenced Standards:** Material and workmanship specified by the number, symbol, or title of a referenced standard shall comply with the latest edition or revision thereof and amendments and supplements thereto in effect on the date of the Invitation to Bid except where a particular issue is indicated.

2.5 **Precedence of Contract Documents:** Except as provided by Paragraph 2.1 of this Article, the Construction Contract governs over other Contract Documents, except that a Change Order governs over the Contract and previously issued Change Orders. The Contract Conditions govern over the General Conditions.

2.6 **Explanations:** Should it appear that the Work to be done or any of the matters relative thereto are not sufficiently detailed or explained in the Contract Documents, the Contractor shall apply to the Owner for such explanation provided as part of the Contract. Disputes over questions of fact which are not settled by agreement shall be decided by Owner. Such decision thereon will be final, subject to remedies under Article 35, DISPUTES.

2.7 Should there be any conflict, detailed instructions govern over general instructions, detail drawings have precedence over small scale drawings, and dimensions have precedence over scale.

2.8 Omissions and Misdemeanors: The Contractor shall carefully study and compare all drawings, specifications, Contract Documents and other instructions; shall verify all dimensions on the Contract Drawings before laying out the Work; shall notify the Project Manager of all errors, inconsistencies or omissions which he may discover; and obtain specific instructions in writing before proceeding with the Work. The Contractor shall not take advantage of apparent errors or omissions which may be found in the Contract Documents, but the Project Manager shall be entitled to make such corrections therein and interpretations thereof as he may deem necessary for the fulfillment of their intent. The Contractor shall be responsible for all errors in construction which could have been avoided by such examination and notification, subject to remedies under Article 35, Disputes.

ARTICLE 3 ENTITY OF CONTRACTOR

3.1 If the Contractor hereunder is comprised of more than one legal entity, each such entity shall be jointly and severally liable hereunder.

ARTICLE 4 LIABILITY AND INDEMNIFICATION

4.1 It is agreed that the Contractor assumes responsibility and liability for damages, loss or injury of any kind or nature whatever to persons or property caused by or resulting from or in connection with any act, action, neglect, omission, or failure to act when under a duty to act on the part of the Contractor or any of his officers, agents, employees, or subcontractors in his or their performance of the Work. The Contractor shall indemnify and hold harmless the Government, the State, the Owner and the Project Manager and their members, officers, agents, or employees from claims, losses, damages, charges, costs, or expenses, including attorney's fees, whether direct or indirect, to which they or any of them may be put or subjected to by reason of any such loss or injury.

ARTICLE 5 PROTECTION OF EXISTING VEGETATION, STRUCTURES, UTILITIES, AND IMPROVEMENTS AND LAND SURVEY MONUMENTS

5.1 A Contractor shall preserve and protect existing vegetation such as trees, shrubs, and grass on or adjacent to the work site which are not indicated to be removed and which do not unreasonably interfere with the construction work and he shall replace in kind any vegetation, shrubs and grass damaged by him at his own expense.

5.2 The Contractor shall protect from damage all utilities, structures, or improvements on or near the site of the Work and shall repair or restore any damage to such utilities, structures, or improvements resulting from failure to comply with the requirements of the Contract or the failure to exercise reasonable care in the performance of the Work. If the Contractor fails or refuses to repair

any such damage promptly, the Owner may have the necessary work performed and charge the cost thereof to the Contractor.

5.3 All land survey monuments shall be protected from any damage by any work and/or shall be replaced by a licensed land surveyor licensed in the state of Colorado at the contractor's expense before final acceptance is issued.

ARTICLE 6 CONTRACTUAL RELATIONSHIPS

6.1 No contractual relationship will be recognized under the Contract other than the contractual relationship between the Owner and the Contractor.

ARTICLE 7 ASSIGNMENT

7.1 The performance of the Work under the Contract shall not be assigned except upon written consent of the Owner. Consent will not be given to any proposed assignment which would relieve the Contractor or his surety of their responsibilities under the Contract. The Contractor shall not assign any monies due or to become due to him under the Contract without the previous written consent of the Owner.

ARTICLE 8 SUBCONTRACTORS

8.1 Unless otherwise required by the Contract Documents or the Bidding Documents, the Contractor, as soon as practicable after the award of the Contract, not to exceed 3 days, shall furnish to the Owner and the Project Manager, in writing the names of the subcontractors, persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work. The Project Manager will promptly reply to the Contractor in writing whether or not the Owner or the Project Manager, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Project Manager to reply promptly shall constitute notice of no reasonable objections.

ARTICLE 9 CONDITIONS AFFECTING THE WORK

9.1 The Contractor shall be responsible for taking steps reasonably necessary to ascertain the nature and location of the Work, and the general and local conditions which can affect the Work or the cost thereof. Failure by the Contractor to do so will not relieve him from responsibility for successfully performing work without additional expense to the Owner. The Owner will not be responsible for any understanding or representations concerning conditions, unless such understanding or representations are expressly stated in the Contract.

ARTICLE 10
GRATUITIES AND CONFLICTS OF INTEREST

10.1 The Owner may, by written notice to the Contractor terminate the right of the Contractor to proceed under this Contract if it is found that gratuities (in the form of entertainment, gifts, or otherwise) were offered or given by the Contractor, or any agent or representative of the Contractor or any director, officer or employee of the Owner or its Project Manager with a view toward securing a contract or securing favorable treatment with respect to the awarding or amending, or the making of any determinations with respect to the performance of such contract. The Owner's determination shall be final subject only to judicial review.

10.2 In the event this Contract is terminated for any reason, the Owner shall be entitled to pursue the same remedies against the Contractor as it could pursue in the event of a breach of the Contract by the Contractor.

10.3 No member, officer or employee of the Owner or of a local public body during his tenure or for one year thereafter shall have any interest, direct or indirect, in this Contract or the proceeds thereof. "Local public body" means the State, any political subdivision of the State, or any agency of the State or any political subdivision thereof.

10.4 The rights and remedies of the Owner provided in this article are not exclusive and are in addition to any other rights and remedies provided by law or under the Contract.

ARTICLE 11
WARRANTY OF WORK

11.1 Except where longer periods of warranty are indicated for certain items, the Contractor warrants work under the Contract to be free from faulty materials and workmanship for a period of not less than two years from date of Final Acceptance, which two year period shall be covered by the Performance Bond and Payment Bond as specified in this Contract. The Contractor shall immediately remedy, repair, or replace, without cost to the Owner and to the entire satisfaction of the Owner, defects, damages, or imperfections due to faulty materials or workmanship appearing in said work within said period of not less than two years. Remedied work shall carry the same warranty as the original work starting with the date of acceptance of the replacement or repair. Payment to the Contractor will not relieve him of any obligation under this Contract.

11.2 The Contractor, at no additional expense to the Owner, shall also remedy damage to equipment, the site, or the building or the contents thereof which is the result of any failure or defect in the Work, and restore any work damaged in fulfilling the requirements of the Contract. Should the Contractor fail to remedy any such failure or defect within a reasonable time but no longer than ten (10) days after receipt of notice thereof, the Owner will have the right to replace, repair, or otherwise remedy such failure or defect at the Contractor's expense.

11.3 Subcontractors', manufacturers', and suppliers' warranties and guarantees, expressed or implied, respecting any part of the Work and any material used therein shall be deemed obtained and

shall be enforced by the Contractor for the Benefit of the Owner without the necessity of separate transfer or assignment thereof.

11.4 The rights and remedies of the Owner provided in this Article are in addition to and do not limit any rights and remedies afforded by the Contract or by law.

ARTICLE 12 MATERIAL

12.1 Unless otherwise indicated in this Contract, equipment, material and products incorporated in the Work covered by this Contract shall be new and of the grade specified in the Contract for the purpose intended. Unless otherwise specifically indicated, reference to equipment, material, product or patented process by trade names, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition, and the Contractor may, at his option, use any equipment, material, article, or process which is equivalent to that named, subject to the requirements of Paragraph 12.2 of this Article.

12.2 Within the scope of his authority, the Project Manager shall be the sole judge of the quality and suitability of proposed alternative equipment, material, article or process. The burden of proving the quality and suitability of the alternative shall be upon the Contractor. Information required by the Project Manager in judging an alternative shall be submitted for approval by the Contractor at the Contractor's expense prior to installation.

12.3 Where use of an alternative material involves redesign of or changes to other parts of the Work, the cost and the time required to affect such redesign or change will be considered in evaluating the suitability of the alternative material. Redesign and changes in other parts of the Work shall be at the Contractor's expense.

12.4 No action relating to the approval of alternative materials will be taken by the Project Manager until the request for substitution is made in writing by the Contractor accompanied by complete data as to the quality and suitability of the materials proposed. Such request shall be made in ample time to permit approval without delaying the Work.

12.5 Disposal of material outside the Work Site: The Contractor shall make his own arrangements for legally disposing of waste and excess materials outside the Work Site and he shall pay costs therefore.

12.6 Property rights in materials: The Contractor shall have no property right in materials after they have been attached or affixed to the Work or the soil, or after payment has been made by the Owner to the Contractor for materials delivered to the site of the Work, or stored subject to or under the control of the Owner as provided in Article 24, PROGRESS PAYMENTS.

ARTICLE 13 WORKMANSHIP AND UNAUTHORIZED WORK

13.1 Work under this Contract shall be performed in a skillful and workmanlike manner. The Project Manager may, in writing, require the Contractor to remove from the work any employee the Project Manager determines incompetent, careless or otherwise objectionable.

13.2 Unauthorized work: Work performed beyond the lines and grades shown on the Contract Drawings, approved Working and Shop Drawings and Extra work done without written authorization, will be considered as unauthorized work, and the Contractor will receive no compensation therefore. If required by the Owner, unauthorized work shall be remedied, removed, or replaced by the Contractor at the Contractor's expense. Upon failure of the Contractor to remedy, remove or replace unauthorized work, the Owner may take courses of action set out in Paragraph 15.3 of Article 15, INSPECTION.

ARTICLE 14 SUPERINTENDENCE BY CONTRACTOR

14.1 The Contractor shall give his personal superintendence to the Work or have a competent foreman or superintendent, hereinafter designated his authorized representative, satisfactory to the Owner, on the Work Site at all times during progress, with authority to act for him. There shall be provided at all times, a reasonable method of communication directly to the Contractor if the Owner experiences any problems or difficulties with the Superintendent.

ARTICLE 15 INSPECTION/TESTING

15.1 Work (which term includes but is not restricted to materials, workmanship and manufacture and fabrication of components) will be subject to inspection and test by the Project Manager at all reasonable times and at all places prior to acceptance. Such inspection and test is for the sole benefit of the Owner and shall not relieve the Contractor of the responsibility of providing quality control measures to assure that the Work strictly complies with the Contract Documents. No inspection or test by the Project Manager shall be construed as constituting or implying acceptance. Inspection or test shall not relieve the Contractor of responsibility for damage to or loss of the material prior to acceptance, nor in any way affect the continuing rights of the Owner after acceptance of the completed Work.

15.2 The Contractor shall, at his own expense, replace any material or correct any workmanship found not to conform to the contract requirements, unless the Owner consents in writing to accept such material or workmanship with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises at his own expense.

15.3 If the Contractor does not promptly replace rejected material or correct the rejected workmanship, the Owner (1) may, by separate contract or otherwise, replace such material or correct such workmanship and charge the cost thereof to the Contractor, or (2) may terminate the Contractor's right to proceed in accordance with Article 38, TERMINATION FOR DEFAULT-DAMAGES FOR DELAY--TIME EXTENSIONS.

15.4 The Contractor shall give the Project Manager ample notification of inspections and tests, and the Project Manager will perform, except as otherwise specifically provided, said inspections and tests in such manner as not to unnecessarily delay the work. The Owner will have the right to charge to the Contractor any additional cost of inspection or test or when reinspection or retest is necessitated by prior rejection.

15.5 Should it be considered necessary, before acceptance of the entire work, to make an examination of work already completed by removing or tearing out same, the Contractor shall on request promptly furnish all necessary facilities, labor and material therefore. If such work is found to be defective or nonconforming in any material respect, due to the fault of the Contractor or his subcontractors, he shall defray the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, an equitable adjustment will be made in the contract price to compensate the Contractor for the additional services involved in such examination and reconstruction. If completion for the work has been delayed thereby, he will, in addition, be granted an equitable extension of time.

15.6 The Project Manager shall have access to the work during its construction. Work done and materials provided will be subject to the Project Manager's on-site and off-site inspection and approval. When work is to be performed during hours other than during his normal schedule, the Contractor shall so advise the Project Manager not less than 24 hours in advance. The Contractor shall provide access to the work for authorized representatives of the Owner.

15.7 The Project Manager's inspection and approval of work or materials shall not relieve the Contractor of any of his obligations to fulfill the requirements of the Contract Documents. Work and materials not meeting the requirements of the Contract shall not be incorporated in the Work. Unsuitable or substandard work or materials may be rejected by the Project Manager, notwithstanding that such work or materials may have been previously inspected by the Project Manager, or that payment therefore has been included in a progress payment.

ARTICLE 16 PERMITS AND COMPLIANCE WITH LAWS

16.1 The Contractor shall without additional expense to the Owner be responsible for obtaining necessary licenses and permits and for complying with applicable Federal, State, County and Municipal laws, codes and regulations in connection with the commencement of the work. The Contractor is required to supply the Project Manager with complete and final copies of license and permits including final inspection documentation. The Contractor shall be required to obtain permits at his own expense. The Contractor shall protect, indemnify and hold harmless the Owner and the Project Manager and their members, officers, agents and employees against claims and liabilities arising from or based on the violation of requirements of law or permits whether by the Contractor, his employees, agents or subcontractors.

**ARTICLE 17
RIGHTS IN LAND IMPROVEMENT**

17.1 The Contractor shall make no arrangements with any person to permit occupancy or use of any land, structure or building within the work site for any purpose whatsoever, either with or without compensation, in conflict with any agreement between the Owner and any owner, former owner or tenant of such land, structure or building. The Contractor shall not occupy Owner property outside the work site without obtaining prior written approval from the Owner.

**ARTICLE 18
DAMAGE TO THE WORK AND RESPONSIBILITY FOR MATERIALS**

18.1 The Contractor shall be responsible for materials delivered and work performed until completion and final acceptance of the entire construction thereof.

18.2 The Contractor shall bear the risk of injury, loss or damage to any and all parts of the work for whatever cause, whether arising from the execution or from the non-execution of work. The Contractor shall rebuild, repair or restore work and materials which have been damaged or destroyed from any cause before completion and acceptance of the work and shall bear the expense thereof. The Contractor shall provide security and drainage and erect temporary structures as necessary to protect the work and materials from damage.

18.3 The Contractor shall be responsible for materials not delivered to the site for which any progress payment has been made to the same extent as if the materials were so delivered.

**ARTICLE 19
EMERGENCIES**

19.1 In an emergency affecting the safety of life, the work, or adjacent property, the Contractor shall notify the Project Manager as early as possible that an emergency exists. In the meantime, without special instruction from the Project Manager as to the manner of dealing with the emergency, the Contractor shall act at his own discretion to prevent such threatened loss or injury. As emergency work proceeds, the Project Manager may issue instruction, which the Contractor shall follow. The amount of compensation to which Contractor is entitled on account of emergency work will be determined in accordance with Article 28, CHANGES.

**ARTICLE 20
NOTICE TO PROCEED**

20.1 The Owner will issue a Notice to Proceed to the Contractor within 15 days after the Contractor has executed the Contract and has delivered the specified bonds and Certificates of Insurance as required by the Owner. Except as specifically authorized in writing by the Owner, the Contractor is not authorized to perform work under the Contract until the effective date of the Notice to Proceed. Within 10 days after the effective date of such Notice to Proceed, the Contractor shall

commence work and shall diligently prosecute the Work to completion within the time limits specified. These time periods may be modified by mutual written agreement of both the Owner and Contractor.

ARTICLE 21 PROGRESS SCHEDULE AND REQUIREMENTS FOR MAINTAINING PROGRESS

21.1 The Contractor shall, at the pre-construction meeting, prepare and submit to the Project Manager for approval a practicable schedule, showing the order in which the Contractor proposes to carry on the work, the date on which he will start the several salient features (including procurement of materials, plant and equipment) and the contemplated dates for completing the same. The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion at any time. The Contractor shall update the chart with the actual progress monthly or at such intervals as directed by the Project Manager, and shall immediately deliver three copies thereof. If the Contractor fails to submit a progress schedule within the time herein prescribed, the Project Manager may withhold approval of progress payment estimates until such time as the Contractor submits the required progress schedule.

21.2 The Contractor shall prosecute the work in accordance with the latest approved Progress Schedule. In the event, that the progress of items along the critical path is delayed, the Contractor shall revise his planning to include additional forces, equipment, shifts or hours as necessary to meet the time or times of completion specified in this Contract. Additional costs resulting therefrom will be borne by the Contractor. The Contractor shall make such changes when his progress at any check period does not meet at least one of the following two tests:

21.2.1 The percentage of dollar value of completed work with respect to the total amount of the Contract is within ten percentage points of the percentage of the Contract time elapsed, or;

21.2.2 The percentage of dollar value of completed work is within ten percentage points of the dollar value which should have been performed according to the Contractors own network analysis previously approved by the Project Manager.

21.3 Failure of the Contractor to comply with the requirements under this provision will be grounds for determination that the Contractor is not prosecuting the work with such diligence as will ensure completion within the time of completion specified in this Contract. Upon such determination, the Owner may terminate the Contractor's right to proceed with the work, or any separate part thereof, in accordance with Article 38, TERMINATION FOR DEFAULT--DAMAGES FOR DELAY-TIME EXTENSIONS of these General Conditions.

ARTICLE 22 SUSPENSION OF WORK

22.1 The Owner reserves the right to suspend, delay or interrupt execution of the whole or any part of the work for such period of time as he may determine to be appropriate for his convenience.

22.2 If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted by an act of the Owner in the administration of this Contract or by his failure to act within the time specified in this Contract (or if no time is specified, within a reasonable time), an adjustment shall be made for any increase in the cost of performance of this Contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent (1) that performance would have been so suspended, delayed or interrupted by any other cause, including the fault or negligence of the Contractor or (2) for which an equitable adjustment is provided for or excluded under any other provision of this Contract.

22.3 No claim under this clause shall be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Owner in writing of the act of failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim, in an amount stated is asserted in writing as soon as practicable after the termination of such suspension, delay, or interruption, but not later than the date of final payment under the Contract.

ARTICLE 23 FINAL INSPECTION AND ACCEPTANCE

23.1 Final inspection: When the Contractor notifies the Project Manager in writing that the work has been completed, the Owner will make the final inspection for the purpose of ascertaining that the work has been completed in accordance with the requirements of the Contract Documents.

23.2 Acceptance of the work: When the Owner has made the final inspection and has determined that the work has been completed in accordance with the Contract Documents, the Owner will accept the work. Immediately upon and after Final Acceptance, the Contractor will be relieved of the duty of maintaining and protecting the work as a whole. The Contractor will be relieved of his responsibility for injury to persons or property or damage to the work which occurs after Final Acceptance, except that the Contractor will not be relieved of his responsibility for injury to persons or property arising from his duties and obligations under Article 4, LIABILITY AND INDEMNIFICATION.

23.3 Final Acceptance shall be final and conclusive, and no further performance of work shall be required except with regards to latent defects, fraud or such gross mistakes as may amount to fraud, or with regard to the Owner's rights under any warranty or guarantee. All punch list items must be completed and building permits provided to Owner before final acceptance is issued.

23.4 Date of Substantial Completion for all Work shall be within the number of calendar days bid by the Contractor on the Bid proposal.

23.5 Date of Final Completion shall be the date specified on the Certificate of Final Completion.

**ARTICLE 24
PROGRESS PAYMENTS**

24.1 The Owner will make progress payments monthly as the work proceeds, on estimates approved by the Project Manager. Payment will be made within 15 days after progress estimates are approved by the Project Manager and Department Head. On request of the Project Manager, the Contractor shall furnish a detailed estimate of the total contract price each showing the amount included therein for each principal category of the work, to provide a basis for determining the amount of progress payments. In the preparation of estimates, the Owner, at its sole discretion, may authorize material delivered on the site and preparatory work done to be taken into consideration which is to be submitted at the pre-construction meeting.

24.2 In making such progress payments, five percent of the estimated amount will be retained until Final Acceptance of the Contract work; in addition, the Owner shall retain from all Progress payments an amount equal to all statutory claims filed against the Contractor. Also, whenever the work is substantially complete, the Owner if it considers the amount retained to be in excess of the amount adequate for its protection, may release to the Contractor all or a portion of such excess amount. Substantial completion as used in this Paragraph 24.2 shall mean the following: Substantial completion of the work or a portion thereof shall be when, as determined by both the Project Manager and the Owner, the construction is sufficiently completed in accordance with the Contract Documents and any modification thereto as provided in the Contract to permit the Owner to occupy the work or a portion of the work for the use which it is intended.

24.3 Material and work covered by progress payments shall become the sole property of the Owner. This provision shall not be construed as relieving the Contractor from the sole responsibility for material and work upon which payments have been made, the restoration of damaged work or as waiving the right of the Owner to require the fulfillment of the terms of the Contract.

**ARTICLE 25
PAYMENT TO SUBCONTRACTORS**

25.1 The Contractor shall pay all subcontractors for and on account of work performed by such subcontractors in accordance with the terms of their respective subcontract. Prior to final payment an unconditional lien waiver release form will be required by the Owner.

**ARTICLE 26
PAYMENT OF TAXES**

26.1 The price or prices for the work will include full compensation for taxes that the Contractor is or may be required to pay. The Contractor shall bear the risk of any added or increased taxes occurring during the prosecution of the work. A change in taxes shall under no circumstances entitle the Contractor to an adjustment under the Contract.

26.2 The Contractor's attention is directed to the fact that this project is exempt from payment of City of Greeley Sales and Use taxes, and such taxes must not be included in the amount of bid.

26.3 The Contractor shall pay all sales and use taxes required to be paid, shall maintain such records in respect of his work, which shall be separate and distinct from all other records maintained by the Contractor and shall be available for inspection by the Owner at any and all reasonable times, and shall furnish the Owner with such data, as may be necessary to enable the Owner to obtain any refunds of such taxes which may be available to the Owner under the laws, ordinances, rules or regulations applicable to such taxes. The Contractor shall require each of his subcontractors to pay all sales and use taxes required to be paid and to maintain such records and furnish the Contractor with such data as may be necessary to enable the Owner to obtain a refund of the taxes paid by such subcontractors.

ARTICLE 27 FINAL PAYMENT

27.1 After the Work has been accepted by the Owner, subject to the provisions of Article 11, WARRANTY OF WORK and Article 23, FINAL INSPECTION AND ACCEPTANCE of these General Conditions, a final payment due the Contractor under this Contract shall be paid upon the presentation of properly executed voucher and after the Contractor shall have furnished the Owner with a release of all claims against the Owner arising by virtue of this Contract, other than claims in stated amounts as may be specifically excepted by the Contractor from the operation of the release. If the Contractor's claim to amounts payable under the contract has been assigned under the assignment of Claims Act of 1940, as amended (31 U.S.C. 203, 41 U.S.C. 15), a release may also be required of the assignee.

27.2 If any mechanic's or material man's lien or notice of claim of such lien is filed or recorded against the project for labor, materials, supplies or equipment claimed to have been furnished to or incorporated into the Work, or for other alleged contribution thereto, the Owner will have the right to retain from payments otherwise due the Contractor, in addition to other amounts properly withheld under this Article or under other provisions of the Contract, an amount equal to such lien or liens claimed.

27.3 Further, the Owner will have the right to retain from final payment an amount equal to all liquidated damages claimed by the Owner.

27.4 Retainages held by the Owner for any state or federal statutory claim arising out of the project will be held by the Owner in addition to all retainages held under the provisions of the Contract.

ARTICLE 28 CHANGES

28.1 The Owner may, at any time, without notice to the sureties, by written notice or order designated or indicated to be a Change Notice or Change Order, make any change in the work within the general scope of the Contract in accordance with all of the Owner's processes and procedures whether or not set forth herein, including but not limited to changes:

28.1.1 In the Contract (including drawings and designs);

28.1.2 In the method or manner of performance of the work;

28.1.3 In Owner furnished facilities, equipment, materials, services, or site; or

28.1.4 Directing acceleration in performance of the work.

28.2 Any other order (which terms as used in Paragraph 28.2 of this Article shall include direction, instruction, interpretation, or determination) from the Project Manager, which causes any change, shall be treated as a Change Notice under this Article provided that the Contractor gives the Project Manager written notice stating the date, circumstances and source of the order, and that the Contractor regards the order as a Change Notice. The Contractor shall notify the Project Manager when he receives direction, instruction, interpretation or determination from any source which may cause any change in the work. Such notification shall be given to the Project Manager before the Contractor acts on said direction, instruction, interpretation or determination.

28.3 Except as herein provided, no order, statement, or conduct of the Architect/ Project Manager or any other person shall be treated as a change under this Article or entitle the Contractor to an equitable adjustment hereunder.

28.4 If any change under this Article causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the Work under this Contract, whether or not changed by an order, an equitable adjustment will be made and the Contract modified accordingly by a written Change Order; provided, however, that except for claims based on errors in the Contract Documents, no claim for change under Paragraph 28.2 of this Article will be allowed for costs incurred more than 20 days before the Contractor gives written notice as herein required; and provided that in the case of errors in the Contract Documents for which the Owner is responsible, the adjustment will include increased cost, reasonably incurred by the Contractor in attempting to comply with such errors in the Contract Documents. No claim shall be made for the type of errors in the Contract Documents which are set forth in Article 2, INTERPRETATION.

28.5 If the Contractor intends to assert a claim for an equitable adjustment under this Article, he shall, within 30 days after receipt of a written Change Order under Paragraph 28.1 of this Article or the furnishing of a written notice under Paragraph 28.2 of this Article, submit to the Project Manager a written statement setting forth the general nature and monetary extent of such claim, unless this period is extended in writing by the Owner. The statement of claim hereunder may be included in the notice under Paragraph 28.2 of this Article.

28.6 No claim by the Contractor for an equitable adjustment hereunder will be allowed unless asserted as described in Paragraphs 28.4 and 28.5 above.

28.7 Payment will not be made under the provisions of this Article for such work or materials which are so required to be done or furnished in or about or for the performance of the Work and which are not mentioned, specified or indicated or otherwise provided for in this Contract or in the Contract Documents so far as such work or materials may be, in the opinion of the Project Manager, susceptible of classification under or reasonably inferred to be included in the Bid Items of the Bid Form.

28.8 In case the Contractor is ordered to perform work under this Article for which payments are not determined under Paragraph 28.7 of this Article, which in the opinion of the Owner it is impracticable to have performed by the Contractor's own employees, the Contractor will, subject to the approval of the Owner, be paid the actual cost to him of such work and, in addition thereto, a negotiated amount to cover the Contractor's superintendence, administration and other overhead expenses. The terms and conditions of any subcontract which the Contractor may propose to enter into in connection with work under the provision of this Article shall be subject to the written approval of the Project Manager before such subcontract is made. The contractor shall be responsible for the work of the subcontractors and shall be liable therefore as if he had performed the work directly.

28.9 In cases other than those described in Paragraphs 28.7 and 28.8 above, the Owner and the Contractor (on his own behalf and on behalf of his subcontractors) shall endeavor to negotiate a reasonable contract price and line adjustment in a Change Order on terms appropriate to the changed work. The Contractor will be required to submit a sufficiently detailed price proposal supported with sufficient documentation that (1) the Owner can determine that the proposal reflects all impacts on the Contract from work additions, deletions and modifications shown in the Change Notice being priced, (2) the proposed prices are set out in such a way that their reasonableness can be evaluated against prices based on adequate price competition, bid unit prices, established catalog or market prices of commercial items sold in substantial quantities to the general public, prices set by law or regulation, recognized published price lists and indices, independently developed cost estimates and other appropriate price comparisons, and (3) contract provisions relating to Contract changes costing over \$100,000.00 are complied with. If any prices or other aspects are conditional, such as on firm orders being made by a certain date or the occurrence or nonoccurrence of an event, the Contractor shall identify these aspects in his proposal. A negotiated Change Order shall set out prices, scheduling requirements, time extensions and all costs of any nature arising out of the issuance of a Change Notice except for those cost and time aspects explicitly reserved on the face of the Change Order. Except for these explicit reservations, the execution of a Change Order by both parties will be deemed accord and satisfaction of all claims of any nature arising from the issuance of the Change Notice negotiated.

28.10 In the event the Contractor and the Owner are unable to agree upon the Contractor's entitlement to an equitable adjustment or upon the amount thereof, or in the event that it is in the best interest of the Owner to have the Work proceed pending negotiation of amount of an equitable adjustment, the Owner may direct the Contractor to perform the Work in accordance with the Owner order, direction, instruction, interpretation, or determination, with any Contract price adjustments and progress payments for the Work to be determined on a Force Account basis in accordance with

Article 36. The Contractor shall continue diligently to perform the Contract in accordance with the Owner's order, direction, instruction, interpretation, or determination during negotiations with respect to the Contractor's entitlement to an equitable adjustment hereunder or to the amount of any Contract price adjustment or time extension. The Contractor and the Owner may agree on certain aspects of an equitable adjustment and take those aspects out of operation of Force Account provisions. In the event a mutually agreeable equitable adjustment cannot be made, the Contractor shall continue diligently to perform the orders as he proceeds with his remedies under Article 35, DISPUTES, and shall continue to receive compensation on a Force Account basis.

28.11 For contract changes, the Owner, State and Government or their representative shall have the audit and inspection rights as described below:

28.11.1 Where the agreed payment method for any contract changes is to be by cost reimbursement, time and material, labor hours or any combination thereof, the Contractor shall maintain and the Owner or its representatives shall have the right to examine books, records, documents and other evidence and accounting principles and practices sufficient to reflect properly all direct and indirect costs of whatever nature claimed to have been incurred and anticipated to be incurred for the performance of the contract changes under this sub article.

28.11.2 Contract changes exceeding \$100,000.00 in cost: For submitted cost and pricing data in connection with pricing a contract modification referred to in this sub article, unless such pricing is based on bid unit prices, adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the public, or prices set by law or regulation, the Owner or his representatives and the Comptroller General of the United States and his representatives who are employees of the United States shall have the right to examine all books, records, documents and other data of the Contractor related to the negotiation of or performance under the contract Change Orders for the purpose of evaluating the accuracy, completeness and currency of the cost or pricing data submitted. The right of examination shall extend to all documents necessary to permit adequate evaluation of the cost or pricing data submitted, along with the computations and projections used therein.

28.11.3 Contract changes exceeding \$10,000.00 but not \$100,000.00 in cost: The Owner or his representatives prior to the execution of any contract Change Order in this sub article or for a period of twelve months after execution shall, unless such pricing is based on bid unit prices, adequate price competition, established catalog of market prices or commercial items sold in substantial quantities to the public, or prices set by law or regulation, have the right to examine all books, records, documents, and other data of the Contractor relating to the negotiation and contract Change Order for the purpose of evaluating the accuracy, completeness, and currency of the data is submitted upon which negotiation is or has been based. To the extent the examination reveals inaccurate, incomplete or noncurrent data, the Project Manager may renegotiate the contract Change Order price based on such data.

28.11.4 Contract changes of less than \$10,000.00 in cost: The Owner may require from the Contractor appropriate documentation to support the prices being negotiated for contract changes

under this sub article, and may refuse to complete negotiations until satisfactory documentation is submitted.

28.11.5 Availability: The materials described in Paragraphs 28.11.1 and 28.11.2 above shall be available at the office of the Contractor at all reasonable times for inspection, audit or reproduction until three years from the date of final payment under this Contract and for records which relate to Article 35, DISPUTES, or litigations or the settlement of claims arising out of the negotiation or the performance of contract changes over 100,000.00, records shall be made available until such litigations or claims have been resolved.

28.11.6 The Contractor shall insert a clause containing all the provisions in this Paragraph 28.11, including this subparagraph 28.11.6, in all subcontracts hereunder except altered as necessary for proper identification of the contracting parties and Owner.

28.11.7 For the purposes of Paragraph 28.11 of this Article, costs shall include liquidated damages which would be assessed if extension(s) of time were not granted by contract Change Order.

28.11.8 The requirements of this audits and records article are in addition to other audit, inspection and record keeping provisions elsewhere in the Contract Documents.

28.12 Changes involving aggregate increases and decreases in excess of \$100,000.00 shall be subject to the following:

28.12.1 A change involves aggregate increases and decreases in excess of \$100,000.00 if the total value of work affected, without regard to the arithmetic sign, exceeds this amount; for example, a change order adding work in the amount of \$75,000.00 and deleting work in the amount of \$50,000.00 will be considered to involve aggregate increases and decreases of \$125,000.00.

28.12.2 The Contractor shall submit in support of all items not based upon unit prices or lump sum prices contained in the Contract or upon the established prices at which commercial items are sold in substantial quantities to the public, statements by his vendors that the prices charged the Contractor are not greater than the prices charged by the respective vendors to their most favored customers for the same items in similar quantities.

28.12.3 Price reductions for Defective Cost or Pricing Data--Pricing Adjustments: If any price, including profit and fee, negotiated in connection with any price adjustment was increased by any significant sums because:

28.12.3.1 The Contractor furnished cost or pricing data which were not complete, accurate, and current as certified in the Contractor's Certificate of Current Cost or Pricing Data;

28.12.3.2 A subcontractor, pursuant to Paragraph 28.13 of this Article entitled Subcontractor Cost or Pricing Data--Pricing Adjustments or any subcontract provision therein required, furnished costs or pricing data which were not complete, accurate, and current as certified in the Subcontractor's Certificate of Current Cost or Pricing Data;

28.12.3.3 The subcontractor or his prospective subcontractor furnished cost or pricing data which were required to be complete, accurate, and current and to be submitted to support a subcontract cost estimate furnished by the Contractor but which were not complete, accurate, and current as of the date certified in the Contractor's Certificate of Current Cost or Pricing Data; or

28.12.3.4 The Contractor or a subcontractor or his prospective subcontractor furnished any data, not within subparagraphs 28.12.3.1, 28.12.3.2, or 28.12.3.3 above, which were not complete, accurate, and current as submitted, the price shall be reduced accordingly and the Contract shall be modified in writing as may be necessary to reflect such reduction. Any reduction in the Contract Price due to defective subcontract data of a prospective subcontractor, when the subcontract was not subsequently awarded to such subcontractor, will be limited to the amount (plus applicable overhead and profit markup) by which the actual subcontract, or actual cost to the Contractor if there was no subcontract, was less than the prospective subcontract cost estimate submitted by the Contractor, provided the actual subcontract price was not affected by defective cost or pricing data.

28.13 Subcontract Cost of Pricing Data-- Pricing Adjustment:

28.13.1 When negotiating a change involving increases or decreases in excess of \$100,000.00, the Contractor shall require subcontractors hereunder to submit cost or pricing data under the following circumstances. Prior to award of any cost-reimbursement type, incentive or price redeterminable subcontract;

28.13.1.2 Prior to the award of any subcontract the price of which is expected to exceed \$100,000.00;

28.13.1.3 Prior to the pricing of any subcontract change modifications for which the price is expected to exceed \$100,000.00, except in the case of 28.13.1.2 and 28.13.1.3 where the price is based on adequate price competition, established catalog or market prices, commercial items sold in substantial quantities to the general public, or prices set by law or regulation.

28.13.2 The Contractor shall require subcontractors to certify to the best of their knowledge and belief that the cost and pricing data submitted under subparagraph 28.13.1 of this Article are accurate, complete, and current as of the date of execution, which date shall be as close as possible to the date of agreement on the negotiated price of the contract Change Order.

28.13.3 The Contractor shall insert the substance of Paragraph 28.13 of this Article, including this subparagraph 28.13.3, in each subcontract hereunder which exceeds \$100,000.00.

ARTICLE 29

PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

29.1 The Contractor shall furnish a Performance Bond in the amount equal to one hundred percent (100%) of the Contract Sum as security for the faithful performance of this Contract and also a Labor and Material Payment Bond in an amount not less than one hundred percent (100%) of the

Contract Sum or in a penal sum not less than that prescribed by State, or local law, as security for the payment of all persons performing labor on the Project under this Contract and furnishing materials in connection with this Contract. The Performance Bond and the Labor and Material Payment Bond may be in one or in separate instruments in accordance with local law and shall be delivered to the Owner not later than the date of execution of the Contract.

29.2 Performance Bonds, Labor and Material Payment Bonds and other such sureties shall provide that the surety and the Contractor are both jointly and severally liable and obligated under respective Bond or other surety agreement and shall incorporate acknowledge of applicable provisions of state law into all documents furnished in connection with the project.

ARTICLE 30 DIFFERING SITE CONDITIONS

30.1 The Contractor shall within 10 days of actual or constructive notice of a differing site condition, promptly, and before such conditions are disturbed, notify the Project Manager in writing of: (1) subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents, or (2) unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract. The Project Manager will promptly investigate the conditions, and if such conditions materially differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the work under the Contract, whether or not changed as a result of such conditions, an equitable adjustment may be made subject to Owner's approval and the Contract modified in writing accordingly.

30.2 No claim of the Contractor under this Article will be allowed unless the Contractor has given the notice required in Paragraph 30.1 of this Article.

30.3 No claim by the Contractor for an equitable adjustment hereunder will be allowed if asserted after final payment under this Contract.

ARTICLE 31 CONTRACTOR PROPOSALS

31.1 The Contractor may at any time submit to the Project Manager for his review proposed modifications to the Contract Documents, supported by a cost/price proposal. Upon acceptance of the proposed modifications by the Owner, a Change Order will be issued. Denial of the proposed modification will neither provide the Contractor with any basis for claim for damages nor release the Contractor from contractual responsibilities. An equitable adjustment in the form of a contract price reduction will be made if the change results in a reduction of the cost of performance and the Contractor will not be entitled to share in said savings unless the proposal is made under Paragraph 31.2 of this Article. Except as provided in Paragraph 31.2 of this Article, the Contractor will not be compensated for any direct, incidental or collateral benefits or savings the Owner receives as a result of the proposal.

31.2 Value Engineering Change Proposals: The Contractor may submit to the Project Manager one or more cost reduction proposals for changing the Contract requirements. The Proposals shall be based upon a sound study made by the Contractor indicating that the proposal:

31.2.1 Will result in a net reduction in the Total Contract amount;

31.2.2 Will not impair any essential function or characteristic of the Work such as safety, service life, reliability, economy of operation, ease of maintenance and necessary standardized features.

31.2.3 Will not require an unacceptable extension of the contract completion time; and

31.2.4 Will require a change in the Contract Documents and such change is not already under consideration by the Owner.

31.3 The Owner may accept in whole or in part any proposal submitted pursuant to the previous Paragraph 31.2 by issuing a Change Order which will identify the proposal on which it is based. The Change Order will provide for an equitable adjustment in the Contract Price and will revise any other affected provisions of the Contract Documents. The equitable adjustment in the Contract price will be established by determining the net savings resulting from the accepted change. The net savings resulting from the change will be shared between the Contractor and the Owner on the basis of 50 percent for the Contractor and 50 percent for the Owner and will be limited to this contract for any one Value Engineering Change Proposal. Net savings will be determined by deducting from the estimated gross savings, the Contractor's costs of developing and implementing the proposal (including any amount attributable to a subcontractor) and the estimated amount of increased costs to the Owner resulting from the change, such as evaluation, implementation, inspection, related items, and the Owner-furnished material. Estimated gross savings will include Contractor's labor, material, equipment, overhead, profit and bond. The Contract price will be reduced by the sum of the Owner's costs and share of the net savings. For the purpose of this Article, the applicable provisions of Article 28, CHANGES, shall be used to determine the equitable adjustment to the Contract price.

31.4 The Owner will not be liable for delay in acting upon, or for failure to act upon, any proposal submitted pursuant to Paragraph 31.2 of this Article. The decision of the Owner as to the Acceptance or rejection of any such proposal under the Contract will be final. The submission of a proposal by the Contractor will not in itself affect the rights or obligations of either party under the Contract.

31.5 The Contractor shall have the right to withdraw part or all of any proposal he may make under Paragraph 31.2 of this Article at any time prior to acceptance by the Owner. Such withdrawal shall be made in writing to the Project Manager. Each such proposal shall remain valid for a period of 60 days from the date submitted. If the Contractor wishes to withdraw the proposal prior to the expiration of the 60-day period, he will be liable for the cost incurred by the Owner in reviewing the proposal.

31.6 The Contractor shall specifically identify any proposals under Paragraph 31.2 of this Article with the heading "Value Engineering Change Proposal", or the proposal will be considered as made under Paragraph 31.1 of this Article.

31.7 The Contractor, in connection with each proposal he makes for a Contract Change Notice under this Article shall furnish the following information:

31.7.1 a description of the difference between the existing Contract requirement and the proposed change, and the comparative advantages and disadvantages of each, justification when a function or characteristic of an item is being altered, and the effect of the change on the performance of the end item;

31.7.2 an analysis and itemization of the requirements of the Contract which must be changed if the Value Engineering Change Proposal is accepted and a recommendation as to how to make each such change (e.g., a suggested specification revision);

31.7.3 a separate detailed cost estimate for both the existing Contract requirement and the proposed change to provide an estimate of the reduction in costs, if any, that will result from acceptance of the Value Engineering Change Proposal taking into account the costs of development and implementation by the Contractor;

31.7.4 a prediction of any effects the proposed change would have on collateral costs to the Owner such Government-furnished property costs, costs of related items, and costs of maintenance and operation;

31.7.5 a statement of the time by which a contract modification accepting the Value Engineering Change Proposal must be issued so as to obtain the maximum cost reduction, noting any effect on the contract completion time or delivery schedule; and

31.7.6 identification of any previous submission of the Value Engineering Change Proposal to the Owner, including the dates submitted, the numbers of contracts involved, and the previous actions by the Owner, if known.

ARTICLE 32 EXTENSION OF TIME

32.1 In addition to the provisions stated in Article 38, the Contractor will be granted an extension of time and will not be assessed liquidated damages for any portion of the delay in completion of the Work, performed under the latest approved progress schedule, arising from acts of God, war, fires, floods, epidemics, quarantine restrictions, freight embargoes, or weather more severe than the norm, provided that the aforesaid causes were not foreseeable and did not result from the fault or negligence of the Contractor, and provided further that the Contractor has taken reasonable precautions to prevent further delays owing to such causes, and has notified the Project Manager in writing of the cause or causes of delay within five days from the beginning of any such delay. Within 15 days after the end of the delay, the Contractor shall furnish the Project Manager with detailed

information concerning the circumstances of the delay, the number of days actually delayed, the appropriate Contract Document references, and the measures to be taken to prevent or minimize the delay. Failure to submit such information will be sufficient cause for denying the delay claims. The Owner will ascertain the facts and the extent of the delay, and its findings thereon will be final and conclusive to provisions under Article 35, DISPUTES. The extension of time granted for these reasons shall not be the basis for additional compensation for any costs incurred during the time of delay.

32.1.1 Every effort shall be made by the Contractor to complete the project within the "Contract Time". The "Contract Time" anticipates "Normal" weather and climate. The Contractor's schedule must anticipate normal adverse weather delays on all weather dependent activities. The following specifies the procedure for determining time extensions for unusually severe weather. Listed below are the anticipated numbers of calendar days lost to normal adverse weather for each month.

Monthly Anticipated Calendar Days Lost to Adverse Weather Conditions

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC (7) (4) (4) (4) (6) (3) (4)
(2) (3) (3) (2) (5)

The above schedule of anticipated adverse weather days will constitute the base line for monthly (or portion thereof) weather time evaluations. It is assumed that the work will be carried out Mondays through Fridays (holidays excepted) unless and approved construction schedule or written authorization from the Owner indicates otherwise.

An actual adverse weather day must prevent work for 50 percent or more of the Contractor's workday. When the Contractor anticipates documenting a weather day, he/she shall first notify the Project Manager or his/her designee observing the construction to determine whether or not work can proceed or if work is delayed due to adverse weather or the effects thereof. If in agreement, the Contractor shall formally request a weather day in writing to the Owner's Project Manager or his/her designee. The Contractor shall also notify the Owner's Project Manager in writing or his/her designee of any disagreement as to whether or not work could have proceeded on a given date within 2 calendar days of that date. The final decision regarding an adverse weather day will be made by the Project Manager or his/her designee.

The number of workdays delayed due to adverse weather or the effects thereof will then be converted to Calendar Days. Weekends and holidays will only count as calendar day delays if a workday delayed due to adverse weather is counted before and after the weekend/holiday. The number of calendar days of delay due to adverse weather or the impact thereof will then be compared to the monthly adverse weather schedule above. The Contract time period will then be increased by change order for the number of calendar days that are in excess of the above schedule and a new Contract Completion day and date will be set.

32.1.2 An extension of time will not be granted for a delay caused by a shortage of materials, except Owner-furnished materials, unless the Contractor furnishes to the Project Manager documentary

proof that he has diligently made every effort to obtain such materials from every known source within reasonable reach of the Work. The Contractor shall also submit proof that the inability to obtain such materials when originally planned did in fact cause a delay in final completion of the Work which could not be compensated for by revising the sequence of his operations. Only the physical shortage of material will be considered under these provisions as a cause for extension of time. No consideration will be given to any claim that material could not be obtained at reasonable, practical, or economical costs, unless it is shown to satisfaction of the Project Manager that such material could have been obtained only at exorbitant prices, entirely inconsistent with current rates taking into account the quantities involved and the usual practices in obtaining such quantities.

32.2 A Change Order will be furnished to the Contractor within a reasonable period of time after approval of a request for extension of time, specifying the number of days allowed, if any, and the new date for completion of the Work or specified portions of the Work.

32.3 See also Article 38, TERMINATION FOR DEFAULT--DAMAGES FOR DELAY--TIME EXTENSIONS.

ARTICLE 33 NOTICE OF POTENTIAL CLAIM

33.1 The Contractor will not be entitled to additional compensation otherwise payable for an act or failure to act by the Owner, the happening of any event or occurrence, or any other cause, unless he shall have given the Project Manager a written notice of potential claim therefore as specified in this Article.

33.2 The written notice of potential claim shall set forth the reasons for which the Contractor believes additional compensation will or may be due, the nature of the costs involved, and insofar as possible, the amount of the potential claim. If based on an act or failure to act by the Owner, such notice shall be given to the Project Manager prior to the time that the Contractor has started performance of work giving rise to the potential claim for additional compensation. Notice shall be given within five days after the happening of the event or occurrence giving rise to the potential claim.

33.3 It is the intention of this Article that differences between the parties arising under and by virtue of the contract shall be brought to the attention of the Project Manager at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly taken.

33.4 The notice requirements of this Article are in addition to those required in other Articles of the General Conditions.

ARTICLE 34 SUBMITTAL OF CLAIMS

34.1 Claims filed by the Contractor shall contain sufficient detail to enable the Owner to ascertain the basis and amount of said claims. The Owner will review and evaluate the Contractor's claims. It will be the responsibility of the Contractor to furnish when requested by the Project

Manager such further information and details as may be required to determine the facts or contention involved in his claims. Failure to submit such information and details will be sufficient cause for denying the Contractor's claims.

34.2 Each claim the Contractor may make for equitable adjustment on account of delay for any cause shall be accompanied by a progress schedule reflecting the effects of the delay and proposals to minimize these effects. If no progress schedule has been submitted to the Project Manager reflecting conditions prior to the delay for which relief is sought, then a progress schedule so reflecting these conditions shall be prepared and submitted with the claim.

34.3 Depending upon the grounds for relief and the nature of relief sought, additional submittals and conditions upon submitting claims may be required elsewhere in these General Conditions.

34.4 In no event shall claims be made after final payment is made under Article 27, FINAL PAYMENT, of these General Conditions.

34.5 Inasmuch as notice of potential claim requirements of Article 33, NOTICE OF POTENTIAL CLAIM, are intended to enable the Project Manager to investigate while facts are fresh and to take action to minimize or avoid a claim which might be filed thereafter, the Contractor's failure to make the required notice on time is likely to disadvantage the Owner. Therefore no claim for which a notice of potential claim is required will be considered unless the Contractor has complied with the notice of Article 33, NOTICE OF POTENTIAL CLAIM.

ARTICLE 35 DISPUTES

35.1 General: Notwithstanding any other provisions of this Contract, disputes and disagreements by and between the Owner and the Contractor shall be resolved through progressive, sequential process of negotiation, mediation, and in certain cases, arbitration. For contracts which are for \$250,000 or less, amounts in dispute which are less than \$10,000 shall not progress beyond negotiation and shall ultimately be decided by the Owner if not by mutual agreement. For contracts which are for more than \$250,000, amounts in dispute which are less than \$25,000 should not progress beyond negotiation. For all contracts, amounts in dispute greater than those amounts set forth above, but less than \$100,000 shall be resolved through a sequential process of negotiation, mediation, and binding arbitration. Amounts in dispute which are \$100,000 or more shall be resolved through a sequential process of negotiation, mediation, and thence either arbitration or litigation.

35.2 Negotiation: In the event of disputes, unsettled claims, questions or disagreements between the contractor and the City relating to or arising out of the provisions of this Contract, the representatives of those parties shall meet promptly in recognition of mutual interests and in a good faith effort to resolve the dispute. Either the Contractor or the City shall arrange for this meeting at a time and place within the City of Greeley, mutually acceptable to both parties, within fifteen (15) days of notification of the dispute, unsettled claim, question, or disagreement between the parties. Seven (7) days prior to the meeting, the initiating party shall deliver to the other party, a written and complete

summary of the evidence and arguments substantiating its claim. If the parties do not reach a solution within thirty (30) days after said initial meeting, then upon notice of either party to the other, the dispute, claim, question, or difference, may be referred to a mediator pursuant to Section 35.3. The parties can extend the negotiation period by mutual written agreement.

35.3 Mediation: If the dispute, claim, question, or difference is not resolved by negotiation within thirty (30) days after the initial meeting between the parties or within the extended period agreed upon, the parties agree to next request that the American Arbitration Association provide a mediator to assist the Owner and Contractor in resolving the dispute, claim, question, or difference. The rules of mediation shall be the Construction Industry Mediation Rules of the American Arbitration Association. A different mediation/dispute resolution agency may be selected for mediation upon the mutual written agreement between the parties. The dispute resolution agency shall select a qualified mediator who shall have a background in construction. The selected mediator may be rejected by the parties only for bias. The mediator shall have thirty (30) days from the time of appointment to meet with the parties and sixty (60) days from the time of the appointment to resolve the dispute unless the parties mutually consent to an extension of the sixty day deadline. All reasonable fees, costs, and expenses of the mediator, the mediator's association and the mediation agency, shall be borne equally by the parties. Each party shall bear the expense of its own counsel, experts, witnesses, and preparation and presentation of proofs at mediation.

The Contractor shall not cause a delay of work during mediation proceedings except by mutual agreement. All mediation proceedings shall be conducted in the City of Greeley, unless an alternate location is agreed upon in writing by the Owner and the Contractor.

Amounts in dispute which are less than \$10,000 shall not progress beyond mediation.

35.4 Litigation prerequisites: The procedures enumerated in Sections 35.2 and 35.3 shall be a prerequisite to the filing of any litigation between the parties to the Contract. Failure of the Contractor to follow the provisions of Section 35.2 and Section 35.3 shall be a complete defense, and grounds for immediate dismissal of any litigation filed prior to Contractor engaging in negotiation and mediation with the City of Greeley as provided above. Litigation may be filed only if the amount in dispute is \$100,000 or more. In the event litigation is filed by and between the parties after mediation, venue and jurisdiction of any and all suits and causes of action in connection with this Contract shall lie exclusively in Weld County, Colorado.

35.5 Arbitration: After mediation, instead of litigation, any remaining unresolved controversy or claim arising out of or relating to this Contract or the performance or breach thereof, may be settled by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. For amounts in dispute which are \$100,000 or more, arbitration shall be engaged only upon mutual written agreement by the Owner and the Contractor, and the written agreement shall specify whether the arbitration shall be binding or nonbinding; however, amounts in dispute which are less than \$100,000 shall necessarily be settled by binding arbitration. The sole arbitrator shall be appointed by the Arbitration Association, unless a different arbitrator or dispute resolution agency is mutually agreed upon. The award of the arbitrator shall be accompanied by a

reasoned opinion, and shall include findings of fact and conclusions. All fees and expenses of the arbitration, including the expense of each party's counsel, experts, witnesses, and preparation and presentation of proofs, shall be borne by the party against whom arbitration judgment is made.

35.6 Litigation: Each party shall bear its own litigation fees and expenses, including the expense of its counsel, experts, witnesses, and preparation and presentation of proofs, regardless of the prevailing party.

ARTICLE 36 FORCE ACCOUNT WORK

36.1 This Article shall become operative upon failure of the Contractor and the Owner to arrive at an amount of compensation under Article 28, CHANGES. In the event that no equitable adjustment is arrived at either by mutual agreement or pursuant to the Article 35, DISPUTES, the compensation paid hereunder will be the total compensation.

36.2 Work Performed by or for Contractor: The Contractor will be paid for labor, materials, and equipment as hereinafter provided, except where agreement has been reached to pay in accordance with Paragraph 36.3 of this Article. The following percentages, as full compensation for profit, overhead and small tools, will be added to the totals computed as provided in subparagraphs 36.2.1 through 36.2.3 of this Article.

Labor 25 percent
Materials 20 percent
Equipment 10 percent

Labor, materials, and equipment shall be furnished by the Contractor or by a subcontractor. When work paid on a force account basis is performed by forces other than the Contractor's, the Contractor shall reach agreement with such other forces as to the distribution of the payment made by the Owner for such work and, except as specified herein, no additional payment therefore will be made by the Owner by reason of performance of work by a subcontractor or by others. In addition to the markups, if any, for labor, equipment, and materials, for subcontracted work, the Contractor may add an additional five percent markup. The cost of subcontracted work will be the actual cost to the contractor for work performed by a subcontractor as computed in accordance with this Paragraph 36.2 and its subparagraphs 36.2.1, 36.2.2, and 36.2.3.

36.2.1 Labor: The cost of labor used in performing the work, whether the employer is the Contractor or a subcontractor, will be the sum as determined on the basis of the following three subparagraphs:

36.2.1.1 The gross actual wages, including income tax withholdings but not including employer payments to or on behalf of workmen for health and welfare, pension, vacation, insurance and similar purposes.

36.2.1.2 To the gross actual wages, as defined in the previous subparagraph,

36.2.1.1, will be added a percentage based upon current State and Federal laws and applicable labor contracts concerning payments made to or on behalf of workmen other than actual wages, which percentage will constitute full compensation for all payments imposed by State and Federal laws and for all other payments made to or on behalf of the workmen, other than actual wages as defined in the previous subparagraph 36.2.1.1 and the subsistence and travel allowance as specified in the following subparagraphs 36.2.1.3. The Contractor shall compute a separate percentage for each craft, or a composite percentage for all crafts, if so approved by the Owner. Computed percentages shall be submitted to the Project Manager for approval by the Owner.

36.2.1.3 Subsistence and travel allowance paid to workmen as required by established agreements.

36.2.1.4 The charges for labor shall include all classifications up to but not including foremen, and when authorized by the Owner, shall include foremen engaged in the actual and direct performance of the work. Labor charges shall not include charges for assistant superintendents, office personnel, timekeepers, and maintenance mechanics, unless authorized by the Owner in advance of the start of work.

36.2.2 Materials: The cost of materials required for the accomplishment of the work will be delivered cost to the purchaser, whether contractor or subcontractor, from the supplier thereof, except as the following are applicable:

36.2.2.1 If a cash or trade discount by the actual supplier is offered or available to the Contractor, it shall be credited to the Owner notwithstanding the fact that such discount may not have been taken.

36.2.2.2 If materials are procured by the Contractor by a method which is not a direct purchase from and a direct purchase from and a direct billing by the actual supplier, the cost of such materials will be deemed to be the price paid to the actual supplier, as determined by the Owner. No additional markup for supplier work will be allowed except to the extent of actual cost to the Contractor in handling the material, not to exceed five percent of the price paid to actual supplier.

36.2.2.3 If the materials are obtained from a supply or source owned wholly or in part by the Contractor, payment therefore will not exceed the price paid for similar materials furnished from said source on Contract Items or the current wholesale price for such materials delivered to the work site, whichever price is lower.

36.2.2.4 If the cost of the materials is, in the opinion of Owner, excessive, then the cost of such materials will be deemed to be the lowest current wholesale price at which such materials are available in the quantities concerned, delivered to the job site, less discounts as provided in subparagraph 36.2.2.1 of this Article.

36.2.2.5 If the Contractor does not furnish satisfactory evidence of the cost of such materials from the actual supplier thereof, the cost will be determined in accordance with subparagraph 36.2.2.4 of this Article.

36.2.2.6 The Contractor shall have no claims for costs and profit on Owner-furnished materials.

36.2.3 Equipment: The Contractor will be paid for the use of contractor-owned or rented equipment at the rental rates shown in the Colorado State Department of Highways Construction Equipment Rental Rate Schedule, except as modified below, which edition shall be the latest edition in effect at the time of commencement of the Force Account work. For equipment used in excess of eight hours per day, the rental rate shall be 60 percent of the listed hourly rate. If it is deemed necessary by the Contractor to use equipment not listed in the C.D.O.H. Construction Equipment Rental Rate Schedule, the Contractor shall furnish the necessary cost data and paid invoices to the Project Manager for his use in establishment of such rental rate.

36.2.3.1 The rates paid as above provided will include the cost of fuel, oil, lubricants, supplies, small tools, necessary attachments, repairs and maintenance, depreciation, storage, insurance and incidentals.

36.2.3.2 Equipment operators will be paid for as stipulated in subparagraph 36.2.1 of this Article.

36.2.3.3 Equipment shall be in good working condition and suitable for the purpose for which the equipment is to be used.

36.2.3.4 Unless otherwise specified, manufacturer-approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer of that equipment.

36.2.3.5 Individual pieces of equipment or tools having a net individual value of \$300 or less, whether or not consumed by use, will be considered to be small tools and no payment will be made therefore.

36.2.3.6 Compensation will not be allowed while equipment is inoperative due to breakdown. Except as specified in paragraph 36.2.3.7 of this Article, time will be computed in half and full hours. In computing the time for use of equipment, less than 30 minutes shall be considered one half hour.

36.2.3.7 Equipment at the Work Site: The time to be paid for use of equipment on the work site will be the time the equipment is in operation on the force account work being performed. The time will include the time required to move the equipment to location of the force account work and return it to the original location or to another location requiring no more time than that required to return it to its original location. Moving time will not be paid for if the equipment is used at the site of the force account work on other than such force account work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power. No

payment for loading and transporting will be made if the equipment is used at the site of the force account work on other than such force account work.

36.3 Special Items of Work: If the Owner and the Contractor, by agreement, determine that (a) an item of force account work does not represent a significant portion of the total Contract price, and (b) such items of work cannot be performed by the forces of the Contractor or the forces of any of his subcontractors, and (c) it is not in accordance with the established practice of the industry involved to keep the records which the procedure outlined in Paragraph 36.2 of this Article would require, charges for such special force account work items may be made on the basis of invoices for such work without complete itemization of labor, materials, and equipment rental costs. To such invoiced price, less a credit to the Owner for any cash or trade discount offered or available, will be added five percent of the discounted price, in lieu of the percentages provided in Paragraph 36.2 of this Article. In no event will the price paid exceed the current fair market value of such work plus five percent.

6.4 Records: The Contractor shall maintain his records to provide a clear distinction between the direct costs of work paid for on a force account basis and costs of other operations.

36.4.1 The Contractor shall prepare and furnish to the Project Manager, on the following work day, report sheets in duplicate of each day's work paid for on a force account basis. The daily report sheets shall itemize the materials used and shall cover the direct cost of labor and the charges for equipment, whether furnished by the Contractor, subcontractor, or other forces, except for charges described in Paragraph 36.3 of this Article. The daily report sheets shall provide names or identifications and classifications of workmen and the hourly rate of pay and hours worked. In addition, a report of the size, type and identification number of equipment and hours operated shall be furnished to the Project Manager. Daily report sheets shall be signed by the Contractor or his authorized agent.

36.4.2 Material changes shall be substantiated by valid copies of vendor's invoices or conformed copies, certified true by the Contractor. Such invoices shall be submitted with the daily report sheets. Should the vendor's invoices not be submitted within 20 days after the date of delivery of the material or 15 days after acceptance of the work, whichever comes first, the Owner reserves the right to establish the cost of such materials at the lower current wholesale prices at which such materials are available in the quantities concerned delivered to the location of the work, less any discounts provided in subparagraph 36.2.1. of this Article.

36.4.3 The Project Manager will compare his records with the daily report sheets furnished by the Contractor, make any necessary adjustment and compile the costs of work paid for on a force account basis on daily force account work report forms. When these daily reports are agreed upon and signed by the Project Manager, they shall become the basis of payment for the work performed, but shall not preclude subsequent adjustment based on a later audit.

36.4.4 The Contractor's original cost records pertaining to work paid for on a force account basis shall be retained and shall be open to inspection and audit as required by Article 28, CHANGES, and any other provisions of the Contract.

36.5 If, in the Project Manager's opinion, the Contractor or any of his subcontractors, in performing Force Account work, is not making efficient use of labor, material or equipment or is proceeding in a manner which makes Force Account work unnecessarily more expensive to the Owner, the Project Manager may, in whole or part, direct the Contractor in the deployment of labor, material and equipment. By way of illustration, inefficiency may arise in the following ways: (1) the timing of the work, (2) the use of unnecessary labor or equipment, (3) the use of a higher percentage of apprentices than in non-force account work, (4) failure to procure materials at the lowest price, or (5) using materials of quality higher than necessary.

ARTICLE 37 TERMINATION FOR CONVENIENCE OF THE OWNER

37.1 The performance of Work under this contract may be terminated by the Owner in accordance with this Article in whole, or from time to time in part, whenever such termination is in the best interest of the Owner. Such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective.

37.2 After receipt of a Notice of Termination, and except as otherwise directed by the Owner, the Contractor shall:

37.2.1 Stop work under the Contract on the date and to the extent specified in the Notice of Termination.

37.2.2 Place no further orders or subcontracts for materials, services or facilities, except as may be necessary for completion of such portion of the work under the Contract as is not terminated;

37.2.3 Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination;

37.2.4 Assign to the Owner in the manner, at the times, and to the extent directed by it, all of the rights, title and interest of the Contractor under the orders and subcontracts so terminated, in which case the Owner will have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;

37.2.5 Settle outstanding liabilities and claims arising out of such termination of orders and subcontracts, with the approval or ratification of the Owner to the extent it may require, which approval or ratification shall be final for the purposes of this Article;

37.2.6 Transfer title and deliver to the Owner in the manner, at the times, and to the extent, if any directed by it, (a) the fabricated or unfabricated parts, work in process, completed work, supplies and other material procured as part of, or acquired in connection with the performance of, the work terminated by the Notice of Termination, and (b) the completed or partially completed plans,

drawings, information, and other property, which, if the Contract had been completed, would have been required to be furnished to the Owner;

37.2.7 Use his best efforts to sell, in the manner, at the times, to the extent, and at the price or prices direction or authorized by the Owner, property of the types referred to in (37.2.5) above; provided, however, that the Contractor (a) shall not be required to extend credit to any purchaser and (b) may acquire any such property under the conditions prescribed by and at a price or prices approved by the Owner; provided further that the proceeds of any such transfer or disposition will be applied in reduction of any payments to be made by the Owner to the contractor under this Contract or will otherwise be credited to the price or cost of the work covered by this Contract or paid in such other manner as the Owner may direct;

37.2.8 Complete performance of each part of the work as shall not have been terminated by the Notice of Termination; and

37.2.9 Take such action as may be necessary, or as the Project Manager may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Contractor and in which the Owner has or may acquire an interest.

37.3 After receipt of a Notice of Termination, the Contractor shall submit to the Project Manager his termination claim, in the form and with certification prescribed by the Owner. Such claims shall be submitted promptly but in no event later than the earliest of the following: (1) one year from the effective date of termination or (2) thirty days after the remainder of the project has been accepted by the owner.

37.4 Subject to the provision of Paragraph 37.3, the contractor and the Owner may agree upon the whole or any part of the amount or amounts to be paid to the Contractor by reason of the total or partial termination of work pursuant to this Article, which amount or amounts may include an allowance for profit on work done; provided that such agreed amount or amounts, exclusive of settlement costs, shall not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the Contract price of work terminated. The Contract will be amended accordingly, and the Contractor will be paid the agreed amount.

37.5 In the event of failure of the Contractor and the Owner to agree, as provided in Paragraph 37.4, upon the whole amount to be paid the Contractor by reason of the termination of work pursuant to this Article, the Owner will pay the Contractor the amounts determined by the Owner as follows, but without duplication of any amounts agreed upon in accordance with Paragraph 37.4;

37.5.1 With respect to contract work performed prior to the effective date of the Notice of Termination, the total (without duplication of any items) of:

37.5.1.1 The cost of such work;

37.5.1.2 The cost of settling and paying claims arising out of the termination of work under subcontracts or orders as provided in subparagraph 37.2.5 above, exclusive of the amounts paid or

payable on account of supplies or materials delivered or services furnished by the subcontractor prior to the effective date of the Notice of Termination of work under this Contract, which amounts shall be included in the cost on account of which payment is made under 37.5.1 above.

37.5.1.3 A sum, as profit on 37.5.1.1 above, determined by the Owner to be fair and reasonable; provided, however, that if it appears that the Contractor would have sustained a loss on the entire Contract had it been completed, no profit shall be included or allowed under this subparagraph 37.5.1.3 and an appropriate adjustment shall be made by reducing the amount of the settlement to reflect the indicated rate of loss.

37.5.2 The reasonable cost of the preservation and property incurred pursuant to subparagraph 37.2.9 and any other reasonable cost incidental to termination of work under this Contract, including expense incidental to the determination of the amount due to the Contractor as the result of the termination of work under this Contract.

37.5.3 The total sum to be paid to the contractor under paragraph 37.5.1 above will not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the Contract price of the work terminated.

37.6 In arriving at the amount due the Contractor under this Article, there will be deducted (1) any claim which the Owner may have against the Contractor in connection with this Contract, (2) the agreed price for, or the proceeds of sale, of materials, supplies or other things acquired by the contractor or sold, pursuant to the provisions of this Article, and not otherwise recovered by or credited to the Owner and (3) the full amount of any statutory or other claim against the Contractor filed with the Owner.

37.7 Unless otherwise provided for in this Contract, or by applicable statute, the Contractor, from the effective date of termination and for a period of three years after final settlement under this Contract, shall preserve and make available to the Owner at all reasonable times at the office of the Contractor but without direct charge to the Owner, all his books, records, documents, electronic/digital media and other evidence bearing on the costs and expenses of the Contractor under this Contract and related to the work terminated hereunder, or to the extent approved by the Owner, or other authentic reproductions thereof.

37.8 The Contractor shall insert in all subcontracts that the subcontractor shall stop work on the date of and to the extent specified in a Notice of Termination from the Owner and shall require that any tier subcontractors insert the same provision in any tier subcontracts.

37.9 Under no circumstances is the Contractor entitled to anticipatory, unearned profits or consequential damages as a result of a termination or partial termination under this Article.

ARTICLE 38
TERMINATION FOR DEFAULT

38.1 If, in the opinion of the Owner, the Contractor has failed to prosecute work, the Owner will notify the Contractor. The Contractor will then have 5 days to remedy the failure to prosecute work or to obtain the Owner's authorization for the delay or an extension of time as set forth in Article 32.

38.2 If the Contractor refuses or fails after reasonable notice as set forth above to prosecute Work, or any separable part thereof, with such diligence as will insure its completion within the time specified in this Contract, or refuses or fails to complete said Work within such time, the Owner may, by written notice to the Contractor, terminate for default his right to proceed with the Work or such part of the Work as to which there has been unauthorized delay. In such event the Owner may take over the work and prosecute the same to completion, by Contractor or otherwise, and may take possession of and utilize in completing the Work such materials, appliances, and plant as may be on the Work Site and necessary therefore. Whether or not the Contractor's right to proceed with the Work is terminated, he and his sureties shall be liable for any damage to the Owner resulting from his refusal or failure to complete the Work in the specified time.

38.3 If the Owner so terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such time as may be required for final completion of the Work together with any increased costs incurred by the Owner in completing the Work as further set forth in Article 41.

38.4 If, after Notice of Termination of the Contractor's right to proceed under the provisions of this Article, it is determined for any reason that the Contractor was not in default under the provisions of this Article or that the Contractor was entitled to an extension of time under Article 32, EXTENSION OF TIME, the rights and obligations of the parties shall be the same as if the Notice of Termination had been issued pursuant to Article 37, TERMINATION FOR CONVENIENCE OF THE OWNER.

38.5 The right to terminate for default and any other rights and remedies of the Owner provided in this clause are in addition to any other rights and remedies provided by law or under this Contract.

ARTICLE 39
TERMINATION OF RIGHT TO PROCEED FOR CERTAIN DEFAULTS

39.1 In addition to the Owner's right to terminate for default under other Articles of this Contract, the Owner will have the right to terminate the Contractor's performance of work in whole or in part for default for any of the following reasons:

39.1.1 The Contractor's or subcontractor's performance of work is in violation of the terms of the Contract.

39.1.2 The Contractor or subcontractor has violated an authorized order or requirement of the Owner.

39.1.3 Abandonment of Contract.

39.1.4 Assignment or subcontracting of the Contract or any work under the Contract without approval of the Owner.

39.1.5 Bankruptcy or appointment of a receiver for the Contractor's property.

39.1.6 Performance of the Contractor in bad faith.

39.1.7 Contractor allowing any final judgment to stand against him for a period of 48 hours (excluding weekends and legal holidays).

39.2 If, in the opinion of the Owner, the Contractor is in default of the Contract, the Owner will notify the Contractor. If the Contractor fails to remedy or commence to remedy the default within five days after receipt of such notice, the Owner may terminate the Contractor's right to proceed with the Work or that portion of the Work which the Owner determines is most directly affected by the default.

39.3 If, after Notice of Termination of Contractor's right to proceed under this Article it is determined for any reason Contractor was not in default, the rights and obligations of the parties shall be the same as if the Notice of Termination had been issued pursuant to Article 37, TERMINATION FOR CONVENIENCE OF THE OWNER.

ARTICLE 40 RIGHTS AND OBLIGATIONS OF PARTIES AT TERMINATION FOR DEFAULTS

40.1 This Article shall apply to terminations for defaults covered in Article 15, 38, and 39 of these General Conditions.

40.2 On receipt of a Notice of Termination from the Owner, the Contractor shall:

40.2.1 Stop all work under the Contract on the date and to the extent specified in the Notice of Termination.

40.2.2 Place no further orders or subcontracts for materials, equipment or services except as they relate to the performance of work covered by the Notice of Termination.

40.2.3 Cancel or terminate all orders or subcontracts to the extent that they relate to the performance of work covered by the Notice of Termination.

40.2.4 Comply with all other requirements of the Owner as may be specified in the Notice of Termination.

40.3 Upon the Owner termination of the Contractor's right to proceed with the Work because of the Contractor's default under the Contract, the Owner will have the right to complete the Work by whatever means and method it deems advisable. The Owner shall have the right to take possession of and use any or all the Contractor's materials, plat, tools, equipment and property of any kind provided by or on behalf of the Contractor for the purpose of the Work, or a portion of them, without being responsible to the Contractor for fair wear and tear. The Contractor shall have no rights in such property during their use by the Owner. The Owner will not be required to obtain the lowest prices for completing the Work but shall make such expenditures as, in the Owner's sole judgment, best accomplish such completion.

40.4 The expense of completing the Work, together with a reasonable charge for engineering, managerial and administrative services, as certified by the Owner, will be charged to the Contractor and the expense so charged will be deducted by the Owner out of such monies as may be due or may at any time thereafter become due to the Contractor. In case such expense is in excess of the sum which otherwise would have been payable to the Contractor under the Contract, the Contractor or his surety shall promptly pay the amount of such excess to the Owner upon notice from the Owner of the excess so due. The Owner may, in its sole discretion, withhold all or any part of any progress payments otherwise due the Contractor until completion and final settlement of the Work covered by the Notice of Termination of Contractor's right to proceed.

40.5 The Contractor shall insert in all subcontracts that the subcontractor will stop work on the date of or to the extent specified in a Notice of Termination from the Owner and shall require the subcontractors to insert the same provision in any tier subcontracts.

40.6 The Contractor shall immediately upon receipt communicate any Notice of Termination issued by the Owner to the affected subcontractors and suppliers at any tier.

40.7 Rights of Surety: The Surety on the Performance Bond provided for in this Contract shall not be entitled to take over the Contractor's performance of work in case of termination under this Article, except with the consent of the Owner.

ARTICLE 41 LIQUIDATED DAMAGES

41.1 Time is of the essence of the Contract. In the event the Contractor fails to achieve Substantial Completion of the Work within the Contract Time, or fails to meet any other time requirement or the time limit set forth in the Contract, after due allowance for any extension or extensions of time made in accordance with the Contract, the Contractor shall pay to the Owner as fixed, agreed and liquidated damages, pursuant to the clause of the Contract entitled TERMINATION FOR DEFAULT—DAMAGES FOR DELAY—TIME EXTENSIONS, the sum of \$500.00 for each

calendar day of delay unless otherwise stated in the Special Provisions. Such liquidated damages shall be assessed for each and every day that the Contractor shall be in default. The Owner shall have the right to deduct said liquidated damages from any amount due or that may become due the Contractor, or to collect such liquidated damages from the Contractor or its surety.

41.2 Liquidated damages in the amount stipulated do not include any sums of money to reimburse the City for actual damages which may be incurred between Substantial Completion and Final Completion because of the Contractor's failure to achieve Final Completion within the Contract Time. For such delay in Final Completion, the Contractor shall reimburse the City, as a mitigation of City damages and not as a penalty, those administrative costs incurred by the City as a result of such failure.

41.3 Liquidated damages in the amounts stipulated do not include any sums of money to reimburse the City for extra costs which the City may become obligated to pay on other contracts which were delayed or extended because of the Contractor's failure to complete the Work within the Contract Time. Should the City incur additional costs because of delays or extensions to other contracts resulting from the Contractor's failure of timely performance, the City will assess these extra costs against the Contractor, and these assessments will be in addition to the stipulated liquidated damages.

41.4 The City reserves all of its rights to actual damages from the Contractor for injury or loss suffered by the City from actions or omissions of the Contractor, including but not limited to any other breach or default of the Contract, outside of the scope of the above sections.

ARTICLE 42 USE AND POSSESSION PRIOR TO COMPLETION

42.1 The Owner shall have the right to take possession of or use any completed or partially completed parts of the Work. Such possession or use will not be deemed an acceptance of Work not completed in accordance with the Contract. While the Owner is in such possession, the Contractor, notwithstanding the provisions of Article 18, DAMAGE TO WORK AND RESPONSIBILITIES FOR MATERIALS, will be relieved of the responsibility for loss or damage to the work other than that resulting from the Contractor's fault or negligence or breach of warranty. If such prior possession or use by the Owner delays the progress of the Work or causes additional expense to the Contractor, an equitable adjustment in the Contract price or the time of completion will be made, and the Contract will be modified in writing accordingly.

ARTICLE 43 RIGHTS IN SHOP DRAWINGS AND WORKING DRAWINGS

43.1 Shop Drawings and Working Drawings, submitted to the Project Manager by the Contractor, subcontractor or any lower tier subcontractor pursuant to the Work, may be duplicated by the Owner and the Owner may use and disclose, in any manner and for any purpose, Shop Drawings and Working Drawings delivered under this Contract.

43.2 This Article, including this Paragraph 43.2, shall be included in all subcontracts hereunder at all tiers.

ARTICLE 44 PATENT AND COPYRIGHT

44.1 The Contractor shall warrant that the materials, equipment or devices used on or incorporated in the Work shall be delivered free of any rightful claim of any third party for infringement of any United States patent or copyright. If notified promptly in writing and given authority, information and assistance, the Contractor shall defend, or may settle, at his expense, any suit or proceeding against the Owner or the Project Manager based on a claimed patent or copyright infringement which would result in a breach of his warranty. The Contractor shall pay all damages and costs awarded therein against the Owner or the Project Manager due to such breach. If any use of materials, equipment or devices is held to constitute an infringement and such use is enjoined, the Contractor shall, at his expense and option, either procure for the Owner the right to continue using said materials, equipment or devices, or replace same with noninfringing materials, equipment or devices, or modify same so it becomes noninfringing. The Contractor shall report to the Owner promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this Contract of which the Contractor has knowledge. In the event of any claim or suit against the Owner on account of any alleged patent or copyright infringement arising out of the performance of this Contract or out of the use of any supplies furnished or work or services performed hereunder, the Contractor shall furnish to the Owner when requested by the Owner, all evidence and information in possession of the Contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Owner except where the Contractor has agreed to indemnify the Owner. This clause shall be included in all subcontracts.

ARTICLE 45 HISTORICAL, SCIENTIFIC AND ARCHAEOLOGICAL DISCOVERIES

45.1 All articles of historical, scientific or archaeological interest uncovered by the Contractor during progress of the Work shall be preserved in accordance with applicable law and reported immediately to the Project Manager. Further operations of the Contractor with respect to the find, including disposition of the articles, will be decided by the Owner in accordance with applicable law.

ARTICLE 46 SUBSTITUTIONS

46.1 Where reference is made to one or more proprietary products but restrictive descriptive material of only one manufacturer is used, it is understood that the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the plans and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the Owner and the Project Manager. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design.

46.2 The Contractor may propose the substitutions of any material as a supplement to his bid with the monetary amount, additive or deductive as may be the case, clearly stated. Manufacturer's information, catalog numbers, and complete descriptive information shall be included with the proposed substitution. This shall be completely apart and separate from the base bid quotation and shall be solely for the information of the Owner, and the use of such proposed substitutions shall be strictly at the decision of the Owner. If substitution is accepted by the Owner, the Contract sum shall be adjusted from the base bid either up or down as indicated on the supplementary list.

ARTICLE 47 INSURANCE

47.1 General

47.1.1 The Contractor shall provide from insurance companies, acceptable to the Owner, the insurance coverage designated hereinafter and pay all costs. The Contractor also indemnifies the Owner as further described in Article 4.

47.1.2 Before commencing work under this Agreement, the Contractor shall furnish the Owner with certificates of insurance specified herein showing the type, amount, class of operations covered, effective dates, and date of expiration of policies. Furthermore, each such certificate shall contain a valid provision or endorsement that the policy may not be cancelled, terminated, changed or modified without first giving ten (10) days written notice to the Owner, which notice must be sent registered mail, return receipt requested, to the Project Manager.

47.1.3 In case of the breach of any provision of this Article, the Owner, at his option, may take out and maintain, at the expense of the Contractor, such insurance as the Owner may deem proper at the Contractor's expense and may deduct the cost of such insurance from any monies which may be due or become due the Contractor under this Agreement.

47.1.4 The Contractor shall either: (1) require each of his subcontractors to procure and maintain during the life of his subcontract, subcontractors' comprehensive General Liability, Automobile Liability and Property Damage Liability Insurance of the type and in the same amounts as specified in this subparagraph, or (2) insure the activity of his subcontractors in his own policy.

47.1.5 Co-Insurance: The Contractor herein agrees to name the Owner as an insured party on all liability insurance policies provided for by this Article 47, INSURANCE.

47.1.6 No insurance shall be cancelled or otherwise voided during the Contract period, without at least 10 days prior written notice to the Owner, nor shall any insurance be invalidated should the insured waive any or all right of recovery against any party.

47.1.7 Liability insurance may be arranged by Comprehensive General Liability and

Comprehensive Automobile Liability policies for the full limits required; or by a combination of underlying Comprehensive Liability policies for lesser limits with the remaining limits provided by an Excess or Umbrella Liability policy.

47.1.8 The Owner shall purchase and maintain such boiler and machinery insurance as may be required by the Contract Documents or by law. This insurance shall include the interest of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work.

47.1.9 Any loss insured under Article 47 is to be adjusted with the Owner and made payable to the Owner as trustee for the insured, as their interests may appear, subject to the requirements of any applicable mortgage clause. The Contractor shall pay each subcontractor a just share of any insurance monies received by the Contractor, and by appropriate share of any insurance monies received by the Contractor, and by appropriate agreement, written where legally required for validity, shall require each subcontractor to make payments to his subcontractors in similar manner.

47.1.10 If the Contractor requests in writing that insurance for risks other than those described in this Article or other special hazards be included in the Owner's property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

47.1.11 The Owner as trustee shall have power to adjust and settle any loss with the insurers.

47.1.12 If the Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion thereof, such occupancy or use shall not commence prior to a time mutually agreed to by the Owner and Contractor and to which the insurance company or companies providing the property insurance have consented by endorsement to the policy or policies. This insurance shall not be cancelled or lapsed on account of such partial occupancy or use. Consent of the Contractor and of the insurance company or companies to such occupancy or use shall not be unreasonably withheld.

47.2 Workmen's Compensation and Employer's Liability Insurance:

47.2.1 The Contractor shall provide coverage and amounts as required by the Workmen's Compensation Act of the State of Colorado.

47.2.2 The Contractor shall provide Employer's Liability Insurance in an amount not less than \$100,000 for each occurrence.

47.2.3 The Contractor shall require any subcontractor to provide Workmen's Compensation and Employer's Liability Insurance in the same amounts for all of the subcontractor's employees to be engaged in work under this Agreement.

47.3 General Liability

47.3.1 General Liability Insurance shall be on a Comprehensive General Liability form and shall provide coverage for the following: Premises and Operations, Owners and Contractors Protective, Elevators, Independent Contractors, Products and Completed Operations, Contractual, Personal Injury, and Broad Form Property Damage; "XCU" exclusions must be deleted.

47.3.2 Minimum requirements for Comprehensive General Liability are: bodily injury, \$1,000,000.00 each person, \$2,000,000.00 each occurrence; property damage, \$1,000,000.00 each occurrence.

47.4 Automobile Liability

47.4.1 Comprehensive Automobile Liability Insurance shall include coverage for all owned motor vehicles and hired and non-owned motor vehicles.

47.4.2 Minimum requirements for Comprehensive Automobile Insurance are: bodily injury, \$1,000,000.00 each person, \$2,000,000.00 each occurrence; property damage, \$1,000,000.00 each occurrence.

47.5 Property Insurance:

47.5.1 The Owner may require the Contractor to purchase and maintain "Builder's Risk" Property Insurance for all work at the site to the full insurable value thereof. The Owner and the Project Manager shall be named as co-insured.

ARTICLE 48 UNCOVERING AND CORRECTION OF WORK

48.1 During construction, whenever materials requiring inspection in place by the Project Manager and the Owner to be permanently covered up, it shall be Contractor's responsibility to notify the Project Manager at least 24 hours in advance of commencement of such covering operation. In the event of failure by Contractor to give such notification, Contractor shall, at his own expense, uncover such portions of work as required by the Project Manager or the Owner, and reinstall such covering after satisfactory inspection and correction of any and all deficiencies.

ARTICLE 49 EQUAL OPPORTUNITY

49.1 The Contractor agrees to comply with the letter and spirit of the Colorado Antidiscrimination Act of 1957, as amended, and other applicable laws respecting discrimination and unfair employment practices (24-34-402, CRS 1973, as amended). The Contractor shall be responsible for any discriminatory or unfair employment practices of his subcontractors. Neither the Contractor nor any subcontractor will discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, religion, ancestry, mental or physical handicap, or age. Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, national

origin, sex, religion, ancestry, mental or physical handicap, or age. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment, or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

49.2 Contractor and all subcontractors shall, in all solicitations or advertisement for employees placed by them or on their behalf, state that qualified applicants will receive consideration for employment without regard to race, creed, color, national origin, sex, religion, ancestry, mental or physical handicap, or age.

ARTICLE 50 CLAIMS

50.1 The Contractor shall not assert any claim arising out of any act or omission by any officer, agent or employee of the Owner in the execution or performance of this Contract against such officer, agent or employee in his or her individual or official capacities.

50.2 The Contractor shall require each Separate Contract Design Professional or Contractor to agree in his Contract not to make any claim against the Owner, its officers, agents or employees, by reason of such Contract with the contractor.

50.3 Nothing in this Contract shall be construed to give any person other than the Owner and the Contractor any legal or equitable right, remedy or claim under this Contract; and it shall be held to be for the sole and exclusive benefit of the Owner and the Contractor.

ARTICLE 51 NOTICES

51.1 Except as otherwise provided herein, any notice, approval, acceptance, request, bill, demand or statement hereunder from either party to the other shall be in writing and shall be deemed to have been given when either delivered personally or deposited in a U.S. mailbox in a postage prepaid envelope, addressed to the other party via certified mail. Notices to the Owner shall be addressed to the Project Manager by name. Either party may at any time change such address by delivering or mailing, as aforesaid, to the other party a notice stating the change and the changed address.

ARTICLE 52 LEGAL INSERTIONS, ERRORS, INCONSISTENCIES, OR DISCREPANCIES IN CONTRACT

52.1 It is the intent and understanding of the parties to this Contract that each and every provision of law required to be inserted in this Contract shall be and is inserted herein. Furthermore, it is hereby stipulated that every such provision is deemed to be inserted herein, and if through mistakes or otherwise, any such provision is not inserted in correct form, then this Contract shall upon application of either party, be amended by such insertion so as to comply strictly with the law and without prejudice to the right of either party.

52.2 If this Contract contains any errors, inconsistencies, ambiguities, or discrepancies, including typographical errors, the Contractor shall request a clarification of same by writing to the Project Manager whose decision shall be binding upon the parties.

ARTICLE 53 CAPTIONS OR HEAD NOTES

53.1 The captions or head notes on articles or sections of this Agreement, and marginal notes are intended for convenience and reference purposes only and in no way define, limit or describe the scope or intent hereof, or of this Agreement not in any way affect this Agreement.

ARTICLE 54 EFFECTIVE AND BINDING

54.1 This Contract shall not become effective or binding upon the Owner unless it has been authorized and executed in accordance with the ordinances of the City of Greeley.

ARTICLE 55 CONTRACTOR

55.1 All personnel assigned to the Project by the Contractor shall be required to cooperate fully with personnel of the Owner and if in the sole discretion of the Owner the Contractor's personnel fails so to cooperate, the Contractor shall relieve them of their duties on the Project when required by the Owner.

55.2 Within seven (7) consecutive calendar days after date of written notice to commence work, the Contractor shall designate in writing one person who, on his behalf, shall be responsible for coordinating all of the services to be rendered by the Contractor hereunder. Such designee shall be subject to the approval of the Owner. Any change to the approved designee shall be proposed in writing seven (7) days in advance and subject to Owner approval.

55.3 The Contractor shall engage, at his sole expense, all engineers, architects, cost estimators, lawyers, experts and Contractors as may be required for the proper performance of the Contract. The Contractor shall be responsible for the performance of the work of all architects, engineers, cost estimators, lawyers, experts and Contractors so engaged by him, including maintenance of schedules, correlation of their work and resolution of all difference between them. It is understood that all architects, engineers, cost estimators, lawyers, experts and Contractors are employees of the Contractor and not of the Owner, and the Contractor alone is responsible for their work.

55.4 All drawings, tracings, specifications, digital media/electronic files and other material prepared and furnished under and for this Contract shall become the property of the Owner upon substantial completion and/or their acceptance by the Owner and/or upon termination of the services

of the Contractor. Such documents shall be promptly delivered to the Owner upon demand and thereafter may be used by the Owner in whole or in part or in modified form, for those purposes it may deem advisable without further employment of, or payment of additional compensation to, the Contractor.

55.5 The Contractor shall not, without the prior written approval of the Owner, specify for the project, or necessarily imply the required use of any article, product, material, fixture or form of construction, the use of which is covered by a patent, or which is otherwise exclusively controlled by a particular firm or group of firms.

55.6 Should any claim be made or any action brought against the Owner relating to the design and satisfactory operation of the Project herein, the Contractor shall diligently render to the Owner without additional compensation any and all assistance which may be requested by the Owner.

55.7 The Owner's Project Manager's decision shall be final and binding upon the Contractor as to all matters arising in connection with or relating to this Contract. The Project Manager shall determine the amount, quality, acceptability and fitness of the work being performed hereunder and shall determine all matters relative to the fulfillment of this Contract on the part of the Contractor and such determination shall be final and binding on the Contractor. Acceptance by the Owner of any document hereunder and all supporting documents shall not relieve the Contractor of sole responsibility for work performed under this contract, including, but not limited to, the final design of the Project, including the plans, specifications and all supporting documents, except as to any feature thereof which the Owner had specifically directed in writing to be included over the written objection of the Contractor. In case any question shall arise, the decision of the Owner's Project Manager, who is hereby accepted by the Contractor as the arbiter, shall be a condition precedent to the right of the Contractor to receive any money under this Contract.

ARTICLE 56 APPEALS

56.1 Except as otherwise provided in this Contract, any dispute concerning a question of fact arising under this Contract which is not disposed of by Agreement shall be decided by the Project Manager, who shall reduce his decision to writing and mail or otherwise furnish a copy thereof to the Contractor. The decision of the Project Manager shall be final and conclusive unless, within fifteen (15) days from the date of receipt of such copy, the Contractor mails or otherwise furnishes to the Project Manager a written notice of appeal.

56.2 In the event a decision of the Project Manager is the subject of an appeal, such dispute may be settled by appropriate legal proceeding, or, if the parties mutually agree, through arbitration or administrative process. Pending any binding arbitative or administrative decision, appeal, or judgment referred to in this section or the settlement of any dispute arising under this Contract, the Contractor shall proceed diligently with the performance of this Contract.

56.3 Venue and jurisdiction of any suit, right, or cause of action arising under or in connection with this Contract shall lie exclusively in Weld County, Colorado.

**ARTICLE 57
PROHIBITED INTEREST**

57.1 No member, officer or employee of the City of Greeley shall have any financial or pecuniary interest, direct or indirect, in this Contract or the proceeds thereof.

**ARTICLE 58
FINDINGS CONFIDENTIAL**

58.1 Any reports, information, data, etc., available to or prepared or assembled by Contractor under this Contract shall not be made available to any individual or organization by Contractor without consent in writing from the Owner subject to applicable law.

**ARTICLE 59
GENERAL PROVISIONS**

59.1 Services and work performed by Contractor under this Contract shall conform to reasonable and normal professional standards known and accepted within the community.

59.2 No reports, graphics or other material produced directly or indirectly for the Owner under this Contract shall be the subject of an application for copyright or trademark by or on behalf of Contractor.

59.3 The laws of the State of Colorado and applicable Federal, state and local laws, regulations and guidelines shall govern hereunder.

59.4 The headings of the articles, clauses, and paragraphs of this Contract are inserted for reference purposes only and are not restrictive as to content.

59.5 This Contract and any subsequent amendment shall be deemed an original having identical legal effect, and all of which together constitute one and the same instrument.

59.6 Nothing contained herein shall be deemed to give any third party any claim or right of action against the Owner which does not otherwise exist without regard to this Contract.

59.7 Where a number of days is specified in this Contract it shall mean calendar days unless otherwise specified.

59.8 This Contract shall not be assigned, in whole or in part, without the written consent of the Project Manager and Contractor.

59.9 The Owner certifies the following;
A. An amount of money equal to or greater than the Contract amount has

been appropriated and budgeted for the Project which this Contract concerns.

B. No Change Order which requires additional compensable work to be performed by the Contractor will be issued by the Owner unless an amount of money has been appropriated and budgeted sufficient to compensate the Contractor for such additional compensable work unless such work is covered under the remedy-granting provisions of this Contract.

C. As used in this paragraph, "remedy granting provision" shall mean any clause of this Contract which permits additional compensation in the event of a specific contingency or event occurs. This term shall include, but not be limited to, change clauses, differing site conditions clauses, variation in quantities clauses, and termination for convenience clauses.

ARTICLE 60 CONTRACTOR ACCEPTANCE

60.1 The acceptance by the Contractor, his successors or assigns of any payment made on the final acceptance of the Project under this Contract or of any final payment due on termination of this Contract, shall constitute a full and complete release of the Owner from any and all claims, demands and causes of action whatsoever which the Contractor, his successors or assigns have or may have against the Owner under the provisions of this Contract.

60.2 No action shall be maintained by the Contractor, its successors or assigns, against the Owner on any claims based upon or arising out of this Contract or out of anything done in connection with this Contract unless such action shall be commenced within 180 days after the date of filing of the voucher for final payment hereunder in the office of the Finance Director, or within 180 days of the termination of this Contract.

ARTICLE 61 SUCCESSORS AND ASSIGNS

61.1 The Contractor binds itself, its partners, successors, assigns and legal representatives to the other party to this Contract and to the partners, successors, assigns and legal representatives of such other party with respect of all covenants of this Agreement. The Contractor shall not transfer, assign, or subcontract any interest in this Agreement.

ARTICLE 62 SEVERABILITY CLAUSE

62.1 If any provision of this Agreement is subsequently declared by legislative or judicial authority to be unlawful, unenforceable, or not in accordance with applicable laws, statutes, and regulations of the United States of America and the State of Colorado, all other provisions of this Agreement shall remain in full force and effect.

ARTICLE 63 AGREEMENT

63.1 This Agreement represents the entire and integrated Agreement between the Owner and the Contractor and supersedes all prior negotiations, representations or agreements, either written or oral. This Agreement may be amended only by written instrument signed by both Owner and Contractor.

**ARTICLE 64
COLORADO LABOR**

64.1 In accordance with C.R.S. §8-17-101, all parties contracting with the City of Greeley on public works projects shall employ Colorado labor to perform the work to the extent of not less than eighty percent (80%) of each type or class of labor in the several classifications of skilled and common labor employed on this project.

**ARTICLE 65
ELECTRONIC SIGNATURE**

65.1 The Contract Documents may be executed in two or more counterparts, each of which shall be deemed an original but all of which together shall constitute one and the same document. The Contract Documents, including all component parts set forth above, may be executed and delivered by electronic signature by any of the parties and all parties consent to the use of electronic signatures.

**ARTICLE 66
FORCE MAJEURE**

66.1 To the extent that either party is not able to perform an obligation under this Agreement due to fire; flood; acts of God; severe weather conditions; strikes or labor disputes; war or other violence; acts of terrorism; plague, epidemic, pandemic, outbreaks of infectious disease or any other public health crisis, including quarantine or other employee restrictions; act of authority whether lawful or unlawful, compliance with any law or governmental order, rule, regulation or direction, curfew restriction, or other cause beyond that Party's reasonable control, that Party may be excused from such performance so long as such Party provides the other Party with prompt written notice describing the condition and takes all reasonable steps to avoid or remove such causes of nonperformance and immediately continues performance whenever and to the extent such causes are removed.

**CONTRACT ADDENDUM
COVID-19 RISK MITIGATION**

1) Implementation of Basic Infection Prevention Measures:

a. All Contractors and Subcontractors shall develop procedures for employees to report when they are sick or experiencing symptoms of COVID-19. At a minimum, these procedures will include temperature monitoring and symptom assessment as set forth below.

1) Contractors are required to insure that their employees and all of their subcontractor's employees conduct daily self-assessments for potential presence of COVID-19 upon their arrival at the worksite. The assessment must be carried out regardless of whether the employee believes he/she has been exposed to COVID-19.

2) Employees must ask themselves the following questions:

- Do I have a runny nose, sneezing, cough, sore throat, diarrhea, nausea or vomiting (not related to other health conditions such as known allergies or chronic illness)?
- Am I having trouble breathing in a manner that is out of the ordinary for me?
- Do I have a sore throat?
- Have I experienced an exposure or have I been in close contact with anyone experiencing the symptoms described above or who is suspected to have/diagnosed with COVID-19?

3) Contractors must insure that their employees and all of their subcontractor's employees have their temperature taken prior to or upon their arrival at the worksite.

- Taking temperatures is not done instead of the other health and hygiene requirements that have been set forth by the local, state and national authorities. Temperature taking is done in addition to those requirements.

4) Any symptoms identified by the Daily Self-Assessment or a confirmed temperature of 100.4° F or higher must result in the affected employee being sent home. The Contractor must follow federal, state, and local guidance to determine when the employee can return to the worksite.

- The Contractor shall immediately notify the Project Manager about any employees that are sent home due to temperature or COVID-19 symptoms.

b. All personnel must comply with social distancing on construction worksites.

1) Reduce size of work crews: Teams should reduce the number of people in each work crew to the minimum number of people possible to perform the task safely, even

if the reduction of crew size means the job takes longer.

2) Minimize interaction between work teams: Even groups within the same project should avoid interaction across groups, to minimize possible viral spread if one worker contracts COVID-19. Approaches to avoiding contact between groups may include staggered shifts, compressed work weeks where different teams work different days, and maximizing geographic distance between different teams working on the same project.

3) Avoid contact with visitors: Visitors outside the typical work crew should avoid interaction with the team wherever possible. For example, if an inspector or materials delivery needs to enter the site, they should alert the work team (e.g. by honking the horn of their vehicle twice or through another established communication means) so that the work team can vacate the site while the external parties are present.

4) Maintain a 6 foot distance between employees wherever possible: Construction teams should make every effort to limit activities that cannot be performed within 6 feet of distance between COVID-19: MULTI-INDUSTRY CONSTRUCTION GUIDANCE 040120 1 workers. However, some core construction activities may require some proximity to complete (e.g., concrete pours, utility potholing, work in cranes, drainage pipe construction, among others). In these cases, construction crews must employ other aggressive measures to limit contact. Examples include requiring employees to face away from each other, the use of supplemental Personal Protection Equipment (PPE) like face shields or respirators, minimizing the number of people on a team, and retaining consistency within work teams to limit contact with parties external to that team.

5) Office work should be done remotely, whenever possible: Office functions associated with a project (e.g. accounting or records) should be done from home to the maximum extent practicable.

6) In-person meetings should be avoided: Office meetings and consultations should take place virtually, with participants working from home or their work truck, whenever possible. If an in-person meeting is absolutely necessary, that must be limited to fewer than ten people, and participants must maintain 6 foot distance at all times during the meetings. All surfaces should be wiped down before and after the meeting, and hand washing should also occur before and after the meeting.

7) Workers must not congregate during breaks: Construction workers should not congregate for lunch or other breaks.

8) Activity specific work plans: Contractors should consider all job activities and review how they can be accomplished using necessary social distancing and sanitation protocols.

c. General Recommendations for Routine Cleaning and Disinfection on the Jobsite:

1) Contractors and subcontractors should use disposable wipes to wipe down used communal items like tools, equipment and job-boxes.

- 2) Make wipes and disinfectant available in common areas and “shared” equipment to allow workers to clean equipment before and after use.
- 3) Before using Aerosol Disinfectants on Fall Protection Harnesses, Connectors or Rigging, consult the manufacturer recommendations for cleaning since these can deteriorate the fibers of the material.
- 4) Practice routine cleaning of frequently touched surfaces (for example: tables, workstations, doorknobs, handles, etc.) with household cleaners and EPA-registered disinfectants that are appropriate for the surface, following label instructions. Labels contain instructions for safe and effective use of the cleaning product, including precautions you should take when applying the product, such as wearing gloves and making sure you have good ventilation during use of the product.

d. General Recommendations on How to Clean and Disinfect Surfaces:

- 1) Wear disposable gloves when cleaning and disinfecting surfaces. Gloves should be discarded after each cleaning. If reusable gloves are used, those gloves should be dedicated for cleaning and disinfection of surfaces for COVID-19 and should not be used for other purposes. Consult the manufacturer’s instructions for cleaning and disinfection products used. Clean hands immediately after gloves are removed.
- 2) If surfaces are dirty, they should be cleaned using a detergent or soap and water prior to disinfection.
- 3) For disinfection, diluted household bleach solutions, alcohol solutions with at least 70% alcohol, and most common EPA-registered household disinfectants should be effective.
- 4) Diluted household bleach solutions can be used if appropriate for the surface. Follow manufacturer’s instructions for application and proper ventilation. Check to ensure the product is not past its expiration date. Never mix household bleach with ammonia or any other cleanser. Unexpired household bleach will be effective against coronaviruses when properly diluted. Prepare a bleach solution by mixing:
 - 5 tablespoons (1/3rd cup) bleach per gallon of water or
 - 4 teaspoons bleach per quart of water
- 5) A list of CDC-approved disinfectants against viruses (including COVID-19 virus), see: <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2> Follow the manufacturer’s instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, etc.).
- 6) For soft (porous) surfaces such as carpeted floor and rugs, remove visible contamination, if present, and clean with appropriate cleaners indicated for use on these surfaces.

e. Detailed Recommendations for Cleaning and Disinfecting on the Jobsite:

1) Sanitation Units (Portable Toilets)

- Evaluate and provide additional restrooms (with hand sanitizer) as needed.
- Frequently or as needed, clean the surfaces that are dirty. They should be cleaned using a detergent or soap and water prior to disinfection.
- Use an Aerosol Disinfectant or diluted household bleach solutions (mentioned in the section above) to disinfect the commonly used items on the unit (handles, locks, toilet seat, etc.).
- With the promotion of frequent handwashing, it is more likely that the handwashing stations will need frequently or as needed refill of the water tank, soap/hand sanitizer dispensers and paper towel dispenser. It is recommended to add a morning and afternoon inspection of the units to guarantee they are serviceable.

2) Project Site Offices, Conference Rooms, Break Areas and Other Common Areas:

- Frequently or as needed, clean the surfaces that are dirty. They should be cleaned using a detergent or soap and water prior to disinfection.
- Wipe down tables and chairs with household cleaners or disinfectant wipes that are appropriate for the surface, following label instructions.
- Floor should be swept and disinfected with a diluted household bleach solution.
- As there is no designated lunch break area on for field personnel, it is recommended that lunch breaks be taken in personal vehicles or segregated around the site. Please do not congregate in tool trailers or connex boxes. This will help maintain social distancing of 6 feet.

3) Jobsite Entrances, Gates and Doors:

- Routine cleaning of the pull handles, locks and/or panic devices on doors by wiping them down with household cleaners or disinfectant wipes that are appropriate for the surface, following label instructions.

4) Operators of Light and Heavy Equipment (Forklifts, Scissor Lifts, Excavators, Loaders, Scrapers, etc.)

- Prior to and after use, wipe down controls, seats, handrails or other frequently touched surfaces with household cleaners or disinfectant wipes that are appropriate for the surface, following label instructions.

5) Hand Hygiene and other Preventive Measures:

- Employees should clean hands often, including immediately after removing gloves and after contact with any other person, by washing hands with soap and water for at least 20 seconds. If soap and water are

not available and hands are not visibly dirty, an alcohol-based hand sanitizer that contains at least 60% alcohol may be used. However, if hands are visibly dirty, always wash hands with soap and water.

- Employees should follow normal preventive actions while at work and home, including recommended hand hygiene and avoiding touching eyes, nose, or mouth with unwashed hands.

2. Update Safety Procedures

- a. Contractors will update their safety procedures to implement the guidance issued by federal, state and local authorities related to COVID-19, as well as to implement the procedures required by this addendum.
- b. Contractors will train employees on the updated safety policy.
- c. Contractors will ensure that all subcontractors are aware of and follow Contractors updated safety policy.

3. City of Greeley Project Sites Controls:

- a. Site Isolation:
 - 1) All Contractors and Subcontractor shall minimize or eliminate activities within City of Greeley facilities that require operations by City Staff. If City Staff and Contractor are required to be located in the same facilities, the Contractor shall coordinate with the Project Manager to minimize contact and reduce exposure.
 - 2) All Contractors and Subcontractors shall eliminate face to face meetings to minimize possible of exposure. All questions, concerns, and construction related questions shall be address through phone communications.
 - 3) Contractors shall notify the Project Manager prior to entering City facilities and provide information on work to be done and areas they will be in. Contractors shall not enter any administrative or occupied facilities without prior approval from the Project Manager.
 - 4) If any employee of a Contractor or Subcontractor enter the site while sick, they will be immediately asked to leave. Contractors will not be compensated for this lost time.
- b. Personal Protective Equipment (PPE):
 - 1) All Contractors and Subcontractors shall wear non-medical face coverings while working on City of Greeley job sites.
 - 2) Contractors shall require the use of additional PPE as recommended by federal, state and local authorities.

4) **City of Greeley contract controls:**

- a. To remain ahead of identified concerns, Contractors must reach out to their subcontractors and suppliers to ascertain potential sources of delay to ensure they give the proper notices to their owners.
- b. Contractors must promptly notify the Project Manager of potential delays.
- c. If a Contractor determines that a project or project phase must be shut down due to the COVID-19 pandemic, the Contractor shall immediately contact the Project Manager and submit a change order request.
 - 1) Contractors must insure that the project site is left in a safe condition. Contractor shall insure periodic inspection of the project site.
 - 2) Traffic control devices must continue to be inspected and maintained, so it is a best practice to minimize their need and use when a project is temporarily inactive.
- d. Contractor will insure compliance with all CDC and OSHA requirements.
- e. Contractor agrees that this addendum may be supplemented as additional guidance is received from federal, state and local authorities.



SECTION 520
SUBCONTRACTORS/MATERIALS SUPPLIERS AND RELATED DATA

Firm Name: _____ City Contractors License # _____
Primary Contractor _____

PROJECT: _____ Address: _____

For each Subcontractor and/or Materials Suppliers to be utilized, please provide the following information (use additional sheets as necessary):

Phone Number: _____ Fax Number: _____
Proposed work and percentage of total work to be assigned _____
Percentage: _____ %

Firm Name: _____ City Contractors License # _____
Address: _____
Phone Number: _____ Fax Number: _____
Proposed work and percentage of total work to be assigned _____
Percentage: _____ %

Firm Name: _____ City Contractors License # _____
Address: _____
Phone Number: _____ Fax Number: _____
Proposed work and percentage of total work to be assigned _____
Percentage: _____ %

Firm Name: _____ City Contractors License # _____
Address: _____
Phone Number: _____ Fax Number: _____
Proposed work and percentage of total work to be assigned _____
Percentage: _____ %

Firm Name: _____ City Contractors License # _____
Address: _____
Phone Number: _____ Fax Number: _____
Proposed work and percentage of total work to be assigned _____
Percentage: _____ %

If the Primary Contractor adds any Subcontractors or Materials Suppliers during the duration of the project, the Primary Contractor will supply the City with an updated form before the Subcontractor or Materials Supplier will be allowed to work on the project.

SPECIAL PROVISIONS FOR CITY OF GREELEY

CENTENNIAL PARK – PHASE 0.5

BIDDING DOCUMENTS – NOT FOR CONSTRUCTION

January 29th , 2021

PROJECT DESCRIPTION

This project includes the reconstruction of the existing site at the northwest corner of 23rd Avenue & Reservoir Road adjacent to the Public Library and Fire Station no. 2.

In particular, this project includes a new turn lane (as a bid alternative), detached sidewalks, bus stop, resetting a traffic signal pole (bid alternative), landscaping, irrigation system, and complete reclamation.

Work will include:

- Erosion and sediment control,
- Traffic control measures,
- Unclassified excavation and embankment,
- Removal of existing concrete,
- Installing concrete curb and gutter, ADA ramps, and sidewalks,
- Constructing parking lot and access roads,
- Pavement surface for a turn lane including subgrade stabilization, aggregate base course and HMA bituminous pavement
- Permanent pavement markings,
- Landscaping boulders, features, trees, planting, etc.
- Irrigation Systems
- Topsoil, sod or seed,
- Construction surveying
- Other miscellaneous items to complete the project

Xcel Energy, CenturyLink and Zayo will be relocating utilities for the project requiring the Contractor to coordinate with them on their schedule of construction activities.

CONSTRUCTION PLANS

The construction plans for this project are dated January 29th as prepared by AVI Professional Corporation, 2290 East Prospect, Suite 5, Fort Collins, Colorado 80524 and bid plans pages 1-37.

GOVERNING SPECIFICATIONS

This project shall be constructed in accordance with these Special Provisions and the latest edition of the following standard specifications:

- City of Greeley General Conditions to the Construction Contract (“General Conditions”)
- City of Greeley Design Criteria and Construction Specifications – Volume I (Streets), Volume II (Storm Drainage). A copy of the specifications manual can be obtained from the City of Greeley, Public Works Department located at 1001 9th Avenue.
- MGPEC Pavement Design Standards and Construction Specifications (MGPEC)

- Manual of Uniform Traffic Control Devices (MUTCD)
- The Colorado Department of Transportation (CDOT) Standard Specifications for Road and Bridge Construction, the CDOT M & S Standards, CDOT Construction Manual and CDOT Materials Manuals, latest editions.

In case of conflict, documents shall have the following priorities: (1) Special Provisions, (2) General Conditions, (3) Plans, (4) City of Greeley Design and Construction Specifications Volumes I-III, (5) MGPEC, (6) CDOT Standard Specifications.

LICENSE, FEES, AND PERMITS

Conform to GC Section 00510 Article 16. Conform to “Streets Volume I” Section 01010. A pre-construction conference shall be held prior to the issuance of any permits for construction.

The Contractor shall obtain all required Colorado Discharge System Permits. Storm Water Discharge Associated with Construction Activities from State of Colorado, Department of Public Health & Environment, Water Quality Division for temporary storm water runoff and dewatering from the site. Contactor shall also submit a Stormwater Management Plan (SWMP) to the City Stormwater Management Division for review and approval. Provide a copy of permit(s) to the City prior to construction.

CERTIFICATE OF INSURANCE:

The Contractor shall provide documents from the insurance companies, acceptable to the Owner, the insurance coverage designated hereinafter and pay all costs. The Contractor also indemnifies the Owner and Engineer according to Article 47 of the General Conditions. Insurance agency certificates are not acceptable substitutes. The Contractor shall name the “City of Greeley” on their General Liability, Automobile Liability and Property Damage Liability policies.

SALES TAX:

The price or prices for the work will include full compensation for taxes that the Contractor is or may be required to pay under Article 26 of the General Conditions.

PRE-CONSTRUCTION CONFERENCE

After Contract Notice of Award, the Contractor shall attend a pre-construction conference with the City prior to commencement of construction. Refer to General Conditions for Pre-construction conference requirements of the Contractor. The Contractor shall submit the following information at the preconstruction meeting:

- Storm water Management Plan
- Traffic Control Plan
- Asphalt and Concrete Mix Designs
- Materials Source submittals
- Materials Suppliers list
- List of Subcontractors
- Insurance Certificates
- Bar graph construction progress schedule in accordance with General Conditions Article 21

SCALE TICKETS

The Contractor shall provide certified scale tickets for each truck load of material to be paid by unit weight that is delivered to and incorporated in the project. The Contractor shall submit tickets to the designated City project representative at the time material is delivered to the site.

SUBMITTALS - CONSTRUCTION MATERIALS

Contractor shall submit manufacturers' information and materials specifications, testing results, and certifications that the materials proposed for this project meet the specification requirements outlined in the Standard Specifications and these Supplemental Specifications. Refer to individual sections within the Standard Specifications and Supplemental Specifications for specific material submittal requirements.

The Contractor shall submit manufacturers' information and certification that all materials conform to materials specifications for the following items. Receive approval in writing before work commences and before confirmation of order. Deliver two (2) copies of all submittals to the Project Manager within 10 working days from the date of Notice to Proceed. Provide information in a 3-ring binder with table of contents and index sheet. Provide sections that are indexed for different components and labeled with the specification section numbered and the name of the component. Submittals must be made for all components on the material list. Indicate which items are being supplied on the catalog cut sheets when multiple items are shown on one sheet. Submittal package must be complete prior to being reviewed by the Project Manager. Incomplete submittals will be returned without review:

- Aggregate Base Course,
- Hot Mix Asphalt Pavement Mix Design
- Concrete Mix Designs,
- Detectable Warning Plates,
- Bollards,
- Storm Sewer Structures, Inlets, and Pipe Materials,
- Preformed Thermoplastic Pavement Markings,
- Erosion Control Materials.

CONTRACTOR USE OF SITE

The Contractor shall, at all times, conduct his work as to insure the least possible inconvenience to the general public and adjacent property owners to the project site, and to ensure safety of persons and property. Fire hydrants on or adjacent to the Work shall be kept accessible to firefighting equipment at all times. Temporary provisions shall be made by the Contractor to insure the use of access roads / driveways to adjacent properties.

Full closure of any road / parking lot is not allowable unless special approval is granted by the City. The Contractor shall submit for approval a Traffic Control Plan conforming to MUTCD Standards, Greeley Streets Construction Specifications Section 01010, and Greeley Regulations for Street Construction, Section G Traffic Control prior to initiating construction.

MEASUREMENT AND PAYMENT:

This contract is a unit price contract in which the Contractor will be reimbursed for the actual quantities of work performed and installed in accordance with the contract documents unless otherwise noted. No additional payment for work described in these documents will be allowed, whether a bid item exists or not. The Contractor shall include the costs of all incidentals of construction, labor, equipment, and materials in the appropriate bid item.

CONTRACT TIME. LIQUIDATED DAMAGES. DELAYS

Construction (including the turn lane bid alternative) must be completed in its entirety by June 30th, 2021 for Phase 0.5. Anticipated notice to proceed will be April 1st 2021. Contract time commences on the date of the Notice to Proceed. Where a number of days is specified in this Contract it shall mean "Calendar Days" unless otherwise specified according to Article 59 of the General Provisions. There shall not be any "free time".

The project shall be considered substantially complete when, as determined by the Engineer, the Contractor has completed their work. The liquidated damages amount will be in the amount of \$1,500.00 for each calendar day. Liquidated damages are based on additional costs to the City of Greeley for delay of project completion and are not a "late penalty".

Listed below are the anticipated numbers of calendar days lost to normal adverse weather for each month.

Monthly Anticipated Calendar Days Lost to Adverse Weather Conditions												
Month	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Normal Days Lost	7	4	4	4	6	3	4	2	3	3	2	5

The above schedule of anticipated adverse weather days will constitute the base line for monthly (or portion thereof) weather time evaluations. It is assumed that the work will be carried out Mondays through Fridays (except holidays) unless an approved construction schedule or written authorization from the City indicates otherwise.

An actual adverse weather day must prevent work for 50 percent or more of the CONTRACTOR's workday. When the CONTRACTOR anticipates documenting a weather day, he/she shall first notify the City Inspector observing the construction to determine whether or not work can proceed or if work is delayed due to adverse weather or the effects thereof. If in agreement, the CONTRACTOR shall formally request a weather day in writing to the City's PROJECT MANAGER. The CONTRACTOR shall also notify the City's PROJECT MANAGER in writing of any disagreement as to whether or not work can proceed on a given date within two calendar days of that date.

The number of workdays delayed due to adverse weather or the impact thereof will then be converted to Calendar Days. Weekends and holidays will only count as calendar day delays, if a workday delayed due to adverse weather is counted before and after the weekend/holiday. The number of calendar days of delay due to adverse weather or the impact thereof will then be compared to the monthly adverse weather schedule above. The Contract time period will then be increased by change order for the number of calendar days that are in excess of the above schedule and a new Contract Completion day and date will be set.

While extensions of time shall be granted for "unusually severe" weather or climate conditions, no monetary compensations shall be made by the City for any costs to the CONTRACTOR arising out of such delays.

PROTECTION OF EXISTING UTILITIES / UTILITY COORDINATION

The Contractor shall contact all appropriate utility companies prior to construction to notify of construction, to verify location of utilities in the construction area, and to coordinate utility company relocation, adjustment, or installation work with Contractor's work. Locations of utilities shown on plans are approximate, only based on "field locates" by the affected utility and limited pothole information. The Contractor shall verify prior to construction.

The Contractor shall comply with Article 5 of the General Conditions ("Protection of Existing Vegetation, Structures, Utilities, and Improvements and Land Survey Monuments") when excavation or grading is planned in the area of underground utility facilities. Protection of existing

utilities and coordination with utility companies for relocations / manhole lid adjustments shall be in accordance with Streets Volume 1, Section 01010. No additional payment will be made for this coordination.

The Contractor shall notify all affected utilities at least two (2) business days prior to commencing such operations. Contact the Utility Notification Center of Colorado (UNCC) to have locations of UNCC registered lines marked by member companies. Call originating within with Denver metro area use phone no. (303) 534-6700: calls originating outside the Denver metro area use 811. All other underground facilities shall be located by contacting the respective company. Utility service laterals shall also be located prior to beginning excavating or grading.

All cost incidentals to the foregoing requirements will not be paid for separately but shall be included in the work.

The City will not be responsible for any construction down time due to failure on the Contractor's part to notify utility companies of conflicts.

Known utilities within the limits of this project are:

CenturyLink, Carson Ortega (970) 392-4837 (communication)
Atmos Energy, Jerry Adams (970) 304-2048 (gas distribution)
Xcel Energy – (PIKE Engineering), Sheree Baker (970) 622-2914 (electric distribution)
Xcel Energy – (PIKE Engineering), Kenny Macewen (970) 622-2914 (electric distribution)
Zayo Bandwidth Group, James Black (719) 216-8508 (Fiber Optic Lines)
Greeley Raw Water Irrigation, Roger Schmidt 970-371-3728 (Raw Water Operations)
City of Greeley Engineering, Brian Ward, (970) 350-9357 (Project Manager)
City of Greeley, Bob Neal (970) 336-4227 (water/sewer)
City of Greeley, Scott Logan (970) 350-9555 (traffic)
City of Greeley, Andrew Fischer (970) 350-9797 (Storm water)
City of Greeley, Leroy Baca 970-350-9882 (Traffic Operations)

Contact information may have changed from date of this publication.

Contractor is responsible for field verifying the location of utilities within the project limits and immediately notifying the City of Greeley of any potential discrepancies or conflicts between the Work and the existing utility.

The Contractor should pothole existing utilities as they determine to adequately perform the work required and protect said utilities. Potholing is a subsidiary item to mobilization.

RIGHT OF WAY AND EASEMENTS

All construction is within the existing roadway right of way and or City of Greeley property. Any unauthorized disturbance occurring outside these limits shall be restored to its original condition (or better) at the Contractor's expense.

The Contractor may arrange separate agreements with private landowners for staging equipment and materials if Contractor determines this is necessary. All agreements must be approved by the City's Project Manager.

PROPERTY OWNER NOTIFICATION

The Contractor shall deliver notices describing project activities and Contractor's proposed schedule of work to Fire Station No. 2, the library and all property owners and/or business operators located within 500 feet of project limits and to all other homes or businesses abutting or immediately adjacent to the project. The Contractor shall submit the description and schedule to the City for review prior

to delivering to said property owners. The Contractor shall maintain access for the Fire Station, Public Library and Centennial Park at all times during construction.

Contractor shall coordinate with property owners prior to initiating removal / construction activities on areas outside of public right of way and shall provide a minimum of 5 days' notice to property owners prior to these activities.

Notice shall also be given 24 hours prior to start of any construction activity that will restrict access to the affected property or when construction will be within 500 feet of that business or residence. Re-notify all property owners if the previously noticed schedule is delayed by 3 or more days

PROTECTION OF THE PUBLIC

The Contractor shall be responsible for providing fencing, barricades and any necessary safety equipment to keep the site and the public safe at all times.

EXCAVATION / EMBANKMENT

Conform to "Streets Volume I" Section 02220 and these special provisions.

Material from the project deemed unusable by the Engineer shall be removed from the project and legally dispose of at no additional cost to City.

Excess material generated by the project shall become the property of the Contractor and shall be removed from the project and legally dispose of at no additional cost to City.

REMOVALS / RESETS / RELOCATIONS

Saw cutting of existing pavements / concrete shown on the construction plans shall be considered an incidental expense to the removal quantities and no separate payment will be made for this item.

Removal of Bituminous Pavement and concrete shall include all labor, materials, excavation, haul, saw-cutting, disposal, grading, and other items of expense necessary to the limits shown on the demolition plans and in accordance with "Streets Volume I" specifications. Payment for this item shall be made in accordance with the Bid Form for removal of asphalt mat and removal of concrete paid per square yard basis.

Clearing and Grubbing shall include all removals of existing shrubs, organic material, etc to perform the work.

Refer to the Bid Form for unit quantities for the respective removal items designated within the construction documents.

CONSTRUCTION STAKING

The Contractor will provide all construction staking for the project. All surveying and staking shall be performed under the supervision of a Colorado licensed surveyor. The Contractor will also provide an as-built survey of the new curb/gutter, new sidewalk, bus stop, and new HMA limits upon completion of the project.

EROSION AND SEDIMENT CONTROL

The Contractor is responsible for control and routing of storm water runoff draining onto and from the construction area to prevent erosion or other damage. Comply with City of Greeley Environmental Municipal Construction Best Management Practices (BMP). A Colorado Discharge Permit is required for this project since the project is disturbing more than one acre. The Contractor is responsible for

all implementation, removals, maintenance, etc. to keep the project in compliance with the City of Greeley standards. The City is responsible for inspections and documentation. The Contractor will be required to appoint their own Erosion Control Supervisor and needs to display due diligence towards the maintenance of the sediment and erosion control bid items.

An initial Erosion Control Report/Stormwater Management Plan is included in the bid documents. The Contractor shall submit an updated Stormwater Management Plan (SWMP) with schedule identifying erosion control methods and timing as well as any construction means and methods items at the Preconstruction Conference.

Not all BMP's shown on Plans are intended for initial installation. BMP's shall be requested/approved by City prior to implementation. Additional BMPs may be required and shall be implemented at the request of the City. Additional BMPs, approved by the City, will be paid per the unit bid price. Erosion Control bid items include silt log, inlet protection, seeding, and concrete washout structure and shall be paid per the unit price.

GRADING, COMPACTION OF SUB-GRADE

Conform to "Streets Volume I" Section 02225.

CONSTRUCTION TRAFFIC CONTROL

The Contractor shall comply with the requirements of Section 01010, Paragraph 1.3 G of DCCSM. The Contractor shall not perform any construction work in the public right-of-way prior to receiving approval of the Traffic Control Plan from the City of Greeley. The TRAFFIC CONTROL PLAN will include the City's Traffic Control Plan review Form.

Road closures can occur for single lane roads. For roads with more than one lane, one lane each direction shall remain open at all times.

The Contractor shall maintain business access as practical and coordinate construction activities with business owners at all times.

The Contractor will appoint a Traffic Control Supervisor (TCS) to this project. The TCS does not need to be on site but must be available twenty-four (24) hours a day. The name and phone of the TCS will be provided to the City at the Pre-Construction Meeting. The Contractor will also provide the name and phone number of an alternate local traffic control company that will act on the Contractor's behalf in case the designated TCS cannot be reached. If Contractor is unresponsive or otherwise is deemed to not be performing traffic control duties in accordance with submitted plan, the City or its subcontractor may perform traffic control services, at cost to the Contractor.

The Contractor will be notified in writing when the traffic control for any site work is not acceptable. The Contractor will not be allowed to continue work at the location until the problems are corrected. Failure to correct the traffic control deficiencies prior to continuance of the work will result in non-payment for the work performed at the locations in question.

All costs incidental to construction traffic control including inspection and supervision shall be included in the costs of the Construction Traffic Control bid item.

EQUIPMENT STAGING/PARKING

The Contractor is responsible for obtaining permission from adjoining property owners for any equipment staging areas if needed. See subsection entitled "Right of Way and Easements" in this document for additional requirements.

DUST CONTROL

The Contractor shall control dust in and around the construction site. If dusty conditions prevail, the site shall be watered at least twice daily or as required. No separate payment will be made for dust control by watering. Merge costs of dust control by watering into bid price of related items.

TESTING

The Contractor shall provide Quality Control Sampling and Testing. The types of tests and minimum test frequencies are described in the City "Streets Volume I" Schedule for Quality Control Sampling and Testing Table in the Appendix. Cost shall be included in the bid price for Mobilization.

Quality Acceptance Testing shall be done by the City of Greeley's Construction Services or their representative. The City will pay for all Quality Assurance Testing. It is important that the Contractor inform the project Inspector or assigned representative as to when they will be ready for tests. A 24-hour advanced notice will be required.

General Construction Inspection efforts will be provided by the City of Greeley.

HOT MIX ASPHALT PAVEMENT (HMA)

Conform to City STREETS Section 02575.

Application: Thickness varies – see typical sections, Grading S (100) (PG 64-28) Top 2 Inches. Grading SX (100) (PG 64-22) Bottom 3 Inches.

RAP quantity: 20% Maximum.

Design: See MGPEC Form 20

CONCRETE

Conform to "Streets" Section 03310 & MGPEC Section 31 except as modified herein:

2.1 REFERENCES – delete this section and replace with the following:

"Materials and construction methods shall meet the requirements of MGPEC Item 11 except as noted herein."

2.2 CLASSIFICATION – delete the first 7 lines of this section referring to CDOT concrete classes and replace with the following:

"Use Portland Cement Concrete as specified in MGPEC Item 11.2.7 for sidewalks

FINAL CLEANUP

The Contractor shall, at completion of construction and prior to submitting request for final payment, clean up the site, removing all related debris. The Contractor shall notify the City when final cleanup is ready for inspection. This task includes any cleanup related to the SWPPP.

PROJECT CHANGES

The City reserves the right to alter the project. Quantities may be added or deleted and adjustment will be made to the contract price according to the unit prices in the Bidding Schedule. However, if quantities are increased or decreased more than 25%, changes and adjustments may be negotiated so that a mutually agreeable adjustment can be made.

PROJECT WARRANTY

The Contractor is responsible for providing a TWO-YEAR warranty to the City of Greeley for all work completed under this contract. The beginning of the TWO-YEAR warranty period will be established with the issuance of the Certificate of Substantial Completion. There will be no additional cost to the City or the property owner for material, equipment, labor, and/or traffic control for warranty work.

Warranty work will be completed in accordance with these contract specifications and within 30 days of written notification by the City of Greeley.

BID ITEMS – GENERAL DESCRIPTION OF MEASUREMENT AND PAYMENT

Measurement and payment for bid items listed in the Bid Form shall be on the basis of the description in the applicable standards specifications or as identified in these supplemental specifications and Construction Drawings. Unless the work to be done is specifically called out to be measured and paid for in the Bid Form Unit Price Schedule, payment for such work shall be included in other applicable items, and there shall be no separate measurement and payment for the work.

It is the intention of the contract documents to describe a complete project. Merge the cost of any and all miscellaneous work items (if not separately identified as bid items) shown on the Plans or implied as standard items of work necessary to achieve a complete and operational system in the unit price contained in the Bid for the nearest related bid item.

Merge all costs of labor, materials, supervision, fuel, equipment, and other incidentals necessary to accomplish each work item into the unit price contained in the Bid for that item. Payment will be made at bid unit price for completed items unless otherwise noted. The basis for payment will be the *measured* in-place quantity, or quantity documented by delivery tickets, unless the item unit is Lump Sum (LS), or *plan quantity* is specified below.

Certain bid items may be clarified as follows:

Unit Quantities: Quantities and measurements indicated in the Bid Form are for contract purposes only. Quantities and measurements supplied or placed in the Work shall determine payment. Actual quantities provided shall determine payment. The City reserves the right to increase or decrease individual items in such amounts as may be in their sole judgment to the City's best interests depending upon conditions encountered or observed during the Project. It shall be the Contractor's responsibility to satisfy himself as to the accuracy of the estimates prior to bid.

Payment shall be made at the contract unit bid price listed in the Bid Form. The price listed therein shall be for unit quantities which includes full compensation for required labor, tools, equipment, products, materials, haul, disposal, plant and facilities, transportation, services, erection, application or installation of item of the work; overhead and profit required to construct the respective bid items according to the Contract Documents incidental thereto.

ITEMS WITH ADDITIONAL EXPLANATION ARE AS FOLLOWS:

BID ITEM 2210 RESET TRAFFIC SIGNAL POLE

Reset Traffic Signal Pole shall include removing and resetting the traffic signal pole, new concrete foundation, removing the existing foundation, wiring and all efforts, incidentals, to complete the work.

BID ITEM 2210 TRAFFIC SIGNAL CONTROLLER

Traffic signal controller shall include removing the existing signal controller, existing cabinet, existing foundation, installing a new signal controller/cabinet new foundation, new wiring install for

the entire intersection, verifying the signal is working properly, and all incidentals to provide a fully functionally traffic signal system for the intersection. Work shall al

A new pedestrian push button pole shall be installed and considered subsidiary to the work as well. New wiring shall be included versus splicing existing wires to achieve the correct length. Specifications shall be to City of Greeley and CDOT standards. Bid item shall also include time and efforts to switch the existing system over to the new system. This will include police officer traffic control occurring late night hours to switch from the existing system to the new system and ensure the system is working properly.

The City of Greeley will provide the following:

- 332 Traffic signal cabinet,
- Clary Battery Backup Unit,
- Quazite cabinet base,
- Cabling (21 Conductor, pedestrian pushbutton cable, detection cable),
- Pedestrian push button pole.

The approved contractor would be responsible for the installation of the above. Also please note that the existing underground conduit will not allow for any cable to be pre-installed as there is no longer any capacity in the 2" conduits. Work to complete the removal of old and installation of the new would need to be addressed overnight to minimize impact during the outage.

The Contractor shall visit the site to become fully aware of the work entailed. Following are cabinet and pedestrian pole information for reference.

332D



Description:

- Meets Colorado DOT, Caltrans and FHWA requirements.
- Designed to accommodate Caltrans 170 cabinet assemblies.
- Additional 19" EIA rack provides space for UPS and ITS applications.
- 8 phase, 4 ped operation comes standard. Auxiliary output file option for six additional load switches is available.
- Two 14-position Input Files.
- DC isolation inputs for pedestrian push buttons and special functions.
- Programmable "yellow/red" or "all red" flash.
- 2 dual circuit flasher positions.
- Combined 24V DC power supply and power distribution assembly.
- Dual 100 CMF thermostat controlled fans.
- 3 point lock system, choice of Corbin or Best locks.
- Anti-graffiti finish.
- 4-doors with front and rear access.

Dimensions: 67"H x 48.5"W x 30"D
Weight: 450 lbs.
Part Number: M31830 (332D, CDOT, P-COAT)

SP Series

New Technology Series

Uninterruptible Power for Traffic Signal Applications

New Technology Products

SP1250LX-R/N, SP1250LX-R/N (48) and SP2000LX-R/N



The **SP1250LX-R/N, SP2000LX-R/N** and the Outpost™ Series batteries are designed for outdoor use and will operate in extreme temperature environments of -40°C to +74°C (-40°F to +165°F).



SP1250LX-R/N, SP1250LX-R/N (48) and SP2000LX-R/N

Universal UPS Systems for LED Traffic Signals Featuring:

- Local Keypad programmability - no laptop necessary
- Local display of; battery status, power system status, UPS system status, UPS information and event logs
- Integrated PIM with external By-pass to support ease of connection
- Supports both NEMA, front mount(N) or Rack Mount(R), rear mount power and battery connection
- Eight Programmable Relays with 16 assignable status conditions to set or reset relays
- Signaling via open collector contacts, RS232 Serial Interface, USB or SNMP Adapter (Internet)
- Can keep an intersection running for up to 8 hours or longer
- Online mode for system reliability and protection
- Does not compromise existing cabinet wiring for ease of installation
- Provides ON-LINE conditioned, re-manufactured power for cabinet equipment protection
- TCP/IP- Communicates with monitoring center or other equipment for fast status notification
- SP1250LX-R/N (48): 1,250VA, 875 continuous watts, 48Vdc battery system
- SP1250LX-R/N: 1,250VA, 875 continuous watts and 1400 watts for 10 seconds, 72Vdc battery system
- SP2000LX-R/N: 2,000VA, 1,400 continuous watts, 96Vdc battery system
- Multi-state DOT and NEMA compliant
- Optional NEMA 3R Type II and Type III cabinets available
- Power Factored Corrected for reliable, safe power

Where POWER is a way of life

Uninterruptible Power for Traffic Signal Applications



ELARY
The Continuous Power Company™

SIGNAL POWER™

SP Series **New Technologies Series**

Clary Power Products are known worldwide for their demanding role in power protection! Clary Power Products deliver high availability to critical systems. Using the most advanced UPS technology, Clary Corporation has developed a line of power products for traffic systems applications that delivers the same reliability as its military and life support products.

SP Series, Model PD



SPD-302C
By-pass Switch
with GFCI Plug, Circuit Breaker and
Generator Plug

Keeping intersections alive during power failures, Clary's New Technology Series are the world's most advanced Uninterruptible Power System (UPS) for traffic applications. Without compromising existing cabinet wiring, the New Technology Series keeps LED signal heads running for up to 8 hours or more during power failures. Clary's continuous power systems fit inside most existing cabinets and meet NEMA temperature specifications. Optional, NEMA 3R Type II and Type III cabinets are available.

The New Technology Series systems provide clean, regulated dual conversion power for controllers and other sensitive equipment inside the cabinet. The SP1250LX-R/N systems are intended for applications where constant load usage will not exceed 875 watts or 1400 watts for ten seconds, 72Vdc system only. While the SP2000LX-R/N is intended for loads that will not exceed a constant 1400 watts. The SP1250LX-R/N systems require either four (48VDC systems) or six batteries (72VDC systems) while the SP2000LX-R/N require eight batteries and sufficient cabinet space or a separate cabinet such as the CLARY CBO-126 or the CBS-126 UPS traffic cabinet.

Advanced communication features allow monitoring, configuration and control of the system over RS232 modem or TCP/IP network connections or USB connection.

SP1250LX-R/N (48V), SP1250LX-R/N or the SP2000LX-R/N feature a universal mounting system that supports both NEMA and 332 style rack mount cabinets. When ordering please specify either SP1250LX-R/N or SP2000LX-R/N (SP1250LX-R for rack mount and SP1250LX-N for NEMA (shelf) mount).

OUTPOST BATTERIES



OPB-1241 / OPB-1251
or
OP72A - Battery Set

These 41 and 51Ahr maintenance-free, Absorbent Glass Mat, Valve Regulated, Lead Acid (AGM-VRLA) batteries are designed for deep cycle, extreme temperature applications. They have been field tested and used for years by the military. Absorbent Glass Mat (AGM) technology assures a safe environment. Especially designed for outdoor and extreme temperature applications, they are capable of operating from -40°C to $+74^{\circ}\text{C}$ (-40°F to $+165^{\circ}\text{F}$). This makes them ideal for use with Clary's SP1250PD PLUS Series, the New Technology Series Traffic Signal solutions, and IT communication solutions or other extreme temperature applications. Additional Battery Types and Ratings are available, please contact factory.

Features List



Component	Features
General Features	<ul style="list-style-type: none">• Compatible with most traffic cabinets• Works with intersections that have red LEDs by utilizing flash mode• Provides full operation in intersections with all LEDs in all positions• Power event counter records number of power utility failures• Small size fits most cabinets• Non-invasive to cabinet wiring (only utility line is rerouted)• Auxiliary contacts allow full operation for short power interruptions and flash operation for longer interruptions or low battery• Police panel compatibility allows complete shutdown during emergencies• All internal calibrations are digital; no potentiometer to set or fail• Intelligent software interface for monitoring and configuration• Optional Web-based network interface allows monitoring with common web browsers• Economically priced
UPS Electronics	<ul style="list-style-type: none">• Dual Microprocessor controlled• Powerhandling capacity: 1,250 VA, 875 watts or 2000 VA, 1400 watts• Rugged, military grade inverter designed for 24 hour, 7 day, 365 days a year operation• Built-in TVSS (surge suppression)• DSP technology• Automatic periodic self testing• Interfaces: RS232 intelligent; contact closures; optional NTCIP or TCP/IP network interface and USB
Battery System	<ul style="list-style-type: none">• Sophisticated battery management for recharging and protection• Temperature compensated battery charging• Battery run-time counter• Periodic battery testing checks for: Battery condition; Battery charge; Battery status; Battery temperature• Foolproof battery connector system allows safe, tool-less installation even in dark or low-light conditions• Optional "quick charge" battery charger
Batteries	<ul style="list-style-type: none">• Outpost™ batteries specifically designed for outdoor use• AGM/VRLA battery technology• Sizes available for 2, 4, 8 or more hours of operation• Mounting trays available for 170 style cabinets
Bypass Switch Features GFI and Generator connections	<ul style="list-style-type: none">• By-pass switch allows hot swapping of entire UPS without disturbing intersection operation• Minimum disruption of cabinet wiring• Uses high reliability, industry standard contactors
Alarm Functions	<ul style="list-style-type: none">• Input bad• Output bad• Temperature• Over load• General alarm• Consult SP1250LX or SP2000LX User Manuals for additional information on alarm monitoring and logging.

Where POWER is a way of life

New Technologies Series Specifications

ELECTRICAL

Input

Voltage	75 Vac to 155 Vac before going to batteries
Frequency	45 to 65 Hz

Output

Voltage	120 VAC+3%
Frequency	50 or 60 Hz
Rating:	
SP1250LX-R/N (48)	1,250 VA/875 Watts
SP1250LX-R/N	1,250 VA/875 Watts
SP2000LX-R/N	2,000 VA/1400Watts,

Crest Factor Ratio (Non-linear Load and < 5 %THD) Typical	@50% Load	Up to 4.8:1
	@75% Load	Up to 3.2:1
	@100% Load	Up to 2.4:1

Total Harmonic Distortion (THD)	4.0% Max.
Dynamic Response	±4% for 100% Step Load Change 0.5 ms Recovery Time

Overload	110% for 10 sec; 200% for .05 sec
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UPS Protection	Input and Output Short Circuit; Input and Output Over load; Excessive Battery Discharge
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ENVIRONMENTAL

Operating Temp.	-40°C to +74°C (-40F to +165°F)
Humidity	0% to 95% Non-condensing
Altitude	Sea Level to 10,000 ft (some derating of temp. w/altitude > 6,000 ft)

MECHANICAL

Input	Hardwired to By-pass Switch
Outputs	Hardwired to Bypass Switch

CUSTOM Options

Cabinet	NEMA, 332 or CBO-123 Cabinet style configurations available; NEMA 3R Type II and Type III Optional
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Consult Factory for other Custom options

DESIGN

Standard Features	Power Factor Corrected Input; Fully Regenerative; True On-Line Continuous Power; Low Distortion Sinewave Output; Designed for Non-linear Loads; Extended Brownout Protection; EIA/RS232 Data Interface
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Specifications	Meets FCC Class A, IEEE 587/ANSI C62.41, IEC 555 @ 120 VAC and NEMA Stds
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MTBF	Inverter: > 100,000 hrs System w/Bypass: 150,000 hrs Calculated from Component Spec
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Typical Recharge Time to 85% Capacity @ 100% Load	48-72 hrs (more time required with extended battery option) Less than 20 hrs with optional Fast Battery Charger
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CONTROLS AND INDICATORS

Control Panel	Power On; Cold Start; Test; Alarm Silence; Four line LCD display Panel
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Audible Alarms	Utility Interrupt; Inverter Failure; Overload; Low Battery; Self Test
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Serial Interface for Full Interactive Remote Computer EIA 232. Optional Monitoring and Control of Most NTCIP and TCP/IP Features Including Load Control via Standard RJ45 (requires optional monitoring and USB Connector software); NTCIP and TCP/IP Ready	
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Contact Closures ("D" connector)	Open Collector for Remote Annunciation and On Battery, Low Battery; See User Manual for additional interface information
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Specifications subject to change without prior notice.



Uninterruptible Power for Traffic Signal Applications

Model	VA	Watts	Input Current (A)	Output Current (A)	Backup Time 100% / 50% Load	Unit Weight LBS	Dimensions H x W x S
SP1250LX-R/N (48V)	1,250	875	8.8	10.4	2.0 hrs. / 4.0 hrs	27	3.50 x 19.0 x 10.0
SP1250LX-R/N	1,250	875	8.8	10.4	2.0 hrs. / 4.0 hrs.	27	3.50 x 19.0 x 10.0
SP2000LX-R/N	2,000	1400	14.3	16.7	1.0 hrs. / 3.5 hrs.	28	3.50 x 19.0 x 10.0



CLARY Corporation
150 E. Huntington Drive • Monrovia, CA • 91016
Tel: 800.442.5279 • Fax: 626.305.0254
•www.clary.com

Made in the USA

P/N 520-14643
01/10/13 - Ver. 1.1

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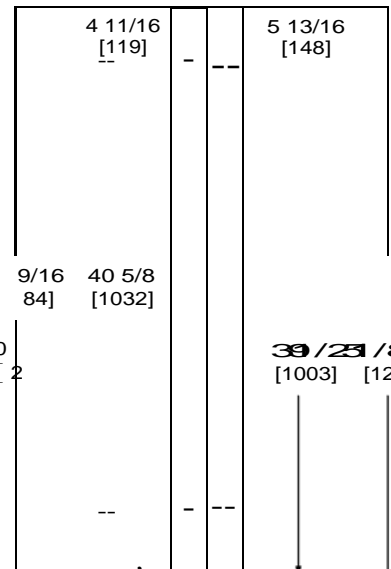
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SKID RESISTANT
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McCAIN 333JP CONTROLLER

CABINET FOOTPRINT

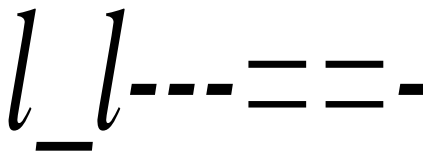
SAFETRAN 332D CONTROLLER
CABINET FOOTPRINT

1/2-13 UNC
LIFTING INSERTS
4 PLACES



40 13/16 39 1/2

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1/2-13 UNC
INSERTS
8 PLACES

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1a 1,2
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BX R3/4 [19]

4X R1/2 [13] CONT.

CUSTOMER APPROVAL

APPROVED BY: _____
DATE: _____

NOTES:

1. CUSTOMER IS COLORADO DOT.
2. OVERALL EXTERIOR AND THROAT DIMENSIONS ARE ±1/4 [6].
3. DIMENSIONS IN BRACKETS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

1

3X 5° CONT.

446#
WEIGHT
202kg

CMH(t) = b.N T; Lj7'; DR

LOC
HQ
S

SCALE
1"=1" DRAWING

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4X R6 [152]

SMOOTH SURFACE

8/18/09 SIZE

TITLE

QUAZITE@ ELECTRICAL

A

APR
JOB NUMBER

B

EQUIPMENT PAD
DRAWING NUMBER

0/09

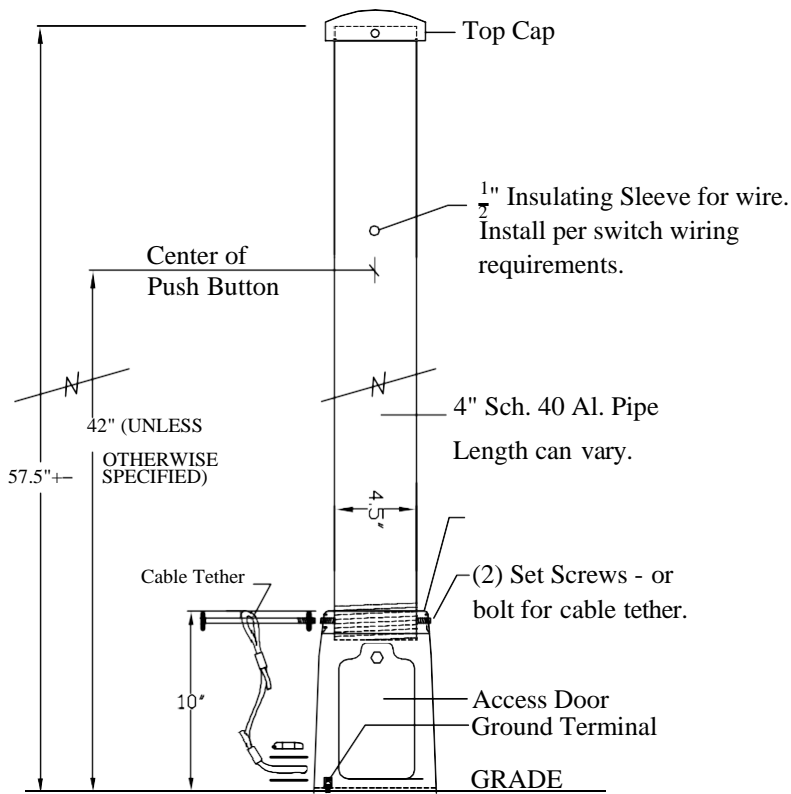
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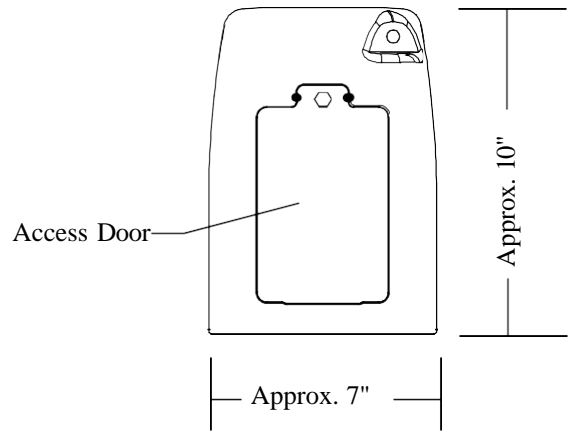
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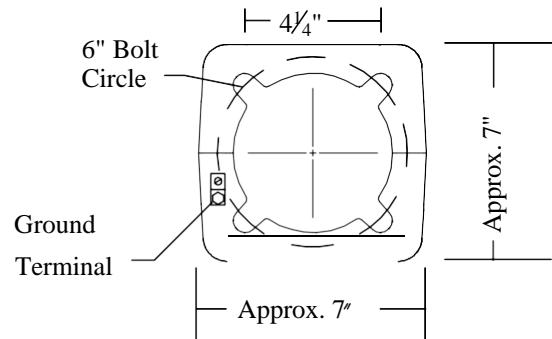
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ENG		
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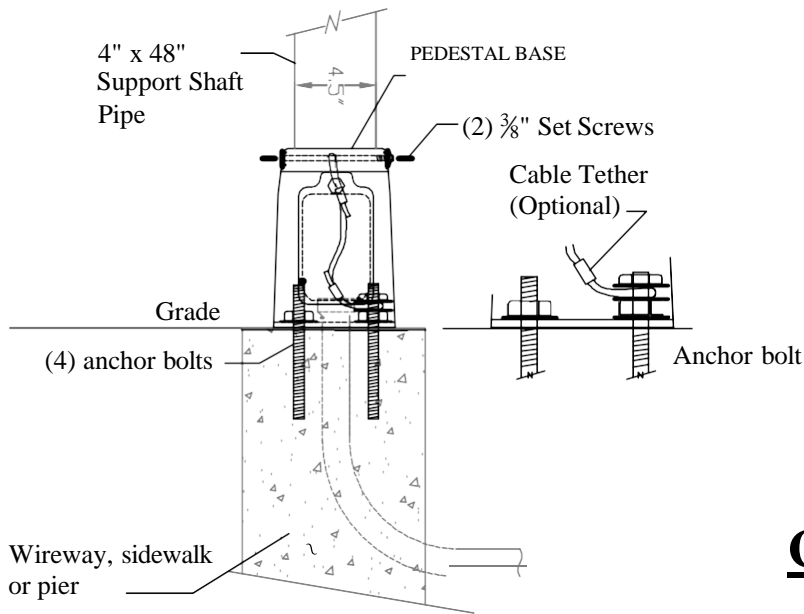
CROSSWALK PEDESTAL ASSEMBLY



BASE SIDE VIEW



BASE BOTTOM VIEW



BASE MOUNTING

Crosswalk Pedestal

NOT TO SCALE

HARDWARE MEETS OR EXCEEDS STATE SPECIFICATIONS

REY Manufacturing Corp.
www.FreyMfgCorp.com
Made in USA
Phone: 952-467-4402

**CROSSWALK PEDESTAL
Generic Installation**

DATE	DWG. NO.	REV.
11-30-17	8.3.0	-

BID ITEMS 02220

Refer and conform to "Streets Volume I" Section 02220 EXCAVATION, REMOVALS AND EMBANKMENT.

All items identified for removal shall be removed in their entireties, become the property of the contractor and be disposed of properly offsite. Saw-cutting to a clean edge, excavation to subgrade, and stabilizing subgrade are all incidental to the items. Additional materials created from excavation and stabilization shall become the property of the Contractor and removed properly offsite. Engineer shall determine exact removal limits in the field. If tying into existing curb or sidewalk in poor condition (i.e. heaving), remove to the next expansion joint.

Exposed ground surface should be scarified to a depth of 12" and treated with 12% fly ash before any new fill, curb and gutter, sidewalk, or pavement section is placed. Preparation of finished subgrade for base and pavement after earthwork operation is completed is incidental to the cost of the work. Water necessary for the operation is incidental to the cost of the work.

Units and project totals are shown in the tabulation of estimated quantities. Measurement and payment will be based on these units and values.

BID ITEMS 02227 – SUB-BASE

Refer and conform to "Streets Volume I" Section 02227.

Sub-base material shall only be used to replace existing subgrade material deemed not useable by the Engineer.

The Contractor shall make every effort to compact the subgrade as outlined in section 02225. The subgrade shall be proof rolled and inspected by the Engineer to determine if the subgrade is suitable for surfacing. If determined to be inadequate, the Contractor shall remove said material to the limits determined by the Engineer and replaced with approved sub-base material.

All efforts, material, equipment, etc. shall be included in the sub-base cubic yard (CY) bid item price.

BID ITEM 2575 – HOT MIX ASPHALT PAVEMENT

Refer and conform to "Streets Volume I" Section 02575

Wherever Section 02575 refers to MGPEC Item 9, change to Item 20.

Bid Item 2622 – BUS STOP SHELTER

Shall include all incidentals including but not limited to anchors, epoxy, etc to install the bus shelter according to the details shown. Also includes removing the existing bus stop bench and delivering it to Greeley's Transportation Department.

Bid Item 2810 – CONCRETE WASHOUT STRUCTURE

No earthen pit washout areas will be allowed. Washout pans should be placed to coincide with construction phasing. Washout pans must be clearly signed per City detail for washout areas.

Bid Items 2810 – SILT LOG AND INLET PROTECTION

These items shall consist of the on-going maintenance of field erosion control measures in accordance with provisions outlined in the Storm Water Pollution Protection Plan included within these special provisions in addition to State and Federal temporary storm water discharge permits. Separate measurement shall be made for these bid items which shall be paid in accordance with the contract bid form.

Contractor shall provide periodic maintenance of the site, particularly during and after storms, to maintain barricades, provide necessary dust control and ensure general maintenance. Disregard of this provision shall cause for suspension of the project. It will be the Contractor responsibility to ensure that existing streets adjacent to the area under construction be kept free of all concrete or other foreign material. All labor, materials, equipment, and other items of expense needed to maintain the erosion control measures required for this project shall be included within these payment items.

Bid Items 2810 – Topsoil (Import) & Seeding

Seed mix shall be Low Grow Mix and the required application rate found in Section 14 of the City of Greeley Stormwater Design Standards.

Conform to City of Greeley Landscaping Standard Specifications Section 02920 Landscaping Specifications - Soil Prep and Seeding Specs except as follows:

Part 1, 1.4D
Add:

1. Report suitability of topsoil and subsoil for growth of applicable planting material. State recommended quantities of nitrogen, phosphorus, and potash nutrients and any limestone, aluminum sulfate, or other soil amendments to be added to produce a satisfactory soil mixture.
2. The Contractor shall perform soil test immediately following the award of the Contract and prior to mobilizing for landscape construction.
3. Soil testing shall be provided by Colorado Analytical Laboratory, 240 S. Main Street, Brighton, CO 80601, (303) 659-2313, or an approved testing facility. Soil shall be tested for soluble salts and nutrient levels. Testing facility shall provide interpretation of results and recommendation for soil amendments for each type of planting.
4. Deficient nutrients shall be corrected with the addition of appropriate fertilizer and amendment materials. The Contractor shall submit a Change Order Request for all additional materials that are recommended but are not included in this Specification. Owner will be credited by contractor for any specified materials not used.

Part 2, 2.5A
Add:

1. Topsoil Source: Import topsoil from off-site sources. Obtain topsoil from naturally well-drained sites where topsoil occurs at least 4-inches (100 mm) deep; do not obtain from bogs or marshes.
2. Provide the attached Topsoil Letter of Certification found at the end of this section.

Part 2, 2.6C
Add:

1. Provide the attached Soil Amendment Letter of Certification found at the end of this section.

Part 3, 3.05I
Add:

1. The seed mixture schedule for this project will be Open Space mix with a companion crop.

SEEDING MAINTENANCE, GUARANTEE, AND ACCEPTANCE

A. Maintenance Period and Guarantee:

1. The contractor shall, for a period of one (1) year, monitor his work once every two months to verify that major settlement has not taken place and that no seeded area has become waterlogged in settled swales or other areas. Should settlement occur, the contractor shall repair damage according to these specifications.
2. The contractor shall maintain the seeded areas until all work on the contract has been completed and accepted. Maintenance shall consist of, in addition to watering, mowing, weed control, and protection from vandalism, the repair of areas damaged by erosion protection from vandalism, the repair of areas damaged by erosion or wind. Such areas shall be repaired during the maintenance period at no expense to the Owner to re-establish the condition and grade of the soil prior to application of the mulch and shall be fertilized, reseeded, and mulched as directed. Major repair of areas due to the work or failure of other contractor's systems or work shall be by that contractor who damaged the work, provided that during this maintenance period the lawn contractor notifies the Owner's authorized representative in writing of such damage within ten (10) days of the occurrence. Major damage due to vandalism (major damage is defined as damaged costing over \$5,000.00 in time and materials) in any one incident shall be borne by the Owner, again provided that notification was made within ten (10) days as specified herein. After receiving final acceptance, maintenance shall become the responsibility of the Owner.
3. The seeded areas shall be accepted on the basis of having a uniform plant growth over the entire seeded area. Two (2) months after seeding, the areas seeded shall be reviewed by the Contractor. Any areas (as determined by the City of Greeley) where the seed has failed to germinate shall be reseeded and raked to cover the seed. Any area where the seed has failed to grow, reseeding shall be at the Contractor's expense until grass is established and accepted. Acceptable uniform plant growth shall be defined as when the scattered bare spots, not greater than 4 square inches, do not exceed 5% of the seeded area.

Add Section 3.12 – MEASUREMENT AND PAYMENT

- A. Top Soil (Import) – 4" Depth (Bid Item 2810)– Payment for top soil shall be made on a per cubic yard basis for installation to the limits described on the contract drawings and shall include all labor, materials, equipment, placement, fine grading, and all other items of expense required for the complete placement of top soil in accordance with these contract documents.

BID ITEMS 3310

Conform to "Streets Volume I" Section 03300. PORTLAND CEMENT CONCRETE MATERIALS and Section 03310. CURBS, GUTTERS, SIDEWALKS, VALLEY GUTTERS, BIKEWAYS, DRIVEWAY AND ALLEY APPROACHES.

Wherever Section 03310 refers to MGPEC Item 11, change to Item 30.

Expansion joint material (1/2") shall be installed in between the back of curb and median concrete. Expansion joint material and color agents shall be incidental to the Concrete Median bid item.

Bid Item – Detectable Warning Plate. ADA compliant detectable warning plates shall be Duralast (or approved equal), iron, and self-weathering.

Bid Item – Concrete Pavement. At points of connection between new concrete sidewalk and concrete crossing panels (to be installed by others) a paving header transition is required. The header is shown in the project drawing details and will be considered incidental to the Concrete Pavement bid item.

Bid Item – Concrete Curb Ramp Corner and Mid Block Ramp. Curb ramps payment shall include all labor, material, and equipment to construct the concrete curb ramp per the details including the Detectable Warning Plates.

LANDSCAPE & IRRIGATION SPECIFICATIONS

SECTION 02231

TREE PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the protection and trimming of existing trees that interfere with, or are affected by, execution of the Work, whether temporary or permanent construction.
- B. Related Sections include the following:
 - 1. Division 1 Section "Summary" for limits placed on Contractor's use of the site.
 - 2. Division 1 Section "Temporary Facilities and Controls" for temporary tree protection.
 - 3. Division 2 Section "Clearing and Grubbing" for removal limits of trees, shrubs, and other plantings affected by new construction.
 - 4. Division 2 Section "Earthwork" for building and utility trench excavation, backfilling, compacting and grading requirements, and soil materials.

1.3 DEFINITIONS

- A. Tree Protection Zone: Area surrounding individual trees or groups of trees to remain during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Tree Pruning Schedule: Written schedule from arborist detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.
- C. Qualification Data: For tree service firm and arborist.

1.5 QUALITY ASSURANCE

- A. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed tree protection and trimming work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of tree protection and trimming.

- B. Tree Pruning: Contact the City Foresters Office if tree pruning is required. City Forester shall review the contractors request for tree pruning and provide direction.
- C. Preconstruction Conference: Conduct conference at Project site to comply with requirements
 - 1. Before tree protection operations begin, meet with representatives of authorities having jurisdiction - City, City Forester, Artist, consultants, and other concerned entities to review tree protection and trimming procedures and responsibilities.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Temporary Fencing: Orange Snow Fence; a minimum of forty-eight inches (48") high; with steel 'T' posts; with tie wires, and other accessories for a complete fence system.
- B. Organic Mulch: Shredded Cedar, free of deleterious materials.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Temporary Fencing: Install temporary fencing around tree protection zones to protect remaining trees and vegetation from construction damage. Maintain temporary fence and remove when construction is complete.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.
- C. Mulch areas inside tree protection zones and other areas indicated.
 - 1. Apply three-inch (3") average thickness of organic mulch. Do not place mulch within six-inches (6") of tree trunks.
- D. Do not store construction materials, debris, or excavated material inside tree protection zones. Do not permit vehicles or foot traffic within tree protection zones; prevent soil compaction over rootsystems.
- E. Maintain tree protection zones free of weeds and trash.
- F. Do not allow fires within tree protection zones.

3.2 EXCAVATION

- A. Install shoring or other protective support systems to minimize sloping or benching of excavations.
- B. Do not excavate within tree protection zones, unless otherwise indicated.
- C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks and comb soil to expose roots.
 - 1. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately three-inches (3") back from new construction.
 - 2. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.
- D. Where utility trenches are required within tree protection zones, tunnel under or around roots by drilling, auger boring, pipe jacking, or digging by hand.
 - 1. Root Pruning: Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots with sharp pruning instruments; do not break or chop.
 - 2. The installation of utilities, irrigation lines or any underground fixture requiring excavation deeper than six-inches (6") shall be accomplished by boring under the root system of protected existing trees at a minimum depth of twenty-four inches (24"). The auger distance is established from the face of the tree (outer bark) and is scaled from tree diameter and breast height as described in the chart below:

<u>Tree Diameter at Breast Height (inches)</u>	<u>Auger Distance from Face of Tree (feet)</u>
0-2	1
3-4	2
5-9	5
10-14	10
15-19	12
Over 19	15

3.3 REGRADING

- A. Grade Lowering: Where new finish grade is indicated below existing grade around trees, slope grade beyond tree protection zones. Maintain existing grades within tree protection zones.

- B. Minor Fill: Where existing grade is six-inches (6") or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.
- C. Moderate Fill: Where existing grade is more than six-inches (6") but less than twelve-inches (12") below elevation of finish grade, place drainage fill, filter fabric, and topsoil on existing grade as follows:
 - 1. Carefully place drainage fill against tree trunk approximately two-inches (2") above elevation of finish grade and extend not less than eighteen-inches (18") from tree trunk on all sides. For balance of area within drip-line perimeter, place drainage fill up to six-inches (6") below elevation of grade.
 - 2. Place filter fabric with edges overlapping six-inches (6") minimum.
 - 3. Place fill layer of topsoil to finish grade. Do not compact drainage fill or topsoil. Hand grade to required finish elevations.

3.4 TREE PRUNING

- A. Prune trees to remain that are affected by temporary and permanent construction.
- B. Prune trees to remain to compensate for root loss caused by damaging or cutting root system. Provide subsequent maintenance during Contract period as recommended by arborist.
- C. Pruning Standards: Prune trees according to ANSI A300 (Part 1) as follows:
 - 1. Type of Pruning: Cleaning, Thinning and Raising.
- D. Cut branches with sharp pruning instruments; do not break or chop.
- E. Chip removed tree branches and dispose of off-site.

3.5 TREE REPAIR AND REPLACEMENT

- A. Violation of these specifications will lead to penalties based on the type of violation and/or the resulting damages and may be grounds for the termination of this contract.
 - 1. Penalties will be assessed based on the amount of damage done and the total value of that tree, or group of trees, prior to the damage. Penalties for damage would be based on the total value of the tree as determined by the City Forestry Division staff and the severity of the damage as a proportion of the total value of that tree. This could include up to the full value of the tree.
- B. Promptly repair trees damaged by construction operations within twenty-four (24) hours. Treat damaged trunks, limbs, and roots according to City Forester's instructions.

- C. Remove and replace trees indicated to remain that die or are damaged during construction operations that City Forester determines are incapable of restoring to normal growth pattern.
 - 1. Where practical, provide new trees of same size and species as those being replaced; plant and maintain as specified in Division 2 Section "Exterior Plants."
 - 2. Provide new trees of six-inch (6 ") caliper size and of a species selected by Owner's Representative when damaged trees more than six- inches (6") in caliper size, measured twelve-inches (12") above grade, are required to be replaced. Number of replacement trees required to mitigate loss of larger trees will comply with City Code. Plant and maintain new trees as specified in Division 2 Section "Exterior Plants."

- D. Aerate surface soil, compacted during construction, ten-feet (10') beyond drip line and no closer than thirty-six inches (36") to tree trunk. Drill two-inch (2") diameter holes a minimum of twelve-inches (12") deep at twenty-four inches (24") o.c. Backfill holes with an equal mix of augered soil and sand.

3.6 DISPOSAL OF WASTE MATERIALS

- A. Burning is not permitted.
- B. Disposal: Unless otherwise agreed to, remove excess excavated material and displaced trees from the projects property.

END OF SECTION 02231

SECTION 02735 - AGGREGATES FOR EXTERIOR IMPROVEMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Summary: The work of this section shall include excavation, grading and installation of boulders placed at the locations shown on the Drawings. The materials to be used for the construction of such structures shall be as specified herein:
 - 1. Landscape Boulders.
 - 2. Cobble Swale
- B. Related Requirements:
 - 1. See also City of Greeley Design Standards and Construction Specifications.

1.2 RELATED SECTIONS

- A. Division 32 - Section "Irrigation" for sprinkler irrigation requirements in and around Rock Work specified here-in.
- B. Division 32 - Section "Concrete Paving Joint Sealers".
- C. Division 32 - Section "Plants".
- D. Division 32 - Section "Turf and Grasses".

1.3 SUBMITTALS AND SHOP DRAWINGS

- A. The Contractor shall submit photos of each specified boulder(s) that represents the full range of colors / staining that can be expected, for review/selection by the City's Project Manager.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Seat / Landscape Boulders
 - 1. Stone Type: Colorado Buff Sandstone
 - 2. Approved Suppliers:
 - a. Crystal Landscape Supplies, 970-669-3565
 - b. TimberRock Landscape Center (Windsor, CO), 970-686-0442
 - c. Arkins Park Stone Quarries, 970-663-1920
 - d. Tribble Stone, 303-444-1840
 - e. Or approved equivalent.

3. Boulder sizes shall be as indicated on the Drawings. Where plans do not specify specific sizes, boulder sizes shall range between 1 ton and 2 tons. An even mix of the full ranges of sizes shall be provided (not all 0.5 ton).

B. Cobble Swale

1. Refer to details for materials, sizing, and color.

PART 3 - EXECUTION

3.1 SELECTION OF STONE

- A. Contractor shall submit photos of available stones/boulders for the City's Project Manager review/selection. Include a ruler/tape measure in photos to illustrate scale.

3.2 HANDLING

- A. Handling of the stone/boulders shall be carried out in such a way that the boulders are not damaged or scarred. Damage boulders may be rejected by the City's Project Manager.

3.3 PLACEMENT

- A. Placement of Seat / Landscape Boulders:

1. Place boulders with flattest side up and most attractive face (as determined by Owner's Representative) facing activity areas, unless otherwise noted or directed by the Owner's Representative.
2. Exposed edges must be rounded/not sharp/not jagged. Contractor may need to chisel / cut boulders to fit tight/ Cut edges shall not be visible.
3. Tolerance: Top of landscape boulder elevations shall be within 0.1' of the elevation indicated on the drawings.
4. Bury approximately one-third (1/3) the height of the boulder, unless otherwise noted.
5. Locations and quantity shall be as indicated in the Drawings. Final placement of boulders may be reviewed and approved on site by the Owner's Representative prior to placing paving, surfacing and / or landscaping in abutting areas.
6. Provide sealed expansion joint around the perimeter of the boulder that abuts concrete paving or curbs.

3.5 CLEAN UP

- A. Remove unneeded stone debris from the site.
- B. Clean dirt, debris, trash and other deleterious material from stone surfaces and surrounding areas.

END OF SECTION 32 05 16

LANDSCAPING SPECIFICATIONS
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SECTION 02900 - LANDSCAPING

PART 1 - GENERAL

1.1 SCOPE

- A. Furnish all labor, materials, supplies, equipment, tools, and transportation, and perform all operations in connection with and reasonably incidental to the complete installation of the plant material, and warranty as shown on the drawings, the installation details, and as specified herein. Items of work specifically included:
 - 1. Procurement of all applicable licenses and permits.
 - 2. Coordination of Utility Locates ("Utility Notification Center").
 - 3. Procurement and installation of Plant Material.
 - 4. Maintenance period.
 - 5. Warranty.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.3 SUMMARY

- A. This section includes the following:
 - 1. Planting of B&B and container trees and shrubs.
 - 2. Plant quality.
 - 3. Planting seasons.
 - 4. Topsoil and soil amendments.
 - 5. Mulches.
 - 6. Stakes and guys.
 - 7. Inspection and warranties.

1.4 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract, and Division 1 Specification Sections. Direct submittals to the Project Manager and receive approval in writing before work commences.
- B. Product certificates signed by manufacturers certifying that their products comply with specified requirements
 - 1. Label data substantiating that plants, trees, shrubs, and planting

materials comply with specified requirements.

- C. Samples of each of the following:
 - 1. 5 lbs. of organic mulch for material and composition required for project, in labeled plastic bags.
 - 2. 2 lbs. of organic compost required for project, in labeled and sealed plastic bags.
 - 3. 2 lbs. of topsoil required for project, in labeled and sealed plastic bags.
- D. Soil analysis from approved testing facility for all soil and compost products.
- E. Maintenance instructions: Recommended procedures to be established by Owner for maintenance of landscaping for one full year. Submit prior to completion of planting for review by Project Manager.
- F. Certification of Testing: The Contractor shall furnish to the City a signed statement certifying that the topsoil/compost product furnished is from the lot that has been tested.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed landscaping work similar in material, design, and extent to that indicated for this project and with a record of successful landscape establishment.
 - 1. Installer's Field Supervision: Installer shall provide a staff member with a minimum of 3 years of field experience as the supervisor on the project site full-time when landscaping is in progress.
- B. Quality:
 - 1. Provide quality, size, genus, species, and variety of trees and shrubs indicated, complying with applicable requirements of ANSI Z60.1 "American Standard for Nursery Stock", and conform to the requirements of the Colorado Nursery Act.
 - 2. All plants will have well-formed buds with size normal for the species. Growth increments of shoots for the previous year shall be of a length that is consistent with normal growth for that season.
 - 3. All plants shall be free of harmful insects, mites, diseases and mechanical injuries to trunks and major scaffold branches.
 - 4. The plants supplied under these specifications shall consist of plants coming from propagating houses, beds, frames or nurseries. "Collected stock" will not be accepted unless specified or as approved substitute. All plants shall conform to the most current Colorado Standards for Nursery Stock, Colorado Department of

Agriculture.

C. Size:

1. All plants shall be of size(s) specified.
2. Measure trees and shrubs according to ANSI Z60.1 "American Standard for Nursery Stock", with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches above ground for trees up to 4-inch caliper size, and 12 inches above ground for larger sizes. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.

D. Source Quality Control: Ship landscape materials with certificates of inspection as required by governing authorities. Comply with governing regulations applicable to landscape materials.

E. Growing Area:

1. Provide trees and shrubs grown in one of the following areas:
 - a. Colorado Grown: Trees and shrubs grown in Colorado nursery fields for major portion of plant life.
 - b. Out of State Container Grown: Plants from hardiness zones other than 1 through 5 which have been acclimatized to site conditions at time of planting.
 - c. Northern Grown: Trees and shrubs grown in nurseries for at least one year in USDA Hardiness Zones 1-5.

F. Planting Season: Unless otherwise agreed by Project Manager, balled and burlapped and machine-dug trees shall be planted in one of two planting seasons within a calendar year, namely, when plants are dormant in early spring and early fall no later than the end of October. Either of these seasons shall comprise that period of time in spring or fall that favors the recovery of plants from transplanting and encourages that resumption of healthy growth at the planting site.

G. Inspection: The Project Manager reserves the right to inspect trees and shrubs either at place of growth or at site before planting, for compliance with requirements for name, variety, size and quality. All plant material must be acceptable to Project Manager.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.

- B. Trees and Shrubs: Deliver freshly dug or delivered trees and shrubs. Do not prune before delivery, except as approved by Project Manager. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy natural shape. Provide protective covering (shade cloth) during delivery. Apply anti-desiccants (Wilt Proof or equal) to all plant material prior to leaving the nursery. Do not drop trees and shrubs during delivery.
- C. Handle balled and burlapped stock by the root ball.
- D. Deliver trees, shrubs, ground covers, and plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, provide shade, and protect from weather and mechanical damage, and keep roots moist.
 - 1. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
 - 2. Do not remove container grown stock from containers before time of planting.
 - 3. Water root systems of trees and shrubs stored on site with a fine-mist spray. Water as often as necessary to maintain root systems in a moist condition.

1.7 PROJECT CONDITIONS

- A. Utilities: Determine location of above grade and underground utilities and perform work in a manner which will avoid damage. Hand excavate, as required. Maintain grade stakes until removal is mutually agreed upon by parties concerned.
- B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Project Manager before planting.
- C. Open Holes or Pits: No hole or pit shall remain open without safety devices to protect the Owner from liability for personal accidental injury.
- D. Preservation of Properties: The Contractor shall be responsible for the preservation of all public or private property including: existing trees, shrubs, turf, fences and other landscape features. If any direct or indirect damage or injury is done to public or private properties by or on account of any act, omission, neglect or misconduct in the execution of the work, on

the part of the Contractor, such property shall be restored by the Contractor, at his expense. Restoration shall be to a condition similar or equal to that existing before such damage or injury in such other manner as may be acceptable to the Project Manager.

1.8 COORDINATION AND SCHEDULING

- A. The landscape construction schedule is to be provided at the Pre-Construction meeting depicting the dates the various stages of the project will start and when they will be completed.
- B. Coordinate installation of planting materials during normal planting seasons for each type of plant material required, only when weather and soil conditions permit and are in accordance with locally accepted practices, and approved by the Project Manager.
- C. If planting of trees and shrubs occurs after turf installation, protect lawn areas and promptly repair damage to lawns resulting from planting operations. Insure irrigation system is operating to provide adequate water.
- D. Trees shall be planted in the same growing season in which they were dug. Fall dug trees will be allowed.
- E. If plant material is to be stored on site for more than 8 consecutive hours, submit a detailed staging and care plan.

1.9 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Warranty: Warrant the following living planting materials for a period of one year after date of Substantial Completion, against defects including death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, or abuse by Owner, abnormal weather conditions, unusual for warranty period, or incidents such as damage due to vandalism, hail, fire, owner neglect, or other circumstances that are beyond Contractor's control.
 - 1. Trees
 - 2. Shrubs

3. Perennials and Ground Covers

- C. Remove plants within seven (7) days of notification, replace dead planting materials within 10 days of notification from owner's representative unless required to plant in the succeeding planting season.
- D. Replace planting materials that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
- E. All plant material is to be warranted throughout the warranty period and shall be replaced with plants of the same size and variety.

1.10 TREE AND SHRUB MAINTENANCE

- A. Maintain trees and shrubs by cultivating, watering, weeding, fertilizing, tightening and repairing stakes and guy supports, and resetting to proper grades or vertical position, as required to establish healthy, viable plantings. Spray as required to keep trees and shrubs free of insects and disease. Restore or replace damaged tree protection devices. Maintain trees and shrubs for the following period:
 - 1. Maintenance Period: Contractor responsible for plant and landscape maintenance up until project is turned over to owner upon acknowledgment of final acceptance.

PART 2 - MATERIALS

2.1 TREE AND SHRUB MATERIAL

- A. General: Furnish nursery-grown trees and shrubs conforming to ANSI Z60.1, and conform to the requirements of the Colorado Nursery Act, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully-branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
- B. Grade: Provide trees and shrubs of sizes and grades conforming to ANSI Z60.1, for type of trees and shrubs required. Trees and shrubs of a larger size may be used if acceptable to Project Manager, with a proportionate increase in size of roots or balls.
 - 1. Containers: All plants specified in containers shall be container grown as defined by the Colorado Nursery Act. Container grown stock will have a healthy vigorous root system, not overgrown, not rootbound, and no encircling roots. Containerized stock that has been transplanted up to the next container size will be well

established in its new container.

2. Balled and Burlapped: All plants specified as balled and burlapped (B&B), shall conform to or exceed the minimum sizes specified in the Colorado Nursery Act. No balled and burlapped plant shall be accepted if the ball is broken or the trunk loose in the ball or viable roots exposed.
3. Root balls will be solid (not soft, spongy or excessively sandy) and free from large cracks or other damage to the ball.
 - a. Label at least one tree and one shrub of each variety and caliper with a securely attached, waterproof tag bearing legible designation of botanical and common name.
 - b. Plants that do not appear to conform to the Colorado Standards for Nursery Stock may be subject to official inspection by a representative of the Colorado Department of Agriculture. If any plant or plants are condemned by the Colorado Department of Agriculture, replacement with plants that conform to the Colorado Standards for Nursery Stock will be at the expense of the Contractor.

2.2 SHADE AND FLOWERING TREES

- A. Shade Trees: Single-stem trees with straight trunk, well-balanced crown, and intact leader, of height and caliper indicated, conforming to ANSI Z60.1, for type of trees required.
 1. Branching Height: $\frac{1}{2}$ of tree height.
- B. Small Flowering Trees: Small upright or spreading type, branched or pruned naturally according to species and type, and with relationship of caliper, height, and branching recommended by ANSI Z60.1, and stem form as indicated on plan planting schedule.
- C. Provide balled and burlapped shade and flowering trees.

2.3 DECIDUOUS SHRUBS

- A. Form and Size: Deciduous shrubs with not less than the minimum number of canes required by and measured according to ANSI Z60.1, for type, shape, and height of shrub.
- B. Provide container-grown deciduous shrubs as indicated. Container-grown stock to meet ANSI Z60.1, limitations.

2.4 CONIFEROUS EVERGREEN TREES AND SHRUBS

- A. Form and Size: Specimen-quality, exceptionally heavy, tightly knit, symmetrically shaped coniferous evergreens of the following grade:
 - 1. Heavy Grade: "XX"
- B. Provide balled and burlapped coniferous evergreen trees conforming to ANSI Z60.1, no options for container grown plant materials allowed.
- C. Provide container-grown coniferous evergreen shrubs subject to meeting ANSI Z60.1, limitations for container stock.

2.5 TOPSOIL

- A. Topsoil: ASTM D 5268, pH range of 5.5 to 8, four percent (4%) organic material minimum, free of stones 1 inch or larger in any dimension, and other extraneous materials harmful to plant growth.
 - 1. Topsoil Source: Amend existing on-site soil excavated from tree pits to produce topsoil.

2.6 SOIL AMENDMENTS

- A. Compost: One hundred percent (100%) humus rich organic matter. The compost shall be a well decomposed, stable, weed free organic matter source derived from agricultural, food, or industrial residuals; biosolids (treated sewage sludge); yard trimmings, or source-separated or mixed solid waste. Product must be certified as fully composted at permitted solid waste processing facility. Product to be registered with the Colorado Department of Agriculture and approved for use on Colorado Certified Organic Farms by the Division of Plant Industry of the State of Colorado. Product shall contain no solid particle of greater than one-half inch ($\frac{1}{2}$ ") in length or diameter and be free from un-composted or non-stabilized wood bulking agents. Product shall contain no substances toxic to plants and shall be reasonably free (<1% by dry weight) of man-made foreign matter. The compost will possess no objectionable odors and shall not resemble the raw material from which it was derived.
- B. Provide analysis for the following:
 - 1. Organic Matter Content: 30 - 70% (Dry Basis)
 - 2. Soluble Salt Concentration: 5 dS (mmhols/cm) or less (As Received)
 - 3. PH range: 5.5 to 8.0 (As Received)
 - 4. Final carbon to nitrogen ratio: 20:1 or less.
 - 5. Nutrient Content (dry weight basis): N 1% or above, P 1% or above, K 0.5% or above.
 - 6. Moisture Content: 35% - 55%

- C. Certification of Compost Testing: The Contractor shall furnish to the City a
- D. signed statement certifying that the compost furnished is from the lot that has been tested.

2.7 HERBICIDES

- A. Herbicides: Coordinate EPA registered and approved, of type utilized by City of Greeley Parks Department maintenance program.
- B. Applicators must possess an applicators license issued by the Colorado Department of Agriculture.

2.8 WATER

- A. Water Source: Potable water from existing quick coupling valves at various locations on the site.

2.9 MULCHES

- A. Organic Mulch: Organic mulch, free from deleterious materials, noxious weed seed and all foreign matter harmful to plant life, suitable as a top dressing of trees and shrubs.
 1. Medium Bark Nuggets: Submit sample for approval.
 2. Western Red Cedar Mulch: Submit sample for approval.

2.10 STAKES AND GUYS

- A. Upright and Guy Stakes: Steel "T" posts, six feet (6') in length. Two stakes per tree required.
- B. Guy and Tie Wire: ASTM A 641 (ASTM A 641M), Class I, galvanized-steel wire, 2-strand, twisted, 0.080 inch in diameter.
- C. Chafing Straps: Two inch (2") wide nylon straps with grommets at each end, cut to lengths required to protect tree trunks from damage.
- E. Use safety caps on all T-Posts.
- F. Standard surveyor's plastic flagging tape, white, 6 inches long.

2.11 MISCELLANEOUS MATERIALS

- A. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's instructions.
- B. Tree Wrap: Nurseryman's standard crepe tree wrap tape not less than 4"

wide, consisting of two layers of crinkled paper cemented together with bituminous material and with a stretch factor of 33%.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive landscaping for compliance with requirements and for conditions affecting performance of work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Prior to any excavation, all underground utilities shall be identified by the proper authority.

3.2 PREPARATION

- A. General: Requirements for approval of placement of plant materials prior to installation to be set forth during a pre-construction conference in accordance with Division I Specifications Section.
- B. Lay out individual tree and shrub locations and areas for multiple plantings in accordance with the plan. Stake locations, outline areas, and secure Project Manager's acceptance before the start of planting work. Make minor adjustments as may be required.

3.3 PLANTING SOIL PREPARATION

- A. Before mixing, clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful to plant growth.
- C. Mix 33% organic compost with 67% on-site topsoil as required at rates indicated. If additional backfill material is needed, it shall be of the same soil type as found on the planting site.
- D. For tree pit or trench backfill, mix planting soil before backfilling and stockpile at site.
- E. Any and all excess material and or debris shall be removed from site and properly disposed of.

3.4 EXCAVATION FOR TREES AND SHRUBS

- A. Pits and Trenches: Tree planting pits may be excavated by hand or by mechanical means. Pits dug mechanically will have the resulting walls

- scarified to eliminate glazing. Excavate with vertical sides and with bottom
- B. of excavation slightly raised at center to assist drainage. Loosen hard subsoil in bottom of excavation.
 - C. Balled and Burlapped Trees: Excavate pit a minimum of two times as wide as ball diameter, with ball depth (per drawings) so that top of the uppermost root flare is 1.5" above finish grade. The root ball shall be placed on firm, undisturbed soil in the planting pit to prevent settling.
 - D. Container grown Trees and Shrubs: Excavate pit a minimum of two times container width, and depth per drawings.
 - E. Obstructions: Notify Project Manager if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.
 - F. Drainage: Notify Project Manager if subsoil conditions evidence unexpected water seepage or retention in tree or shrub pits.
 - G. Fill excavations with water and allow to percolate out, before placing and positioning trees and shrubs.

3.5 PLANTING TREES AND SHRUBS

- A. Inspect tree trunks for injury, improper pruning, and insect infestation and take corrective measures required before installation.
- B. Set balled and burlapped stock plumb, and in center of pit or trench with top of uppermost root flare raised above adjacent finish grades as indicated.
 - 1. Place stock on undisturbed soil at bottom of planting pit.
 - 2. Wire baskets will be removed completely prior to completion of backfilling. All twine or plastic will be removed and the burlap will be removed from trunk and from the top 1/3 of the root ball. Do not use planting stock if ball is cracked or broken before or during planting operation.
- C. Place backfill around ball in layers, tamping to settle backfill and eliminate voids and air pockets. When pit is approximately ½ backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing and tamping final layer of backfill.
- D. Additional watering is required every two weeks, or as directed by the Project Manager, until final acceptance.

- E. Set container-grown stock plumb, and in center of pit or trench with top of ball raised above adjacent finish grades as indicated
- F.
 - 1. All containers will be removed and root balls scarified. Carefully remove containers so as not to damage root balls.
 - 2. Place stock on undisturbed soil at bottom of planting pit.
 - 3. Place backfill around ball in layers, tamping to settle backfill and eliminate voids and air pockets. When pit is approximately ½ backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing and tamping final layer of backfill.
- G. Set uppermost root flare 1.5" above adjacent finish grades, unless otherwise indicated.
- H. Do not cover top of root ball with backfill. A water retaining berm, sufficient to hold 10-15 gallons of water at one time, will be built and compacted just outside the edge of the planting pit.
- I. After backfilling and watering to settle all voids, all trees should be watered with a minimum of seven (7) gallons, and all shrubs with a minimum of two (2) gallons of root stimulant, 'Upstart' or equal, mixed at the manufactures recommended rate.
- J. Protect all trees with tree wrap as specified between Halloween and Easter.

3.6 TREE GUYING AND STAKING

- A. Upright Staking and Tying: Use a minimum of two stakes of length required to penetrate at least 24 inches below finish grade and to extend at least 48 inches above grade. One stake will be placed on the northwest side of the tree and the other 180 degrees opposite on the southeast side. Safety caps will be installed on all posts. Set vertical stakes in undisturbed soil to avoid penetrating balls or root masses. Support trees with two strands of tie wire attached to nylon tree straps at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree. Flag guy wire with standard surveyor's plastic flagging tape.

3.7 MULCHING

- A. Mulch all trees inside of bermed tree wells and around all shrubs as indicated.

- B. Organic Mulch: Apply the following average thickness of organic mulch and finish level with adjacent finish grades. Do not place mulch against
- C. trunks or stems.
- D. Thickness: Four inches (4").

3.8 INSTALLATION OF MISCELLANEOUS MATERIALS

- A. Apply antidesiccant using power spray to provide an adequate film over trunks, branches, stems, twigs, and foliage.
 - 1. When deciduous trees or shrubs are moved in full-leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.

3.9 CLEANUP AND PROTECTION

- A. During landscaping, store materials and equipment where directed.
- B. The City prohibits the tracking, dropping, or depositing of soils or any other materials onto City streets by or from a vehicle or machinery. Any inadvertent deposited material shall be removed by the end of business day.
- C. Protect landscaping from damage due to landscape operations, operations by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed.
- D. At the end of construction, all holes, ruts, settlements, and depressions resulting from the work will be filled and graded to match elevations of adjacent surfaces, and all areas disturbed by construction shall be restored to their original condition to the maximum extent practicable and as acceptable to the Project Manager.

3.10 INSPECTION AND ACCEPTANCE

- A. When the landscape work is complete, the Project Manager will, upon request, make an inspection to determine acceptability.
 - 1. The landscape work may be inspected for acceptance in parts as agreeable to the Project Manager, provided the work offered for inspection is complete, and that the area comprises one complete unit or area of substantial size.
- B. Where inspected landscape work does not comply with the requirements,

replace rejected work and continue specified maintenance until reinspected by the Project Manager and found to be acceptable. Replace all such plantings at one time and within 10 working days of notifications whether for acceptance or warranty inspections. Remove rejected plants and materials promptly from the project site.

3.11 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Upon completion of work, clean adjacent streets and site paving of dirt and debris accumulation.

- B. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of it off the Owner's property.

END OF SECTION 02900

LANDSCAPING SPECIFICATIONS

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DIVISION 2-SITE WORK

SECTION 02920 - SOIL PREP AND SEEDING

PART 1 - GENERAL

1.1 SUMMARY:

- I. Section Includes:
 - A. Fine grading and preparing areas to be seeded.
 - B. Furnishing and applying soil amendments.
 - C. Furnishing and applying fertilizer, herbicides.
 - D. Furnishing and seeding new areas.

1.2 SUBMITTALS:

- I. Quality Control Submittals:
 - A. Certificates: State, Federal and other inspection certificates shall be submitted to the City prior to acceptance of material.
 - B. Seed: Certification of grass seed from seed vendor including the composition of each grass-seed mixture, stating the botanical and common name, percentage by weight of each species and variety, percentage of purity, germination, and weed seed. Include the year of production and date of packaging. Seed packaging and identification tags are to be submitted to the owner at completion of seeding.
 - C. Imported Soil Amendment Test Report: Submit test analysis to City for acceptance prior to delivery of material.
 - D. Fertilizer: State, Federal and other certificates shall accompany invoices for materials showing sources of origin. Submit to City prior to acceptance of material.

1.3 DELIVERY, STORAGE AND HANDLING:

- I. General: Handle and transport in a safe manner in compliance with local state, and federal regulations. Comply with MSDS requirements.
- II. Fertilizer: Deliver inorganic or chemical fertilizer to site in original unopened containers bearing manufacturer's guaranteed chemical analysis, name, trade name, trademark, and conformance to state law, bearing name and warranty of producer.
- III. Soil Amendments: Do not stockpile. Distribute and till immediately upon arrival at site (same day).

- IV. Seed: Deliver seed in original sealed, labeled, and undamaged containers. All material shall be furnished in original manufactures shipping bags or containers, and remain in these bags or containers until used. All materials shall be stored in a manner which will prevent them from coming into contact with precipitation, surface water, or other contaminating substances. All materials which have become wet, moldy or otherwise damaged in transit, or stored improperly shall not be used.
- 1.4 PROJECT/SITE CONDITIONS:
- I. General: Do not perform work when climate and existing site conditions will not provide satisfactory results.
 - II. Site Information: The Contractor shall be held to have examined the site, to ascertain the state thereof and the conditions under which the work is to be done. Note: Drawings typically indicate the physical dimensions of the site, but do not show the extent of all obstructions and subsurface conditions.
 - III. Existing Utilities: Protect from damage any sewer, water, gas, electric, phone, cable TV, irrigation or other pipe lines or conduits uncovered during the work until the matter has been reviewed by the City. If such lines are found to be abandoned and not in use, remove without extra cost. If such lines are found to be in use, carefully protect and carry on work around them. If City deems it advisable to move such lines, City will pay cost of moving.
 - IV. Existing Site Features: Protect from damage as noted herein or on drawings.
 - V. Vehicular Access:
 - A. Vehicular accessibility on site shall be kept to a minimum. Repair damage to prepared ground and surfaces caused by vehicular movement during work under this Section to original condition at no additional cost to City. Repair, to original condition, vehicular damage to the surrounding area at no additional cost to the City.
 - B. Only those vehicles identified with Company Name/Logo are allowed in the parks.
 - VI. Environmental Requirements:
 - A. Install seed between spring and fall; March 15 - September 30.
 - B. Do not install seed on saturated or frozen soil.
 - C. Do not install seed until soil preparations have been approved by the City.
 - D. Do not install seed until irrigation system is installed and tested.
 - E. Proceed with planting only when existing and forecast weather conditions are suitable for work.

PART 2 - MATERIALS

2.1 TOP SOIL AND SOIL AMENDMENTS: (Note that all percentages are by weight and not by volume.)

- I. Topsoil: ASTM D 5268, PH range of 6.3 to 8.2, three percent (3%) organic material minimum, free of extraneous materials harmful to plant growth.
 - A. Topsoil Source:
 1. The source of topsoil for this project is undesignated. Topsoil shall be fertile, friable, sandy loam or loam. Topsoil shall be of any admixture of subsoil or slag and shall be free of stones, lumps, refuse, plants or their roots, sticks, noxious weeds, salts, soil sterilant or other material detrimental to plant growth. Imported topsoil shall be obtained from a well-drained site that is free of flooding. Topsoil shall not be delivered or used onsite in any manner while in a frozen or muddy condition.
 2. All imported topsoil shall be from an approved point of origin satisfactory to the Project Manager prior to delivery or placement in planting areas. Should noxious weeds be present at the topsoil source, the Project Manager will make recommendations to the Contractor as to appropriate treatment of the topsoil prior to delivery to the project site. The Contractor shall supply a sample of topsoil to the Colorado State University Soil Testing Laboratory for analysis a minimum of thirty (30) days prior to delivery of topsoil to the project site. The Contractor shall also contact the Project Manager to inspect and approve all planting areas prior to delivery or placement of topsoil. The Contractor shall submit to the Project Manager a Certificate of Compliance from the CSU Testing Laboratory verifying organic matter content, pH, sodium absorption ratio, electrical conductivity (paste test) and nutrient levels.
 - B. Provide analysis for the following:
 1. Mechanical Analysis:
 - a. 1" Screen Passing = 100% Retained = 0%
 - b. ½" Screen Passing = 97 - 100% Retained = 3 - 0%
 - c. No. 100 Mesh Sieve Passing = 40 - 60% Retained = 60 - 40%
 2. Laboratory Analysis:
 - a. Organic Matter Content: 3 - 8% (dry basis)
 - b. Soluble Salts Concentration (EC paste test): 1.8 dS (mmhols/cm) or less (as received)
 - c. PH range: 6.3 to 8.0 (as received)
 - d. Nutrient Content (dry weight basis): N 1% or above, P 1% or above, K 0.5% or above.
 - e. Sodium Absorption Ratio (SAR): 8.0
 3. Certification of Topsoil Testing: The Contractor shall furnish to the City a signed statement certifying that the topsoil furnished is from the lot that has been tested.

II. Soil Amendments:

- A. Compost: One hundred percent (100%) humus rich organic matter. The compost shall be a well decomposed, stable, weed free organic matter derived from agricultural, food, or industrial residuals; biosolids (treated sewage sludge); yard trimmings, or source-separated or mixed solid waste. Product must be certified as fully composted at a permitted solid waste processing facility. Product to be registered with the Colorado Department of Agriculture and approved for use on Colorado Certified Organic Farms by the Division of Plant Industry of the State of Colorado. Product shall contain no solid particle greater than one-half inch (½") in length or diameter and be free from un-composted or non-stabilized wood bulking agents. Product shall contain no substances toxic to plants and shall be reasonably free (<1% by dry weight) of man-made foreign matter. The compost will possess no objectionable odors and shall not resemble the raw material from which it was derived.
- B. Provide analysis for the following:
 - 1. Organic Matter Content: 30 - 70% (dry basis)
 - 2. Soluble Salt Concentration (EC paste test): 5 dS (mmhols/cm) or less (as received)
 - 3. PH range: 5.5 to 8.0 (as received)
 - 4. Final carbon to nitrogen ratio: 20:1 or less.
 - 5. Nutrient Content (dry weight basis): N 1% or above, P 1% or above, K 0.5% or above.
 - 6. Bulk Density: 800 - 1,000 lbs/yd³
 - 7. Moisture Content: 35% - 55%
- C. Certification of Compost Testing: The Contractor shall furnish to the City a signed statement certifying that the compost furnished is from the lot that has been tested.

III. Amended Topsoil: Offsite, mechanically combined product.

- A. Amended Topsoil: Components of the amended topsoil product (compost and topsoil) shall meet all previously outlined criteria for the individual components.
 - 1. The Contractor shall supply a sample of amended topsoil to the Colorado State University Soil Testing Laboratory for analysis a minimum of thirty (30) days prior to delivery of amended topsoil to the project site.
 - 2. The Contractor shall contact the Project Manager to inspect and approve all planting areas prior to delivery or placement of amended topsoil. The Contractor shall submit to the Project Manager a Certificate of Compliance from the CSU Testing Laboratory verifying testing levels.
- B. Provide analysis for the following:
 - 1. Organic Matter Content: 3 - 15% (dry basis)
 - 2. Soluble Salt Concentration (EC Paste Test): 2.7dS (mmhols/cm) or less (as received)
 - 3. PH Range: 5.5 to 8.0 (as received)
 - 4. Final carbon to nitrogen ratio: 20:1 or less.

5. Nutrient Content (dry weight basis): N 1% or above, P 1% or above, K 0.5% or above.
6. Moisture content: 35 to 55%
- C. Certification of Topsoil Testing: The Contractor shall furnish to the City a signed statement certifying that the topsoil furnished is from the lot that has been tested.

IV. Fertilizer:

- A. Before seeding, apply an inorganic mixture tilled thoroughly into the top six inches (6") of soil, unless otherwise stated:
 1. 1 lb. of Nitrogen (N) per one thousand (1,000) square feet.
 2. 2 lbs. Phosphorus (P205) per one-thousand (1,000) square feet.
 3. 1 lb. Sulfur (SO4-S) per one-thousand (1,000) square feet.

2.2 SEED:

- I. Grass Seed: Fresh, clean, dry, new-crop seed conforming to all State and Federal regulations and complying with the Association of Official Seed Analysts', "Rules for Testing Seeds" for purity and germination tolerances.
 - A. Seed Mixture: Provide seed of grass species and varieties, proportions by weight, and minimum percentages of purity, germination. All materials furnished shall be free of prohibited noxious weeds and meet State and City standards for restricted noxious weeds.
 - B. Proportions and Mixing: All seed shall be mixed by a wholesale seed supplier in the proportions-necessary to obtain the application rate specified.
 - C. Labels: All seed and seed mixes shall be furnished in bags or containers clearly labeled to show the name and address of the supplier, the common, scientific and variety name(s) of the seed(s), the lot number, net weight, percent of weed seed content and the guaranteed percent of purity and germination.
 - D. Certification of Seed Testing: The Contractor shall furnish to the City a signed statement certifying that the seed furnished is from the lot that has been tested and comply with the Colorado Seed Law.

2.3 HERBICIDES:

- I. Herbicide: EPA registered and approved, of type utilized by City of Greeley Parks Department.
- II. Applicators must possess both a Colorado Department of Agriculture license and City of Greeley pesticide applicator's license.
- III. The contractor making chemical applications must have a Qualified Supervisor on staff.

2.4 EROSION CONTROL NETTING, BLANKETS, MATS, FABRICS:

- I. Erosion control blankets, mats, or other commercial products for stabilizing disturbed areas may be required on certain projects. If so, the type, manufacturer, and installation method for these products will be agreed to prior to installation.

PART 3 - EXECUTION

3.1 EXAMINATION:

- I. General:
 - A. Verify that existing site conditions are as specified and indicated before beginning work under this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.
 - B. All work is to be performed by personnel thoroughly familiar with proper and accepted methods for soil preparation, herbicide applications, fertilizing, seeding, mulching, etc. All work is to be performed under the direct supervision of the Contractor's superintendent, who shall be thoroughly familiar with the provisions of these specifications.
- II. Damaged Earth: Inspect to verify that earth rendered unfit to receive planting due to concrete water, mortar, lime water or any other contaminant dumped on it has been removed and replaced with clean earth from a source approved by the Project Manager. All access roadways or compacted soil shall be ripped to loosen.
- III. Unsatisfactory Conditions: Report in writing to the City.
- IV. Acceptance: Beginning installation indicates acceptance of existing conditions by Contractor.

3.2 PREPARATION:

- I. Protection:
 - A. Locate structures, playground equipment, sewer, water, irrigation, gas, electric, phone, cable TV, other pipelines or conduits and equipment prior to commencing work.
 - B. Be responsible for proper repair to landscape, utilities, walls, soft surface paths, pavements and other site improvements damaged by operations under this section.
- II. Existing Vegetation:
 - A. Contractor shall keep a log of all pesticide applications performed throughout the duration of the project, detailing applications. Notes shall be submitted to Owner at the completion of project.

- B. Herbicides shall be applied using well maintained spraying equipment by individuals working for the Contractor who are appropriately licensed by the State or Federal agency having jurisdiction over such applications. It shall be the responsibility of the Contractor to be knowledgeable of any and all current laws and regulations pertaining to pesticide applications, and to advise the City immediately if any requests for applications made by the City are inappropriate as they pertain to these laws and regulations.
- C. Herbicides and other chemicals shall not be applied during periods when wind or other physical conditions cause the herbicides to be transported off site, or a distance of more than five (5') feet from the immediate area where they are being applied. It shall be the responsibility of the Contractor to notify the Project Manager immediately if any weather or other physical conditions exist which would make application inappropriate.
- D. All herbicides and other chemicals shall be applied at rates as determined by the Contractor and the Project Manager.
 - 1. Bluegrass areas:
 - a. Existing vegetation, excluding trees and shrubs, in all areas designated to receive new bluegrass seed, is to be sprayed with a contact non-selective post emergent herbicide (Roundup), a minimum of one (1) week and a maximum of (3) weeks prior to the ripping/tilling process.
 - 2. Native areas:
 - a. New seeding areas: Existing vegetation, excluding trees and shrubs, in all areas designated to receive new native seed mixes, shall be sprayed with a contact non-selective post emergent herbicide (Roundup), a minimum of one (1) week and a maximum of (3) weeks prior to the ripping/tilling process.
 - b. Over seeded areas: Spot treatment with selective post emergent herbicides may be required to eliminate undesirable vegetation in some areas. Coordinate herbicide application with the Project Manager a minimum of two (2) weeks prior to the seeding operation.
 - 3. Reapply herbicide if necessary to insure complete kill of existing vegetation.
- III. Surface Grade: Remove existing grass, weeds, debris and rocks larger than one and one half-inches (1½") in all areas designated to receive seed. Verify that all rough grades have been established.
- IV. Runoff: Take measure and furnish equipment, materials, and labor necessary to control the flow, drainage and accumulation of water on and off the site, as intended by the grading plans.
- V. Erosion Control: Take measure and furnish all labor, materials, and equipment necessary to control and prevent soil erosion, blowing soil and accumulation of wind-deposited material on the site throughout duration of work.

3.3 INSTALLATION:

I. SOIL/SEED BED PREPARATION:

- A. General: All ripping and tilling operations shall be done in a direction which follows the natural contours of the land on slopes of 3:1 or less. Soils on slopes greater than three 3:1 will be prepared for planting in a manner specified by the City. Any irregularities in the ground surface resulting from soil preparation operations shall be corrected and sloped to drain as intended by the grading plans.
- B. Ripping/Tilling:
 - 1. Any required soil amendments (e.g. organic soil conditioners, fertilizer, ect.) shall be uniformly spread on the surface of soil which is to be prepared as stated below and at the rates specified in section 3.03; II and 3.03; III, below.
 - 2. Soil shall be ripped or tilled to a minimum of eight inches (8"), with agricultural sub-soiler in all areas to receive seed. This includes any areas compacted by construction traffic during the construction process, with four (4) passes in at least two (2) directions.
 - 3. In areas where extremely stiff materials, or if debris is encountered during ripping, re-adjust equipment to avoid bringing up chunks of un-tillable material.
 - 4. The soils shall be worked until it has become loose and friable and no clods greater than two inches (2") in diameter remain, unless directed otherwise by the Project Manager, prior to the addition of any soil amendments, seed, or mulch.
 - 5. Remove stones larger than one and one-half inches (1½") in any dimension and sticks, roots, rubbish, and other extraneous matter.

II. Soil Amendments:

- A. Blue Grass Areas: Evenly distribute composted material in the bluegrass seed areas at the following rates:
 - 1. Apply the compost at four (4) cubic yards per one thousand (1,000) square feet.
 - 2. Spreading the compost shall be accomplished with either a truck or trailer mounted spreader, capable of being adjusted to apply varying rates of material at a given speed.
- B. Native Seed Areas: Evenly distribute composted material in the native seed areas at the following rates:
 - 1. Apply the compost at two (2) cubic yards per one thousand (1,000) square feet.
 - 2. Spreading the compost shall be accomplished with either a truck or trailer mounted spreader, capable of being adjusted to apply varying rates of material at a given speed.
 - 3. In areas inaccessible with a truck or trailer mounted spreader, the compost can be delivered and spread with a tractor and/or by hand.

- C. Over Seeding Native Seed into existing vegetation:
 - 1. No compost will be required in these areas.
 - 2. Fertilizer shall be spread evenly on the surface of the soil immediately after seeding operations have been completed. All fertilizer shall be applied using standard application equipment at the rates specified.

III. Fertilizer:

- A. See 2.01; II above.
- B. Areas receiving organic soil amendments:
 - 1. After applying soil amendments and fertilizer, thoroughly till area to a depth of six inches (6") minimum by rototilling, plowing, harrowing, or disking until soil is well pulverized.
- C. Fill, compact and grade the site to within +/- 0.1' (1 3/16 ") of grades indicated and specified.

IV. Fine Grading in all areas to receive seed:

- A. Do fine grading for areas prior to seeding: Perform as required to maintain positive drainage, prevent ponding and direct run-off into catch basins, drainage structures, etc. and as required to provide smooth well-contoured surface prior to proceeding.
- B. Prior to Acceptance of Grades: Hand-rake to a smooth even surface with a loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions. Remove debris, clods, rocks, vegetable matter, and any other objects that may interfere with planting or maintenance operations. Limit fine grading to areas that can be planted in the immediate future.
- C. Establish finish grades to within one-half inch (½") of grades indicated.
- D. Noxious weeds or parts thereof shall not be present in the surface grade prior to seeding.
- E. Moisten prepared lawn areas before planting when soil is dry. Water thoroughly and allow the surface to dry before planting. Do not create muddy soil.
- F. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Leave graded surface clean and free of trash and debris. Restore prepared areas if eroded or otherwise disturbed after fine grading and before planting.

3.4 SEEDING:

- I. The Contractor shall notify the Project Manager prior to any seeding work.
- II. The Project Manager will be on site during seeding operations, and will collect representative samples of the seed used on the project for possible later testing for contract compliance.
- III. All prepared areas, need to be firm, but not compacted, prior to seed application.

IV. Bluegrass Areas:

- A. Sow Bluegrass mix at a rate of 5 lbs. per 1,000 sq. ft.
- B. Sow turf grass seed using mechanical Type 3 drill, (Brillion) seeding machine for slopes 4:1 and flatter.
 - 1. Distribute seed evenly over entire area by sowing equal quantities in two directions at right angles of each other.
 - 2. For areas inaccessible to seeding machines, or areas with slopes steeper than 4:1, use broadcast method. See 3.04; VI below.

V. Native Areas:

- A. Seed the listed varieties in the areas designated on the drawings.
- B. All seed is to be drilled 0.25 inch to 0.50 inch into the soil at the specified PLS/acre rate listed in the Seed Mix Schedule, with a mechanical, power-drawn drill seeder. Rows shall be spaced not more than eight inches (8") apart.
- C. The contractor shall drill equal quantities in two directions at right angles of each other.
- D. Seeding rates need to be increased 50% on slopes 6:1 or greater.
- E. Seeding rates need to be increased 100% for areas that are seeded by hand broadcasting.
- F. Seeding native grasses into existing vegetation, or areas that have not been ripped and tilled to a minimum of 6 inches require the use of a seeder with:
 - 1. Double Disc openers with depth bands.
 - 2. Native Grass Seed Box with agitator and picker wheels.
 - 3. Press wheels.
 - 4. In hard ground areas, the Project Manager may require the use of a, no till Coulter unit.
- G. A cultipacker seeder (Brillion, Trillion type) is acceptable to use in well prepared (fine and firm) seed bed applications.
 - 1. The seeder should be equipped with seed boxes to handle the type of seed being planted.
 - 2. Native grass seed would need a seed box with an agitator and picker wheels.
 - 3. Seeding rates would need to be increased 50% with a cultipacker seeder since it is a broadcasting application.

- VI. Broadcast Seeding: Some areas may be inaccessible to a drill. In these mutually agreeable areas, seed shall be uniformly broadcast at 2 times the specified rate. Seed is to be evenly distributed and sown in equal quantities, in two directions at right angles to each other. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Hand broadcasted seeded areas need to be raked in to provide a minimum of ¼" cover and a maximum of ½" cover.

VII. Watering Newly Seeded Areas.

- A. Bluegrass areas: Coordinate with Project Manager the irrigation controller settings to provide adequate moisture for seed germination, and to avoid erosion.
- B. Native areas:
 - 1. Some native areas may have irrigation available, in which case follow the guidelines for Bluegrass areas above.
 - 2. Native areas without irrigation:
 - a. Spring Planting: Plan the planting operation to start as soon as the soil can be worked and prior to the spring rainy season.
 - b. Fall Planting: Place seed prior to the first hard frost in the fall, but after dormancy begins for the varieties being planted.

VIII. Companion Crops: Add the prescribed companion crop with the native seed mixes to be planted at the rate listed. If in doubt, coordinate with Project Manager.

IX. Erosion Protection:

- A. Slopes of 6:1 or less require no erosion protection.
- B. Protect seeded slopes exceeding 6:1 against erosion with jute or coir-fiber erosion-control mesh installed and stapled according to manufacturer's recommendations.
- C. Protect seeded slopes exceeding 4:1 against erosion with erosion-control blankets installed and stapled according to manufacturer's recommendations.

3.5 SEED MIXTURE SCHEDULE:

- I. Greeley Parks Mixes: Provide certified grass-seed blends or mixes, proportioned by weight, as follows. If the following mix is not available, contact the Parks Department for an approved mix, prior to proceeding:

BLUEGRASS SPECIES/VARIETY	% MIX	PURITY
Kentucky Bluegrass, Moonlight	30.00	85
Kentucky Bluegrass, NorthStar	30.00	85
Kentucky Bluegrass, Quantum Leap	30.00	85
Perennial Ryegrass	10.00	92

LOW GROW MIX	
Use a minimum 8' wide on sides of pathways. Use at property lines abutting residential properties. Used in open areas where short grasses are desired.	
SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Buffalograss	8.0
Blue grama	6.5

SLOPE MIX

Used on all slopes and berms.

SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Sideoats grama	2.0
Blue grama	2.0
Little Bluestem	2.0
Sand dropseed	.06

OPEN SPACE MIX

Used in open areas wher taller grasses are desirable.

SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Sideoats grama	2.0
Blue grama	2.0
Little Bluestem	2.0
Sand dropseed	0.2
Western Wheatgrass	2.0

POND MIX

Used in and around detention/retention ponds, and in areas that are designed to hold water, but are not necessarily wet the majority of the time.

SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Little Bluestem	3.0
Yellow Indian Grass	2.0
Switchgrass	1.0
Blue grama	0.6
Sideoats grama	4.0
Prairie Sandreed	1.5
Western Wheatgrass	6.5

RIPARIAN MIX

Used along irrigation ditches and in naturally wet areas.

SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Switchgrass	6.0
Reeds Canarygrass	6.0

<u>RIGHT – OF – WAY MIX</u>	
Used along public streets, in the right of way.	
SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Buffalograss	6.4
Blue grama	0.6
Sideoats grama	3.6
Western Wheatgrass	9.6
Thickspike Wheatgrass	2.2
Slender Wheatgrass	2.2

<u>Tree Lawn Mix</u>	
For use in specified tree lawns	
SPECIES	POUNDS PER 1,000 sq/ft
Buffalograss ‘Sundancer’	4.0
Blue grama ‘Alma’	1.0

<u>COMPANION CROP</u>	
Add the appropriate companion crop to the native seed mixes to be planted.	
SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Spring Planting: Oats	4.0
Fall Planting: Winter Wheat	2.0

3.6 NOTIFICATION AND INSPECTION:

- I. Inspection: Provide notice to Owner requesting inspection at least seven (7) days prior to anticipated date of completion.
- II. Deficiencies: If deficiencies exist, the City shall specify such deficiencies to the Contractor who shall make satisfactory adjustments and will again notify the City for final inspection.

3.7 CLEANING:

- I. Cleaning: Remove and haul from the site all excess materials and debris generated during the construction process. Perform daily cleaning during installation of the work, and upon completion of the work. Clean paved and finished surfaces soiled as a result of work under this section. Clean out drainage inlet structures as required. Repair any and all damage.

3.8 PROTECTION:

- I. General: Provide and install barriers as required and as directed by the City to

protect the seeded areas against damage from pedestrian and vehicular traffic until well established and accepted by the City. Provide any additional erosion control measures which are necessary for the successful establishment of grass areas.

END OF SECTION

LANDSCAPING SPECIFICATIONS

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SOIL PREP AND TURF INSTALLATION

Part 1: GENERAL

1.1 SUMMARY:

- I. Section Includes:
 - A. Fine grading and preparing areas for sod.
 - B. Furnishing and applying soil amendments.
 - C. Furnishing and applying fertilizer, herbicides.
 - D. Furnishing and sodding new areas.

1.2 SUBMITTALS:

- I. Quality Control Submittals:
 - A. Certificates: State, Federal and other inspection certificates shall be submitted to the City prior to acceptance of material..
 - B. Imported Soil Amendment Test Report: Submit test analysis to City for acceptance prior to delivery of material.
 - C. Fertilizer: State, Federal and other certificates shall accompany invoices for materials showing sources of origin. Submit to City prior to acceptance of material.
 - D. Certification of Testing: The Contractor shall furnish to the City a signed statement certifying that the topsoil/compost product furnished is from the lot that has been tested.

1.3 DELIVERY, STORAGE AND HANDLING:

- I. General: Handle and transport in a safe manner in compliance with local state, and federal regulations. Comply with MSDS requirements.
- II. Fertilizer: Deliver inorganic or chemical fertilizer to site in original unopened containers bearing manufacturer's guaranteed chemical analysis, name, trade name, trademark, and conformance to state law, bearing name and warranty of producer.
- III. Soil Amendments: Do not stockpile. Distribute and till immediately upon arrival at site (same day).
- IV. Sod: Time delivery so that sod will be placed with in 24 hours after shipping.
- V. Deliver sod properly loaded on vehicles and protected from exposure to sun, wind and heat in accordance with standard practice and labeled in accordance with the Federal Seed Act. Do not drop sod from loading carts, trucks or pallets.

1.4 PROJECT/SITE CONDITIONS:

- I. General: Do not perform work when climate and existing site conditions will not provide satisfactory results.
- II. Site Information: The Contractor shall be held to have examined the site, to ascertain the state thereof and the conditions under which the work is to be done. Note: Drawings typically indicate the physical dimensions of the site, but do not show the extent of all obstructions and subsurface conditions.
- III. Existing Utilities: Protect from damage any sewer, water, gas, electric, phone, cable TV, irrigation or other pipe lines or conduits uncovered during the work until the matter has been reviewed by the City. If such lines are found to be abandoned and not in use, remove without extra cost. If such lines are found to be in use, carefully protect and carry on work around them. If City deems it advisable to move such lines, City will pay cost of moving.
- IV. Existing Site Features: Protect from damage as noted herein or on drawings
- V. Vehicular Access:
 - A. Vehicular accessibility on site shall be kept to a minimum. Repair damage to prepared ground and surfaces caused by vehicular movement during work under this Section to original condition at no additional cost to City. Repair, to original condition, vehicular damage to the surrounding area at no additional cost to the City.
 - B. Only those vehicles identified with Company Name/Logo are allowed in the parks.
- VI. Environmental Requirements:
 - A. Apply sod only when air temperature is above freezing and below 85° F.
 - B. Do not install sod on saturated or frozen soil.
 - C. Do not install sod until soil preparations have been approved by the City.
 - D. Do not install sod until irrigation system is installed and tested.
 - E. Proceed with planting only when existing and forecast weather conditions are suitable for work.

Part 2: MATERIALS

2.1 SOIL AMENDMENTS: (Note that all percentages are by weight and not by volume.)

I. Soil Amendments:

- A. Compost: One hundred percent (100%) humus rich organic matter. The compost shall be a well decomposed, stable, weed free organic matter derived from agricultural, food, or industrial residuals; biosolids (treated sewage sludge); yard trimmings, or source-separated or mixed solid waste. Product must be certified as fully composted at a permitted solid waste processing facility. Product to be registered with the Colorado Department of Agriculture and approved for use on Colorado Certified Organic Farms by the Division of Plant Industry of the State of Colorado. Product shall contain no solid particle greater than one-half inch ($\frac{1}{2}$ ") in length or diameter and be free from un-composted or non-stabilized wood bulking agents. Product shall contain no substances toxic to plants and shall be reasonably free (<1% by dry weight) of man-made foreign matter. The compost will possess no objectionable odors and shall not resemble the raw material from which it was derived.
- B. Provide analysis for the following:
 - 1. Organic Matter Content: 30 - 70% (dry basis)
 - 2. Soluble Salt Concentration (EC paste test): 5 dS (mmhols/cm) or less (as received)
 - 3. PH range: 5.5 to 8.0 (as received)
 - 4. Final carbon to nitrogen ratio: 20:1 or less.
 - 5. Nutrient Content (dry weight basis): N 1% or above, P 1% or above, K 0.5% or above
 - 6. Bulk Density: 800 - 1,000 lbs/yd³
 - 7. Moisture Content: 35% - 55%
- C. Certification of Testing: The Contractor shall furnish to the City a signed statement certifying that the compost furnished is from the lot that has been tested.

II. Fertilizer:

- A. Before installing sod, apply an inorganic mixture tilled thoroughly into the top six inches (6") of soil, unless otherwise stated:
 - 1. 1 lb. of Nitrogen (N) per one thousand (1,000) square feet
 - 2. 2 lbs. Phosphorus (P205) per one-thousand (1,000) square feet.
 - 3. 1 lb. Sulfur (SO4-S) per one-thousand (1,000) square feet.

2.2 SOD:

I. Sod Materials:

- A. Sod shall be a true-to-name variety, blend or mixture as specified herein and be free of all noxious weeds. Sod shall have a moist, viable root system and of a density that it will not easily tear, break or crumble. Sod in rolls or pallets shall not be stored, after cutting from the sod farm, more than 48 hours and shall be protected from dehydration until installed.
- B. Provide strongly rooted sod, free of weeds and undesirable grasses, and machine cut to pad thickness of 0.75" (± 0.25 "), excluding top growth and thatch. Provide only sod capable of vigorous growth and development when planted.
- C. Provide sod of uniform pad sizes with maximum 5% deviation in either length or width. Broken pads or pads with uneven ends will not be acceptable. Sod pads incapable of supporting their own weight when suspended vertically with a firm grasp on upper 10% of pad will be rejected.
- D. Cut sod using an approved method, in accordance with local governing American Sod Producers Association.

2.3 HERBICIDES:

- I. Herbicide: EPA registered and approved, of type utilized by City of Greeley Parks Department
- II. Applicators must possess both a Colorado Department of Agriculture license and City of Greeley pesticide applicator's license.
- III. The contractor making chemical applications must have a Qualified Supervisor on staff.

Part 3: EXECUTION

3.1 EXAMINATION:

I. General:

- A. Verify that existing site conditions are as specified and indicated before beginning work under this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. All work is to be performed by personnel thoroughly familiar with proper and accepted methods for soil preparation, herbicide applications, fertilizing, seeding, mulching, etc. All work is to be performed under the direct supervision of the Contractor's superintendent, who shall be thoroughly familiar with the provisions of these specifications.

- II. Damaged Earth: Inspect to verify that earth rendered unfit to receive planting due to concrete water, mortar, lime water or any other contaminant dumped on it has been removed and replaced with clean earth from a source approved by the Project Manager. All access roadways or compacted soil shall be ripped to loosen.
- III. Unsatisfactory Conditions: Report in writing to the City.
- IV. Acceptance: Beginning installation indicates acceptance of existing conditions by Contractor.

3.2 PREPARATION:

I. Protection:

- A. Locate structures, playground equipment, sewer, water, irrigation, gas, electric, phone, cable TV, other pipelines or conduits and equipment prior to commencing work.
- B. Be responsible for proper repair to landscape, utilities, walls, soft surface paths, pavements and other site improvements damaged by operations under this section.

II. Existing Vegetation:

Contractor shall keep a log of all pesticide applications performed throughout the duration of the project, detailing applications. Notes shall be submitted to Owner at the completion of project.

- A. Herbicides shall be applied using well maintained spraying equipment by individuals working for the Contractor who are appropriately licensed by the State or Federal agency having jurisdiction over such applications. It shall be the responsibility of the Contractor to be knowledgeable of any and all current laws and regulations pertaining to pesticide applications, and to advise the City immediately if any requests for applications made by the City are inappropriate as they pertain to these laws and regulations.
- B. Herbicides and other chemicals shall not be applied during periods when wind or other physical conditions cause the herbicides to be transported off site, or a distance of more than five (5') feet from the immediate area where they are being applied. It shall be the responsibility of the Contractor to notify the Project Manager immediately if any weather or other physical conditions exist which would make application inappropriate.
- C. All herbicides and other chemicals shall be applied at rates as determined by the Contractor and the Project Manager.

1. Bluegrass areas:
 - a. Existing vegetation, excluding trees and shrubs, in all areas designated to receive new bluegrass sod, is to be sprayed with a contact non-selective post emergent herbicide (Roundup), a minimum of one (1) week and a maximum of (3) weeks prior to the ripping/tilling process.
 2. Reapply herbicide if necessary to insure complete kill of existing vegetation.
- III. Surface Grade: Remove existing grass, weeds, debris and rocks larger than one and one half-inches (1½") in all areas designated to receive sod. Verify that all rough grades have been established.
- IV. Erosion Control: Take measure and furnish all labor, materials, and equipment necessary to control and prevent soil erosion, blowing soil and accumulation of wind-deposited material on the site throughout duration of work.

3.3 INSTALLATION:

I. SOIL/TURF BED PREPARATION:

- A. General: All ripping and tilling operations shall be done in a direction which follows the natural contours of the land on slopes of 3:1 or less. Soils on slopes greater than three 3:1 will be prepared for planting in a manner specified by the City. Any irregularities in the ground surface resulting from soil preparation operations shall be corrected and sloped to drain as intended by the grading plans.
- B. Ripping/Tilling:
 1. Soil shall be ripped or tilled to a minimum of eight inches (8"), with agricultural sub-soiler. This includes any areas compacted by construction traffic during the construction process, with four (4) passes in at least two (2) directions.
 2. In areas where extremely stiff materials, or if debris is encountered during ripping, re-adjust equipment to avoid bringing up chunks of un-tillable material.
 3. The soils shall be worked until it has become loose and friable and no clods greater than two inches (2") in diameter remain, unless directed otherwise by the Project Manager, prior to the addition of any soil amendments, seed, or mulch.
 4. Remove stones larger than one and one-half inches (1½") in any dimension and sticks, roots, rubbish, and other extraneous matter.

5. Any required soil amendments (e.g. organic soil conditioners, fertilizer, ect.) Shall be uniformly spread on the surface of soil which has been prepared as stated above and at the rates specified in section 3.03; II and 3.03; III, below.
- II. Soil Amendments:
- A. Blue Grass Areas: Evenly distribute composted material in the bluegrass sod areas at the following rates:
 1. Apply the compost at four (4) cubic yards per one thousand (1,000) square feet.
 - B. Spreading the compost shall be accomplished with either a truck or trailer mounted spreader, capable of being adjusted to apply varying rates of material at a given speed.
 1. In areas inaccessible with a truck or trailer mounted spreader, the compost can be delivered and spread with a tractor and/or by hand.
- III. Fertilizer:
- A. See 2.01; II above
 - B. After applying soil amendments and fertilizer, thoroughly till area to a depth of six inches (6") minimum by rototilling, plowing, harrowing, or disking until soil is well pulverized.
 - C. Fill, compact and grade the site to within +/- 0.1' (1 3/16 ") of grades indicated and specified.
- IV. Grading in all areas to receive sod:
- A. Do rough grading and eliminate low spots: Perform as required to maintain positive drainage, prevent ponding and direct run-off into catch basins, drainage structures, etc. and as required to provide smooth well-contoured surface prior to proceeding
 - B. Prior to Acceptance of Grades: Hand-rake to a smooth even surface with a loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions. Remove debris, clods, rocks, vegetable matter, and any other objects that may interfere with planting or maintenance operations. Limit fine grading to areas that can be planted in the immediate future.
 - C. Grade areas along sidewalks and driveways approximately one and one half inches below top of concrete.
 - D. Noxious weeds or parts thereof shall not be present in the surface grade prior to seeding.
 - E. Moisten prepared lawn areas before planting when soil is dry. Water thoroughly and allow the surface to dry before planting. Do not create muddy soil.

- F. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Leave graded surface clean and free of trash and debris. Restore prepared areas if eroded or otherwise disturbed after fine grading and before planting.

3.4 SODDING:

- I. The Contractor shall notify the Project Manager prior to any sod work.
- II. The Project Manager will be on site during sod operations.
- III. Sodded areas shall be smooth and firm before lying. Sod shall be laid by staggering the joints. On slopes, sod shall run parallel to a 90° degree angle to the slope.
- IV. When in position, sod shall be watered and lightly rolled to ensure contact with the soil surface.
- V. Lay sod within 24 hours from time of stripping. Do not plant if ground is frozen.
- VI. Lay sod parallel to contours to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Work from boards to avoid damage to sub grade or sod. Water and tamp or roll lightly to ensure contact with sub grade. Work sifted soil into minor cracks between pieces of sod. Remove excess soil.
 - A. Secure sod on slopes of 3.5:1 or more with wood pegs as required to prevent slippage.
- VII. Watering sod thoroughly with a fine spray immediately after planting or after completion of every 225 sq. ft.

3.5 SOD BLEND :

- I. Provide a drought tolerant, blended Kentucky Bluegrass made up of a minimum of 4 blended varieties that are proven performers for Northern Colorado. Approved equal may be substituted.

3.6 NOTIFICATION AND INSPECTION:

- I. Inspection: Provide notice to Owner requesting inspection at least seven (7) days prior to anticipated date of completion.
- II. Deficiencies: If deficiencies exist, the City shall specify such deficiencies to the Contractor who shall make satisfactory adjustments and will again notify the City for final inspection.

3.7 MAINTENANCE:

I. General:

- A. Begin maintenance of lawns immediately after each area is planted and continue for a period of not less than 30 days for sodded areas and until satisfactory growth is achieved.
- B. Maintain lawns by watering, fertilizing, weeding, mowing and trimming and other operations such as replanting as required to establish a smooth, acceptable lawn, free of eroded or bare areas up to and until final acceptance has been issued from project manager in writing.
- C. Resod bare areas using same materials specified for lawns.

II. Watering:

- A. Water new lawn area sufficiently to thoroughly moisten soil and in such a manner as to avoid erosion. Commence watering on the day of installation and continue as needed.
- B. A new sod watering permit will be required.
- C. Provide and maintain temporary piping, hoses and lawn watering equipment to convey water from sources and to keep lawn areas uniformly moist as required for proper growth up to and until final acceptance has been issued from project manager in writing.

- III. Mowing: Mowing during maintenance period is the responsibility of the Contractor. Do not begin mowing until the sod has had at least 7 consecutive days from installation to root into the soil. Mowing height shall be no less than 2". Mow newly seeded areas when 75% of grass reaches 3" height.

3.8 CLEANING:

- I. Cleaning: Remove and haul from the site all excess materials and debris generated during the construction process. Perform daily cleaning during installation of the work, and upon completion of the work. Clean paved and finished surfaces soiled as a result of work under this section. Clean out drainage inlet structures as required. Repair any and all damage.

3.9 PROTECTION:

- I. General: Provide and install barriers as required and as directed by the City to protect the sodded areas against damage from pedestrian and vehicular traffic until well established and accepted by the City. Provide any additional erosion control measures which are necessary for the successful establishment of grass areas.

END OF SECTION

BASELINE IRRIGATION SPECIFICATIONS

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PART 4 SUPPLEMENTAL BASELINE SPECIFICATIONS

DIVISION 2-SITE WORK

SECTION 02810 - IRRIGATION

PART 1: GENERAL

1.1 SCOPE:

Furnish all labor, materials, supplies, equipment, tools, and transportation, and perform all operations in connection with and reasonably incidental to the complete installation of the irrigation system, and guarantee/warranty as shown on the drawings, the installation details, and as specified herein. Items of work specifically included are:

- I. Procurement of all applicable licenses, permits, and fees.
- II. Coordination of Utility Locates ("Utility Notification Center").
- III. Connection of electrical power supply to the irrigation control system.
- IV. Sleeving for irrigation pipe and wire.
- V. Preparation of Record Drawings.
- VI. Spring start-up and winterization.
- VII. Maintenance period.

1.2 WORK NOT INCLUDED:

Items of work specifically excluded or covered under other sections are:

- I. Provision of electrical power supply to the irrigation control system.
- II. Provision for water to the site (water meter).

1.3 SUBMITTALS:

- I. Deliver four (4) copies of all submittals to the Owner's Representative within 10 working days from the date of Notice to Proceed. Provide information in a 3-ring binder with table of contents and index sheet. Provide sections that are indexed for different components and labeled with the specification section number and the name of the component. Submittals must be made for all the components on the material list. Indicate which items are being supplied on the catalog cut sheets when multiple items are shown on one sheet. Submittal package must be complete prior to being reviewed by the Owner's Representative. Incomplete submittals will be returned without review.

- II. Materials List: Include sleeving, pipe, fittings, mainline components, sprinkler, drip irrigation components, control system components, shop drawings and all other components shown on the drawings and installation details or described herein. Components such as pipe sealant, wire, wire connectors, ID tags, etc. must be included. Quantities of materials need not be included.
 - III. Manufacturers' Data: Submit manufacturers' catalog cuts, specifications, and operating instructions for equipment shown on the materials list.
 - IV. Shop Drawings: Submit shop drawings called for in the installation details. Show products required for proper installation, their relative locations, and critical dimensions. Note modifications to the installation detail.
 - V. The following items are required to receive Baselines's installation verification and warranty verification: Baseline's Controller and Communications. Prior to final acceptance of the project, the contractor shall be responsible for contacting and coordinating installation verification for any and all of the aforementioned products required by and installed on this project. Prior to starting work on this project, the contractor shall contact an authorized Baseline Distributer, and conduct an on-site meeting with the Baseline representative and a City representative to coordinate all required verification services in a timely manner, to include Radio Site Survey and equipment needs. The contractor shall provide documentation of this meeting to the City of Greeley. Prior to final acceptance of the work, the contractor shall provide proof of installation verification of all required equipment by the authorized Baseline representative to the City of Greeley.
- 1.4 RULES AND REGULATIONS:
- I. Work and materials shall be in accordance with the latest edition of the National Electric Code, the Uniform Plumbing Code as published by the Western Plumbing Officials Association, and applicable laws and regulations of the governing authorities.
 - II. When the contract documents call for materials or construction of a better quality or larger size than required by the above-mentioned rules and regulations, provide the quality and size required by the contract documents.
 - III. If quantities are provided either in these specifications or on the drawings, these quantities are provided for information only, it is the Contractor's responsibility to determine the actual quantities of all material, equipment, and supplies required by the project and to complete an independent estimate of quantities and wastage.

1.5 QUALITY ASSURANCE:

- I. Engage an experienced Installer who has completed irrigation work similar in material, design, and extent to that indicated for this project and with a record of successful irrigation installations.
- II. Installer's Field Supervision: Field supervision shall be on site, full time during installation. Field supervisor shall have at least 5 years experience in 2 wire installation.

1.6 TESTING:

- I. Notify the Owner's Representative three days in advance of testing.
- II. Pipelines jointed with rubber gaskets or threaded connections may be subjected to a pressure test at any time after partial completion of backfill. Pipelines jointed with solvent-welded PVC joints shall be allowed to cure at least 24 hours before testing.
- II. Subsections of mainline pipe may be tested independently, subject to the review of the Owner's Representative.
- III. Furnish clean, clear water, pumps, labor, fittings, and equipment necessary to conduct tests or retests. Pressure gauge resolution must be suitable for recording losses less than 5 psi.
- IV. All costs, including travel expenses for site visits by the Project Manager, for any reinspection that may be required due to non-compliance with the Construction Documents shall be the sole responsibility of the Contractor.
- V. Hydrostatic Pressure Test (Solvent Weld Mainline Pipe):
 - A. Subject mainline pipe to a hydrostatic pressure equal to 140 PSI for two hours. Test with mainline components installed.
 - B. Backfill to prevent pipe from moving under pressure. Expose couplings and fittings.
 - C. Expose all remote control valves their riser pipe and service tee fittings.
 - D. Purge air from mainline pipe before test. Attach pressure gauge to mainline pipe in test section.
 - E. Observe pressure loss on pressure gauge. If pressure loss is greater than 5 PSI, identify reason for pressure loss. Replace defective pipe, fitting, joint, valve, or appurtenance. Repeat test until pressure loss is equal to or less than 5 PSI.
 - F. Visually inspect irrigation pipe for leakage and replace defective pipe, fittings, joint, valve, or appurtenance. Repeat test until pipe passes test.
 - G. Cement or caulking to seal leaks is prohibited.
- VI. Volumetric Leakage Test:
 - A. Backfill to prevent pipe from moving under pressure. Expose couplings and fittings.

- B. Purge air from pipeline before test.
- C. Subject mainline pipe to 140 PSI for two hours. Maintain constant pressure.
- D. Provide all necessary pumps, bypass piping, storage tanks, meters, 3-inch test gauge, supply piping, and fittings in order to properly perform testing.
- E. Testing pump must provide a continuous 140-PSI to the mainline. Allowable deviation in test pressure is 5-PSI during test period. Restore test pressure to 140-PSI at end of test.
- F. Water added to mainline pipe must be measured volumetrically to nearest 0.10 gallons.
- G. Use the following table to determine maximum allowable volume lost during test:

Leakage Allowable (Gallons per (100 Joints) / Hour)

Pipe Size (INCHES)	Test Pressure (PSI)								
	60	70	80	90	100	110	120	130	140
2 ½"	0.39	0.42	0.45	0.48	0.51	0.53	0.56	0.58	0.61
3"	0.48	0.51	0.55	0.58	0.62	0.65	0.68	0.70	0.73
4"	0.62	0.66	0.71	0.75	0.80	0.84	0.87	0.91	0.94
6"	0.90	0.97	1.04	1.11	1.18	1.23	1.29	1.34	1.40

VII. Operational Test:

- A. Activate each remote control valve in sequence from controller. The Owner's Representative will visually observe operation, water application patterns, and leakage.
- B. Replace defective remote control valve, solenoid, wiring, or appurtenance to correct operational deficiencies.
- C. Replace, adjust, or move water emission devices to correct operational or coverage deficiencies.
- D. Replace defective pipe, fitting, joint, valve, sprinkler, or appurtenance to correct leakage problems. Cement or caulking to seal leaks is prohibited.
- E. Repeat test(s) until each lateral passes all tests. Repeat tests, replace components, and correct deficiencies at no additional cost to the Owner.

VIII. Control System Acceptance Test:

- A. Upon completion of construction, City of Greeley Parks Department Representatives will administer a System Acceptance Test.
- B. Following construction completion and a Review by the Project Manager, an evaluation period will begin. After 30 days of continuous service without major system problems, the system will be accepted and the guarantee/warranty period will begin. If at any time during the 30-day evaluation period, a major system problem occurs, the source of the problem will be determined and corrected and the 30-day evaluation period will start again. Equipment will not be accepted until such time as the System Acceptance Test is passed.

- C. If successful completion of the System Acceptance Test is not attained within 90 days following commencement of the evaluation period, the Project Manager has the option to request replacement of equipment, terminate the order, or portions thereof, or continue with the System Acceptance Test. These options will remain in effect until such time as a successful completion of the System Acceptance Test.
- D. Final payment will be made after successful completion of the System Acceptance Test.

IX. Control System Grounding:

- A. Test for proper grounding of control system per manufacturer's recommendations. Test results must meet or exceed manufacturer's guidelines for acceptance.
- B. Replace defective wire, grounding rod, or appurtenances. Repeat the test until the manufacturer's guidelines are met.

1.7 CONSTRUCTION REVIEW:

The purpose of on-site reviews by the Owner's Representative is to periodically observe the work in progress, the Contractor's interpretation of the construction documents, and to address questions with regard to the installation.

- I. Scheduled reviews such as those for irrigation system layout or testing must be scheduled with the Project Manager as required by these specifications.
- II. Impromptu reviews may occur at any time during the project.
- III. A review will occur at the completion of the irrigation system installation and Project Record Drawing submittal.

1.8 COORDINATION AND SCHEDULING:

- I. The irrigation construction schedule is to be provided at the Pre-Construction meeting depicting the dates the various stages of the project will start and when they will be completed.

1.9 GUARANTEE/WARRANTY AND REPLACEMENT:

The purpose of this guarantee/warranty is to insure that the Owner receives irrigation materials of prime quality, installed and maintained in a thorough and careful manner.

- I. For a period of one year from commencement of the formal maintenance period, guarantee/warranty irrigation materials, equipment, and workmanship against defects. Fill and repair depressions. Restore landscape or structural features damaged by the settlement of irrigation trenches or excavations. Repair damage to the premises caused by a defective item. Make repairs within seven days of notification from the Owner's Representative.

- II. Contract documents govern replacements identically as with new work. Make replacements at no additional cost to the contract price.
- III. Guarantee/warranty applies to originally installed materials and equipment and replacements made during the guarantee/warranty period.

PART 2: MATERIALS

2.1 QUALITY:

Use materials that are new and without flaws or defects of any type, and which are the best of their class and kind.

2.2 SUBSTITUTIONS:

- I. Alternative equipment must be approved by the Engineer prior to bidding. The Contractor is responsible for making any changes to the design to accommodate alternative equipment.
- II. Pipe sizes referenced in the construction documents are minimum sizes, and may be increased at the option of the Contractor.

2.3 SLEEVING:

- I. Install a separate sleeve beneath paved areas to route each run of irrigation pipe or wiring bundle.
- II. Sleeving material beneath pedestrian pavements shall be PVC Class 200 pipe with solvent welded joints.
- III. Sleeving beneath drives and streets shall be PVC Class 200 pipe with solvent welded joints.
- IV. Sleeving diameter: equal to twice that of the pipe or wiring bundle.
- V. All sleeving located under concrete, pavement or other hard surfacing shall be notched on both sides to mark the sleeve location.

2.4 PIPE AND FITTINGS:

- I. Mainline Pipe and Fittings:
 - A. Use rigid, un-plasticized polyvinyl chloride (PVC) 1120, 1220 National Sanitation Foundation (NSF) approved pipe, extruded from material meeting the requirements of Cell Classification 12454-A or 12454-B, ASTM Standard D1784, with an integral belled end suitable for solvent welding.
 - B. Use Class 200, SDR-21, rated at 200 PSI, conforming to the dimensions and tolerances established by ASTM Standard D2241. Use PVC pipe rated at higher pressures than Class 200 in the case of small nominal diameters that are not manufactured in Class 200.

- C. Use solvent weld pipe for mainline pipe with a nominal diameter less than 3-inches or where a pipe connection occurs in a sleeve. Use Schedule 40, Type 1, PVC solvent weld fittings conforming to ASTM Standards D2466 and D1784. Use primer approved by the pipe manufacturer. Solvent cement to conform to ASTM Standard D2564.

II. Lateral Pipe and Fittings:

- A. Use rigid, un-plasticized polyvinyl chloride (PVC) 1120, 1220 National Sanitation Foundation (NSF) approved pipe, extruded from material meeting the requirements of Cell Classification 12454-A or 12454-B. ASTM Standard D1784, with an integral belled end suitable for solvent welding.
- B. Use Class 200, SDR-21, rated at 200 PSI, conforming to the dimensions and tolerances established by ASTM Standard D2241.
- C. Use solvent weld pipe for lateral pipe. Use Schedule 40, Type 1, PVC solvent weld fittings conforming to ASTM Standards D2466 and D1784 for PVC pipe. Use primer approved by the pipe manufacturer. Solvent cement to conform to ASTM Standard D2564, of a type approved by the pipe manufacturer.

III. Specialized Pipe and Fittings:

- A. Low Density Polyethylene Hose:
 - 1. Use pipe specifically intended for use as a flexible swing joint.
Inside diameter: 0.490_+0.010 inch.
Wall thickness: 0.100+0.010 inch.
Color: Black.
 - 2. Use spiral barbed fittings supplied by the same manufacturer as the hose.
- B. Assemblies calling for flanged connections shall utilize stainless steel studs and nuts and rubber gaskets.
- C. Assemblies calling for threaded pipe connections shall utilize PVC Schedule 80 and 40 threaded fittings and Spears pre-manufactured swing-joint assemblies. Use PVC Schedule 80 nipples.
- D. Joint sealant: Use non-hardening, nontoxic pipe thread sealant formulated for use on threaded connections and approved by the pipe fitting and valve manufacturers. Where directed by valve manufacturers, use thread tape for threaded connections at valves instead of thread paste.
- E. Copper Pipe: Use Type "K" rigid pipe conforming to ASTM Standard B88. Use wrought copper or cast bronze fittings, soldered, flared mechanical, or treaded joint per installation details or local code. Use a 95-percent tin and 5-percent antimony solder.
- F. Pressure Supply Lines (downstream of backflow prevention units) – HDPE, DR11.

IV. Joint Restraint Harness:

- A. Use a joint restraint harnesses wherever joints are not positively restrained by flanged fittings, threaded fittings, and/or thrust blocks.

- B. Use a joint restraint harness with transition fittings between metal and PVC pipe, where weak trench banks do not allow the use of thrust blocks, or where extra support is required to retain a fitting or joint.
- C. Use bolts, nuts, retaining clamps, all-thread, or other joint restraint harness materials that are zinc plated or galvanized.
- D. Use on pipe greater than or equal to 3-inch diameter or any diameter rubber gasket pipe.

2.5 MAINLINE COMPONENTS:

- I. Flow Sensor Assembly: As presented in the installation details.
- II. Isolation Gate Valve Assembly: As presented in the installation details. Acceptable manufacturers are American AVK, Clow, Kennedy, Mueller, Matco, Nibco, or Waterous.
- III. Quick Coupling Valve Assembly: As presented in the installation details.
- IV. Air Vacuum Relief Valve Assembly: as presented in the details. Provide a continuous action combination air vacuum relief valve with an operating pressure rating of 150 PSI. Acceptable manufactures are Bermad, Crispin, Fresno, or Waterman.

2.6 SPRINKLER IRRIGATION COMPONENTS:

- I. Remote Control Valve (RCV) Assembly for Sprinkler Laterals: as presented in the installation details. Use wire connectors and waterproofing sealant to join control wires to solenoid valves. Use standard Christy I.D. tags with hot-stamped black letters on a yellow background. Install a separate valve box over a 3-inch depth of 3/4-inch gravel for each assembly. Provide PRS-Dial pressure regulators for all spray nozzles when inlet pressure exceeds 15 psi of desired outlet pressure. Install 2-wire decoder on each control valve.
- II. Sprinkler Assembly: As presented in the drawings and installation details.
- III. Sprinkler Pressure Test Kit: Provide Rain Bird PHG assembly, and Rain Bird Pitot Tube (part no. 41017), for use in pressure adjustment for spray and rotors sprinklers.

2.7 DRIP IRRIGATION COMPONENTS:

- I. Remote Control Valve (RCV) /assembly fir Drip Laterals.
 - A. As presented in drawing and installation details.

II. Inline Drip Tubing:

- A. Tubing: Use UV resistant polyethylene drip tubing with integral pressure compensating drip emitters. Emitter spacing as noted in drawings and installation details. Use emitters that are pressure compensating from 8 to 70 PSI. Use tubing with O.D. of 0.660", and I.D. of 0.560". Use tubing stakes or landscape fabric staples to hold above-ground pipe in place.
- B. Blank Drip Tubing: Use UV resistant polyethylene blank tubing for supply and exhaust manifolds with flows less than five (5) GPM, and start connections between manifolds and drip tubing. Use PVC insert line fittings compatible with inline drip tubing. Compression fittings will not be allowed. Use blank tubing from same manufacture as inline drip tubing.
- C. Flush Valve Assembly: As presented in drawings and installation details.

2.8 CONTROL SYSTEM COMPONENTS:

- A. Automatic Controller (2-Wire) - Size and type shown on Drawings; mounted as detailed.
 - 1. Single Station Decoders (2-Wire) - Size and type shown on Drawings; mounted as detailed.
 - a. Install decoders and wire per manufacture recommendations and requirements.
 - b. Grounding for all decoders and 2-wire cable, to be per manufactures recommendations and requirements. Minimum one grounding assembly per every 600' of wire and at all ends of the wire runs.
- B. Baseline Controller Assembly: All incidental parts which are not specified herein and are necessary to complete the system shall be furnished and installed as though such parts were shown on plans or specified. All systems shall be in satisfactory operation at the time of completion. Contractor is responsible to meet with designated City of Greeley Parks Division staff as well as authorized Baseline Technical Services Staff to determine appropriate communication path from the below options BEFORE PACKAGE SYSTEM IS TO BE ORDERED. Contractor is also required to provide designated City of Greeley Parks Division Staff with a final Package System sales order from an authorized Baseline dealer for approval BEFORE ordering of system occurs. (refer to supplemental Baseline Specification section).
 - 1. Lightning protection: Provide one 4" x 96" x 0.0625" ground plate, one 5/8"x10 foot copper clad UL listed grounding rod, 30 feet of #6 AWG bare copper grounding wire, and one CADWELD connector, and two 6-inch round valve boxes at each satellite controller group. Contractor responsible for adding to the grounding path until test measures 10 ohms or less.

2. Wire markers: Pre-numbered or labeled with indelible nonfading ink, made of permanent, nonfading material.
3. Power Wire:
 - A. Electric wire from the power source to satellite control unit shall be solid or stranded copper, Type UF single conductor cable or multi-conductor with ground cable, UL approved for direct underground burial. Power wires shall be black, white, and green in color. The Contractor is responsible for verifying that the power wire sizes are compatible and adequate for the control system being used.
 - B. Splices: Use 3M 82-A series connectors.
 - C. Conduit: PVC Schedule 40.
 - D. Warning tape: Inert plastic film highly resistant to alkalis, acids, or other destructive chemical components likely to be encountered in soils. Three inches wide, colored yellow, and imprinted with "CAUTION: BURIED ELECTRIC LINE BELOW"
4. Control Wire:
 - A. Low Voltage:
 1. Electrical Control Wire - UFUL approved No. 12/12 (2-wire Paige #7072Dor Regency Maxi Wire 14/2 or 12/2 or as per manufactures requirements) direct burial copper wire to operate system as designed.
 2. If multiple controllers are utilized, refer to wire routing plan for individual wire runs.
 3. Control Wire connections and splices shall be made with 3M DBRy-6 direct bury splice.
 4. Loop five (5) feet minimum of 2-wire cable into all valve boxes.
 5. If multiple controllers are utilized, each controller shall have it's own 2-wire cable run. Controllers cannot be connected with the same 2-wire run and each must be independently color coded.
 - B. Warning tape: Insert plastic film highly resistant to alkalis, acids, or other destructive chemical components likely to be encountered in soils. Three inches wide, colored yellow, and imprinted with "CAUTION: BURIED ELECTRIC LINE BELOW."

2.9 OTHER COMPONENTS SUPPLIED BY CONTRACTOR:

- I. Tools and Spare Parts: Provide operating keys, servicing tools, spare parts and other items indicated in the General Notes of the drawings.
- II. Other Materials: Provide other materials or equipment shown on the drawings or installation details that are part of the irrigation system, even though such items may not have been referenced in these specifications.

PART 3: EXECUTION

3.1 INSPECTIONS AND REVIEWS:

- I. Site Inspections:
 - A. Verify construction site conditions and note irregularities affecting work of this section. Report irregularities to the Owner's Representative prior to beginning work.
 - B. Beginning work of this section implies acceptance of existing conditions.
- II. Utility Locates ("Utility Notification Center of Colorado"):
 - A. Arrange for and coordinate with local authorities the location of all underground utilities.
 - B. Repair any underground utilities damaged during construction. Make repairs at no additional cost to the contract price.
 - C. Irrigation System Layout Review: Irrigation system layout review will occur after the staking has been completed. Notify the Owner's Representative one week in advance of review. Modifications will be identified by the Owner's Representative at this review.

3.2 LAYOUT OF WORK:

- I. Stake out the irrigation system. Items staked include: back flow device, sprinklers, mainline and lateral pipe, control valves, quick coupling valves, controller, and isolation valves.
- II. Install all mainline pipe and mainline components inside of project property lines.

3.3 EXCAVATION, TRENCHING, AND BACKFILLING:

- I. Excavate to permit the pipes to be laid at the intended elevations and to permit work space for installing connections and fittings.
- II. Minimum cover (distance from top of pipe or control wire to finish grade):
 - A. 24-inches over mainline pipe and over electrical conduit.
 - B. 28-inches over control wire.
 - C. 18-inches over lateral pipe to sprinklers.
- III. Maintain at least 15-foot clearance from the centerline of any tree.
- IV. PVC lateral pipes may be pulled into the soil utilizing a vibratory plow device specifically manufactured for pipe pulling. Minimum burial depths equal minimum cover listed above.
- V. Backfill only after lines have been reviewed and tested.

- VI. Excavated material is generally satisfactory for backfill. Backfill shall be free from rubbish, vegetable matter, and stones larger than 2-inches in maximum dimension. Remove material not suitable for backfill. Backfill placed next to pipe shall be free of sharp objects that may damage the pipe.
- VII. Backfill unsleeved pipe in either of the following manners:
 - A. Backfill and puddle the lower half of the trench. Allow to dry 24 hours. Backfill the remainder of the trench in 6-inch layers. Compact to density of surrounding soil.
 - B. Backfill the trench by depositing the backfill material equally on both sides of the pipe in 6-inch layers and compacting to the density of surrounding soil.
- VIII. Enclose pipe and wiring beneath roadways, walks, curbs, etc., in sleeves. Minimum compaction of backfill for sleeves shall be 95% Standard Proctor Density, ASTM D698-78. Use of water for compaction around sleeves, "puddling", will not be permitted.
- XI. Dress backfilled areas to original grade. Incorporate excess backfill into existing site grades.
- X. Where utilities conflict with irrigation trenching and pipe work, contact the Owner's Representative for trench depth adjustments.
- 3.4 SLEEVING AND BORING:
 - I. Install sleeving at a depth that permits the encased pipe or wiring to remain at the specified burial depth.
 - II. Extend sleeve ends six inches beyond the edge of the paved surface. Cover pipe ends and mark with stakes.
 - III. Bore for sleeves under obstructions that cannot be removed. Employ equipment and methods designed for horizontal boring. Hand excavating under sidewalks and hardscapes will not be allowed.
- 3.5 ASSEMBLING PIPE AND FITTINGS:
 - I. General:
 - A. Keep pipe free from dirt and pipe scale Cut pipe ends square and debur. Clean pipe ends.
 - B. Keep ends of assembled pipe capped. Remove caps only when necessary to continue assembly.
 - C. Trenches may be curved to change direction or avoid obstructions within the limits of the curvature of the pipe. Minimum radius of curvature and offset will be based on manufactures recommendations. Installer will be required to provide chart of allowable deflection with pipe submittals. No deflection will be allowed at a pipe joint.

II. Mainline Pipe and Fittings:

- A. Use only strap-type friction wrenches for threaded plastic pipe.
- B. PVC Rubber-Gasket Pipe:
 - 1. Use pipe lubricant. Join pipe in the manner recommended by manufacturer and in accordance with accepted industry practices.
 - 2. Ductile iron fittings shall not be struck with a metallic tool. Cushion blows with a wood block or similar shock absorber.
- C. PVC Solvent Weld Pipe:
 - 1. Use primer and solvent cement. Join pipe in a manner recommended by the manufacturer and in accordance with accepted industry practices.
 - 2. Cure for 30 minutes before handling and 24 hours before allowing water in pipe.
 - 3. Snake pipe from side to side within the trench.
- D. Fittings: The use of cross type fittings is not permitted. Do not strike ductile iron fittings with metallic tools. Cushion blows with wood block or similar shock absorber

III. Lateral Pipe and Fittings:

- A. Use only strap-type friction wrenches for threaded plastic pipe.
- B. PVC Solvent Weld Pipe:
 - 1. Use primer and solvent cement. Join pipe in the manner recommended by the manufacturer and in accordance with accepted industry practices.
 - 2. Cure for 30 minutes before handling and 24 hours before allowing water in the pipe.
 - 3. Snake pipe from side to side within the trench.
- C. Fittings: The use of cross type fittings is not permitted.

IV. Specialized Pipe and Fittings:

- A. Low Density Polyethylene Hose: Install per manufacturer's recommendations.
- B. Flanged connections: Install stainless steel studs and nuts and rubber gaskets per manufacturer's recommendations.
- C. PVC Threaded Connections:
 - 1. Use only factory-formed threads. Field-cut threads are not permitted.
 - 2. Use only non-hardening, nontoxic thread sealant.
 - 3. When connection is plastic-to-metal, the plastic component shall have male threads and the metal component shall have female threads.
- D. Make metal-to-metal, threaded connections with non-hardening, nontoxic pipe sealant applied to the male threads only.
- E. Copper Pipe:
 - 1. Use flux and solder. Join pipe in manner recommended by manufacturer and in accordance with local codes and accepted industry practices.
 - 2. Solder so that continuous bead shows around the joint circumference.

- 3.6 INSTALLATION OF MAINLINE COMPONENTS:
- I. Master Valve Assembly: Install where indicated on the drawings.
 - II. Flow Sensor Assembly: Install where indicated on the drawings according to manufacturers installation guidelines.
 - III. Isolation Gate Valve Assembly:
 - A. Install where indicated on the drawings.
 - B. Locate at least 12-inches from and align with adjacent walls or edges of paved areas.
 - IV. Quick Coupling Valve Assembly: Install where indicated on the drawings.
- 3.7 INSTALLATION OF SPRINKLER IRRIGATION COMPONENTS:
- I. Remote Control Valve (RCV) Assembly for Sprinkler Laterals:
 - A. Flush mainline before installation of RCV assembly.
 - B. Install where indicated on the drawings. Connect control wires to remote control valve wires using 3M DBY-6 or DBR-6 waterproof connectors. Install connectors per the manufacturer's recommendations.
 - C. Install only one RCV to a valve box. Locate valve box at least 12-inches from and align with nearby walls or edges of paved areas. Group RCV assemblies together where practical. Arrange grouped valve boxes in rectangular patterns. Allow at least 12-inches between valve boxes.
 - D. Attach ID tag with controller station number to control wiring.
 - E. Install 2-wire decoder, per manufacture standards and recommendations.
 - F. Brand valve box lid with appropriate station number for each remote control valve. Branding device must create letters a minimum of 3-inches in height and 0.2-inches deep in lid.
 - II. Sprinkler Assembly:
 - A. Flush lateral pipe before installing sprinkler assembly.
 - B. Install per the installation details at locations shown on the drawings.
 - C. Locate rotary sprinklers 6-inches from adjacent walls, fences, or edges of paved areas.
 - D. Locate spray sprinklers 3-inches from adjacent walls, fences, or edges of paved areas.
 - E. Install sprinklers perpendicular to the finish grade.
 - F. Supply appropriate nozzle or adjust arc of coverage of each sprinkler for best performance.
 - G. Adjust the radius of throw of each sprinkler for best performance.

III. Sprinkler Pressure Test Kit (if applicable):

- A. Use a Pitot tube and pressure gauge at the worst-case rotor sprinkler assembly, from the respective remote control valve. Adjust PRS-Dial at each rotor remote control valve, to provide the design operating pressure at the worst-case rotor sprinkler head. Typically the worst-case sprinkler is the sprinkler furthest from the remote control valve. Complete pressure adjustment for every rotor remote control valve.
- B. Using pressure gauge and necessary fittings, place pressure gauge on worst-case spray sprinkler, from the respective remote control valve. Adjust PRS-Dial at each spray remote control valve to provide an operating pressure of 30 PSI at the worst-case spray sprinkler head. Typically the worst-case sprinkler is the sprinkler furthest from the remote control valve. Complete pressure adjustment for each spray remote control valve.
- C. Turn over Pitot tube and pressure gauge to the City of Greeley at completion of construction.

3.8 INSTALLATION OF DRIP IRRIGATION COMPONENTS:

- I. Remote Control Valve (RCV) Assembly for Drip Laterals:
 - A. Flush mainline pipe before installing RCV assembly.
 - B. Locate as shown on drawings. Connect control wires to remote control valve wires using wire connectors and waterproof sealant. Provide 3M DBRY-6 or DBR-6 connectors and sealant per manufacturer's recommendations.
 - C. Install only one RCV per valve box. Locate at least 12-inches from and align with nearby walls or edges of paved areas. Group RCV assemblies together where practical. Align grouped valve boxes in uniform patterns. Allow at least 12-inches between valve boxes. Brand controller letter and station number on valve box lid in 2-inch high letters.
 - D. Arrange grouped valve boxes in rectangular patterns.
- II. Inline Drip Tubing: Install inline drip tubing components in strict accordance with tubing manufacturer's details, guidelines, and recommendations.
- III. Flush Valve Assembly: Provide at end of each dripper line grid as show and directed on drawings and installation details. Install at least 12-inches from and align with adjacent walls or edges of paved areas. Brand "FV" on valve box lid in 2-inch high letters.

3.9 INSTALLATION OF CONTROL SYSTEM COMPONENTS:

- I. Satellite Controller Assemblies:
 - A. The location of the Controller Assemblies as depicted on the drawings is approximate; the Project Manager will determine the exact site location during sprinkler layout review.

- B. Assemble controller assembly, sensors, and appurtenance controller enclosure per authorized manufacturer representative recommendation and shop drawings. Provide pre-fabrication and testing of controller assembly by authorized Baseline distributor representative prior to installation in field. Provide installation observation and wire connections in field by manufacturer's personnel or trained distributor personnel.
 - C. Provide combination switch/GFCI outlet in accordance with local codes inside satellite controller assembly enclosure.
 - D. Provide electrical service connection for Controller Assemblies under direction and observation of manufactures' personnel or trained distributor personnel. Utilize existing electrical source. Provide primary surge protection arrestors on incoming power lines in accordance with control system manufacturer recommendations.
 - E. Lightning protection: Drive grounding rod into soil its full length. Space rod and grounding plate according to manufactures installation guidelines regarding spacing from controller in order to achieve 10 ohms or less upon testing. Connect #6 AWG copper grounding wire to rod from plate using CADWELD connection. Install 6-inch round valve box over each CADWELD connection and grounding plate connection. Connection of grounding wire to the satellite must be per satellite manufacturer or distributor's recommendations.
 - F. Attach wire markers to the ends of control wires inside the controller unit housing. Label wires with the identification number (see drawings) of the remote control valve to which the control wire is connected.
 - G. Connect control wires to the corresponding controller terminal.
- II. Power Wire:
- A. Install with a minimum number of field splices. If a power wire must be spliced, make splice with recommended connector, installed per manufacturer's recommendations. Locate all splices in a separate 12-inch standard valve box. Coil 2 feet of wire in valve box.
 - B. All power wire shall be laid in trenches. The use of a vibratory plow is not permitted.
 - C. Green wire shall be used as the ground wire from power source to all satellites.
 - D. Carefully backfill around power wire to avoid damage to wire insulation or wire connectors.
 - E. Unless noted on plans, install wire parallel with mainline pipe. Install wire a minimum of 2-inches below top of PVC mainline pipe.
 - F. Encase wire not installed with PVC mainline pipe in electrical conduit with a continuous run of warning tape placed in the backfill, 6-inches above the wiring.

III. 2- Wire cable:

- A. Install with mainline pipe wrapping with tape spaced at 10-foot intervals.
- B. Provide a 24-inch excess length of 2-wire cable in an 8-inch diameter loop at each 90-degree change of direction, at both ends of sleeves, and at 100-foot intervals along continuous runs of wiring. Do not tie wiring loop. Coil 5' length of 2-wire cable within each remote control valve box.
- C. If a 2-wire cable must be spliced, make splice with wire connectors and waterproof sealant, installed per the manufacturer's instructions. Locate splice in a valve box that contains an irrigation valve assembly, or in a separate 12-inch standard valve box. Use same procedure for connection to valves as for in-line splices.
- D. Unless noted on plans, install wire parallel with and below PVC mainline pipe.
- E. Protect wire not installed with PVC mainline pipe with a continuous run of warning tape placed in the backfill six inches above the wiring.

3.10 INSTALLATION OF OTHER COMPONENTS:

- I. Tools and Spare Parts: Prior to the Review at completion of construction, supply to the Owner operating keys, servicing tools, spare parts, and any other items indicated in the General Notes on the drawings.
- II. Other Materials: Install other materials or equipment shown on the drawings or installation details that are part of the irrigation system, even though such items may not have been referenced in these specifications.

3.11 PROJECT RECORD DRAWINGS:

- I. The Contractor is responsible for documenting changes to the design. Maintain on-site and separate from documents used for construction, one complete set of contract documents as Project Documents. Keep documents current. Do not permanently cover work until as-built information is recorded.
- II. Record pipe and wiring network alterations. Record work that is installed differently than shown on the construction drawings. Record accurate reference dimensions, measured from at least two permanent reference points, of each irrigation system valve, each backflow prevention device, each controller or control unit, each sleeve end, each stub-out for future pipe or wiring connections, and other irrigation components enclosed within a valve box.
- III. Prior to construction completion, obtain from the Owner's Representative an AutoCAD data file for this project. Using CAD, duplicate information contained on the project drawings maintained on site. Label each sheet "Record Drawing". Data delivered should conform to the current coordinate system used by the City of Greeley which is HARN NAD83 Stateplane US Survey Feet Northern Colorado projection. Vertical values should be captured in NAVD 88. Reference control point data can be obtained via the City of Greeley's web site within the GIS page or by contacting the GIS division at 970-350-9300.

- IV. Turn over the "Record Drawings" to the Owner's Representative. Completion of the Record Drawings will be a prerequisite for the Review at the completion of the irrigation system installation.
 - V. Installer will be required to turn over a list of valves and corresponding decoder numbers installed in field.
- 3.12 WINTERIZATION AND SPRING START-UP:
- I. Winterize the irrigation system in the fall after the installation, and start-up the irrigation system the following spring. Repair any damage caused in improper winterization at no additional cost to the Owner. Coordinate the winterization and start-up with the landscape maintenance personnel.
- 3.13 MAINTENANCE:
- I. Upon completion of construction and Review by the Owner's Representative, maintain irrigation system for a duration of 30 calendar days. Make periodic examinations and adjustments to irrigation system components so as to achieve the most desirable application of water.
 - II. Following completion of the Contractor's maintenance period, the Owner will be responsible for maintaining the system in working order during the remainder of the guarantee/warranty period, for performing necessary minor maintenance, for trimming around sprinklers, for protecting against vandalism, and for preventing damage after the landscape maintenance operation.
- 3.14 CLEANUP:
- I. Upon completion of work, remove from the site all machinery, tools, excess materials, and rubbish.

END OF SECTION

CITY OF GREELEY IRRIGATION CONTROLLER SPECIFICATION

Baseline Specification

All irrigation controllers and online web management platform will be as manufactured by Baseline Control Systems. Controllers will be Base Station 3200 painted steel wall mounts and/or stainless-steel pedestals.

BaseManager Online Management System

Real-time internet connectivity that works on any web enabled device. With the ability to run any number of controllers across two controller platforms, using one interface.

Map-based user interface utilizing Bing maps with interactive map icons, giving the user the ability to turn zones on and off with user defined runtime, learn flow on a single station, chart zone activity, view what programs the zone is in and its associated runtime, test electrical circuit providing an AC voltage at the solenoid, amp draw, voltage drop reading along the two-wire path, and custom notes. Ability to geo locate zones, master valves, moisture sensors, flow meters, hydrometers, event switches, temperature sensors, and custom markers on map interface through mobile access. Interactive map icons must be color coded with 11 different colors displaying current status of that device. Colors for zone icon activity status and program status must transcend the entire control platform from controller face plate, to mobile phone access, internet and or self-hosted management platform. System can be configured to send alerts and messages via text message and email.

All sensor status and activity must be available in all access points from controller, to mobile phone, and web platform access. System must be able to interface with a rain switch in a manner that allows for user defined start, stop and pause conditions. Weather Access and weather-based schedules programmed on a by zone basis in watering schedule, with the ability to combine timed runtimes, weather-based runtimes and soil moisture-based runtimes in the same program. Allowing for a combination of weather-based or soil moisture activated runtimes on the same zones, depending on specific needs.

Allow the ability to customize zone names, sensor names, and program names and populate those customized descriptions throughout the entire platform from controller face plate, to mobile phone access, internet and or self-hosted management platform.

Requires the ability to manage controller access between users, giving users access to specific controllers, while other users have access to the same controllers or different controllers.

Basemanager must be available as a cloud-based service provided by Baseline Systems, as a subscription- based access platform or a self-hosted server or virtual machine server-based platform.

Minimum security protocol requirements: AES256-bit encryption along with the TLS1.2 protocol.

Baseline Communication Methods

All controllers must have the capability of utilizing all of the following methods of communication. Cellular (minimum of 4G), Ethernet, 900Mhz Ethernet Radio, Wi-Fi, and Two-Wire as a true two-way

communication path. Must have the ability to connect to the online central without the use of a cellular modem device. Also, must be able to utilize 900Mhz Ethernet radio to connect multiple controllers to the internet through a single controller Ethernet and/or Cellular access point. Controller supports up to 8 available addresses for TCP/IP-based connections. These addresses are used to connect the following performance components: Flow station, SubStation, and Munro Pump Station.

Baseline Controller and Two-Wire Specification

Wall mount controllers will be in powder coated steel or 304 grade stainless steel cabinets. Pedestal mount controllers will be in 304 grade stainless steel flip top pedestals mounts. Wall mount controller dimensions are: 15.5" x 12.38" x 6.4", 16-gauge powder coated steel or stainless steel. Pedestal mount enclosure dimensions are: 17.38" x 36.25" x 12.63" 16-gauge stainless steel. Controller display will meet the following minimum requirements: Built in full color display with High contrast 3.5-inch TFT LCD screen, resolution is 320x240 at 65,536 colors, screen brightness of 200 lumens for easy viewing in direct sunlight. Controllers must have a built in Ethernet port and be capable of running two-wire and conventional wire out of the same controller. With a zone count of up to 200 stations per controller in any combination of conventional and decoder stations, not exceeding the 200 stations. Controllers must utilize true two-way communication on the two-wire path. Controller is capable of operating non-irrigation zones with ease. Controller allows for operation of 15 concurrent zones and a up to 99 concurrent zones through the use of SubStations. Allows for the ability to back up and restore all programming and historical data with any USB flash drive. Controller will store all program and history information in its non-volatile memory. Controller will allow for the establishment of 3 levels of 4-digit PIN password protection: operator, programmer, and administrator.

Programming Features are as follows: All controllers must provide up to 99 automatic programs, with 8 programmable start times, allowing 1-15 concurrent zone to operate in each program, as long as it does not exceed the hydraulic and electrical limitations of the system. Controller will be able to utilize weather-based schedules, moisture sensor-based schedules and traditional runtime-based schedules, and will allow for all three of these methods to be utilized in the same program. Other programming features must include: Water source prioritization, program prioritization, and intelligent water rationing. The controller allows a program to be started by the following options: Start time, moisture percent, temperature value, event switch contacts open or closed, pressure sensor readings.

Each controller must be able to read and manage up to 8 master valves and 8 flow sensors and utilize pressure readings to stabilize flow. Every controller will have the ability to monitor up to 25 soil moisture sensors. Pressure sensors can be used to create start, stop or pause conditions based on a user defined pressure reading. Controller will search for and identify all devices connected to the two-wire path and lists them according to device type and serial number.

Messaging and Alerts: Provides real-time soil moisture measurements and watering feedback to the user, alerts and alarms are self-diagnosed and displayed on the screen. Displays on-screen historical-run-time chart that includes time watered for the last 6 days of program, and a historical water use chart showing actual water used for the last 6 days by flow meter. Displays a 6-day scalable soil moisture history graph with integrated run-time bar chart. Displays high flow alerts, low flow alerts, pause messages and conditions, rain delays, wire faults, and other operating conditions.

Decoders will have built in diagnostic LED indicator lights that tell you at a glance the device is working. Two-wire must utilize true two-way communication on the two-wire path. Requires smart two-way communication allowing you to assign any decoder to a zone or function from the controller after the decoder has been installed in the field. Multi-station decoders can be assigned any station number in any order.

Available devices for two-wire include but are not limited to the following: Single station decoder, two station decoder, four station decoder, master valve decoder, dc latching decoder, event decoder, pump start switching decoder, flow decoder, pause decoder and coach's button, and pressure sensor decoder. Controller must be able to identify every two-wire device connected to the two-wire path and must be able to list them in the controller. Controller is capable of re-addressing any station decoder to a new station number while leaving it installed in the field, by re-assigning the devices serial number to a new station number.

All decoders will be fully sealed, submersion-proof, and approved for direct bury, and will carry a standard 5-year warranty out of the box.

Acceptable wire and wire connectors for two-wire path: Paige P7072D or Regency 14/2 and 12/2 Maxi Wire, connectors will be DBR/Y-6. Other wire and wire connectors may be approved as an equal but must be submitted to owner prior to installation, and owner makes all final decisions on all specifications.

Controller and Two-Wire Path Grounding and Surge Protection Specification

All installations should conform to manufacturer's instructions and must meet or exceed the American Society of Irrigation Consultants (ASIC) Earth Grounding Electronic Equipment in Irrigation Systems–Guidelines (<http://www.asic.org>).

Grounding Electrodes In all cases where it does not conflict with appropriate grounding grid design for the site in question, grounding electrodes (such as rods or plates) referred to in this specification must conform to the following standards.

Grounding Rods:

- All grounding rods must be bare copper of 5/8" diameter or greater and a minimum of 8' length or longer.
- Grounding rods must be located at a minimum distance to assure that the two-wire path is outside of the electrode sphere of influence for the grounding rod. For an 8' grounding rod, this means that the grounding rod must be connected at least 8' away from the two-wire path, at a right angle to the two-wire path. See the BL-LA01 Surge Arrestor Installation Guide for details on connecting the grounding rod to the device or surge arrestor.
- Install all grounding rods in a 10-inch round valve box to facilitate the use of a clamp-on ground resistance tester. If you use a smaller box, you will not be able to clamp the tester around the ground rod or the conductor.
- Drive grounding rods into the ground to a minimum of 8' in a vertical or oblique position. The angle of the rod relative to the vertical must be no more than 45°.

Grounding Plates:

- All grounding plates must be a minimum of 5 square feet, as outlined in ASIC Earth Grounding Electronic Equipment in Irrigation Systems–Guidelines.

- Grounding plates must be located a distance equal to the diagonal measurement (the distance from one corner of the grounding plate to the opposite corner) of the grounding plate from the two-wire path. The longest side of the grounding plate must run parallel to the two-wire path.
- Install grounding plates in a horizontal position a minimum of 30” below ground level and below the frost line. Position the plate flat at the bottom of the trench.

Consult the ASIC Earth Grounding Electronic Equipment in Irrigation Systems–Guidelines for correct minimum recommended distances for different grounding rod or grounding plate sizes and grounding grid designs.

Connections to Grounding Rods & Plates:

All connections to grounding rods/plates must conform to ASIC Earth Grounding Electronic Equipment in Irrigation Systems–Guidelines and must consist of either a CADWELD type or screw clamp type of connection. CADWELD or equivalent connections are preferred. All clamps must be suitable for direct burial or exothermic weld. The resistance reading on this connection should be less than 1 milliohm.

Any wire extensions required to connect from a grounding rod to a surge arrestor or enclosure ground lug must be 6-gauge bare copper wire and must not have any sharp bends, coils, or kinks. Wire extensions connected to surge arrestors must use a split bolt connector, CADWELD connector, or screw clamp connector where the bare copper ground wire meets the green grounding wire from the surge arrestor.

Never use solder to make connections in the grounding system because it will melt during a lightning discharge.

Grounding Options:

While the best option for grounding irrigation equipment is a direct physical connection to the earth, there are times when this is impossible or impractical. The following options are available for special cases. All other requirements in Baseline’s Grounding Specifications apply.

- **Controller Enclosure:** When direct physical connection to the earth is not possible, the irrigation controller’s enclosure ground can be connected to the building ground. However, DO NOT connect the two-wire surge arrestor ground to the building ground. The ground on an electrical receptacle (outlet) is not allowed, and is not sufficient.
- **Irrigation System on a Green Roof or Green Wall:** When grounding the irrigation system on a green roof or green wall, the irrigation controller’s enclosure ground can be connected to the building ground, and it is acceptable to connect the green wire from each surge arrestor to the building system ground.

Two-wire Grounding with Surge Arrestors:

The surge arrestor is a critical part of the surge protection scheme for the two-wire path. Surge arrestors attach directly to the two-wire path and help dissipate electricity generated by nearby lightning strikes and other electromagnetic events. While two-wire components have optical isolators and other surge arresting features, the surge arrestor provides an extra measure of protection. **IMPORTANT:** Surge arrestors are required for proper operation and for warranty coverage.

Installation of Surge Arrestors:

- Connects directly to the red and black wires
- Attaches to grounding rod via the green wire
- Install in a valve box
- Surge arrestors must be connected to bare copper ground wires using split bolt connectors, CADWELD connectors, or screw clamp connectors suitable for direct burial (no wire nuts of any kind are supported for grounding wires).

Two-Wire Grounding Installation:

Two-wire supports a large number and variety of wiring configurations. As more wires are connected to a piece of electronic equipment, more lightning energy enters the equipment, and a more substantial grounding grid must be used. Consult the Baseline Two-Wire Specification for more details. The two-wire must have properly installed surge arrestors as outlined in the Baseline Surge Arrestor Install Guide and elsewhere in this document. Surge arrestors must be installed as outlined below:

- The first surge arrestor on the two-wire path must be within 25' of the controller. This grounding point must be separate from the irrigation controller's enclosure grounding point.
- Place a surge arrestor every 600' on the two-wire path. Each surge arrestor protects a 300-foot radius of the two-wire path.
- In lightning prone regions, consider grounding every 300' rather than going out to the maximum distance.
- There must be a surge arrestor at the end of the two-wire that is the maximum distance from the controller or if looped at the point of maximum distance from the controller.
- Any branch of the two-wire that exceeds 50' must have a surge arrestor at the end.
- On an uninterrupted run of more than 600', it is acceptable to have a surge arrestor at each end. Note: On any wire run with no splices, do not cut the wire to install a surge arrestor, just place one at the end.

Controllers in Steel Wall Mount Enclosures:

The following applies to all controllers, controller extensions, add on components, in steel wall mount enclosures. If the controller is on or within an existing building, the unit must be grounded as outlined below: The ground lug, located in the interior in the lower right region of the enclosure, must be connected directly to the building ground using a bare copper wire of 6 AWG or larger, as outlined in article 250 of the National Electric Code (NEC), so that a single point of connection with the building ground is achieved. If the controller is mounted at a remote location more than 25' away from the building or grounded AC power source, the unit must be grounded as outlined below: A bare copper grounding wire of 6 AWG or larger must be connected from the ground lug to an appropriate grounding rod as outlined in the previous sections of this document.

Controllers in Stainless Steel Enclosures:

If the controller is within 25' of an existing building, and is connected to the AC power system within that building, the unit must be grounded as outlined below: The ground lug, located in the interior on the back panel in the lower-left corner under the AC power box in the pedestal enclosure, must be connected directly to the building ground using a bare copper wire of 6 AWG or larger, as outlined in article 250 of the National Electric Code (NEC), so that a single point of connection with the building ground is achieved. If the controller is mounted at a remote location more than 25' away from a

building or grounded AC power source, the unit must be grounded as outlined below: A bare copper grounding wire of 6 AWG or larger must be connected from the ground lug to an appropriate grounding rod as outlined in the previous sections, and in conformance with the ASIC Earth Grounding Electronic Equipment in Irrigation Systems– Guidelines.

IMPORTANT: All clamps used to connect the 6 AWG wire to the grounding electrode must be suitable for direct burial or exothermic weld.

Baseline Extended Ten Warranty

All Baseline manufacturer specifications must be adhered to including all grounding specifications for the controller and or the two-wire path. Once the controller has been installed the contractor is required to have Authorized Baseline Technical Service Representative perform the Baseline Extended Warranty testing. All equipment must meet or exceed the testing standards set forth by Baseline Systems. Controllers must be grounded to 10 ohms or less. After you have installed your grounding system on the two-wire path, Baseline requires that you measure the ground resistance in order to prove that each grounding point meets Baseline's specifications. Resistance readings of 5 to 10 ohms are desirable, and a reading of no more than 25 ohms is required. An Authorized Baseline Technical Service Representative will measure the ground resistance and will perform all other necessary testing, inspections and will submit all paperwork to Baseline for approval.

The Baseline Extended Ten Year Warranty Testing should be specified as follows:

AUTHORIZED BASELINE EXTENDED WARRANTY CERTIFICATION TECHNICIAN TO PERFORM GROUNDING OHMS TEST AT CONTROLLERS AND ALONG TWO-WIRE PATH GROUNDING RODS. CONTROLLERS MUST BE GROUNDED TO 10 OHMS OR LESS, AND TWO-WIRE GROUNDING RODS (5-10 OHMS DESIRABLE) MUST BE 25 OHMS OR LESS. INCLUDES ALL FIELD INSPECTIONS AND SUBMISSION TO BASELINE FOR APPROVAL.

Important: Consult Baseline's Two-Wire Technical Specification and the Surge Arrestor & Grounding Specification for details on surge protection installation. Failure to install surge protection hardware to specification will void surge protection coverage under this warranty.

THIS WARRANTY IS LIMITED SOLELY TO BASELINE EQUIPMENT, AND DOES NOT WARRANT AGAINST DAMAGE CAUSED BY LIGHTNING OR OTHER POWER SURGES TO NON-BASELINE EQUIPMENT, WIRING, LANDSCAPE, OR FACILITIES. THIS WARRANTY DOES NOT COVER ANY EFFECTS TO LANDSCAPE OR PROPERTY DUE TO BASELINE EQUIPMENT'S OPERATION OR FAILURE TO OPERATE FOLLOWING A SURGE OR LIGHTNING STRIKE, NOR DOES IT COVER LABOR COSTS ASSOCIATED WITH TROUBLESHOOTING OR REPAIRS.

Storm Water Management Plan

Centennial Park Phase 0.5 Improvements

1. This plan identifies potential sources of pollutants of storm water, presents pollution control measures, and assists in ensuring the implementation and maintenance of the Best Management Practices (BMPs) indicated herein. The intent of this Storm Water Pollution Prevention Plan (SWPPP) is to reduce pollution associated with this project to the maximum extent practicable.
2. In the event of a release of a reportable quantity of a pollutant, the Contractor shall advise the Owner to notify the response center and City of Greeley. If necessary, this pollution prevention plan may be revised to reflect the change in conditions of the construction activity. A reportable quantity is established by 40 Code of Federal Regulations (CFR) 117.3 or 40 CFR 302.4.
3. All contractors and their personnel whose work can contribute to or cause pollution of storm water should be made familiar with this pollution prevention plan. Adequate training for implementation of the measures presented herein shall be provided to the contractors and their personnel.
4. Changes in construction or in conditions which are not covered by this plan should be brought to the attention of the Owner. This pollution prevention plan should be revised to reflect the change in construction or in conditions.
5. All prevention and clean up measures should be conducted in accordance with City of Greeley ordinances, as well as state and federal regulations. Waste materials should be disposed of in a legal manner. All dischargers of storm water must comply with the lawful requirements of City of Greeley, Weld County and other local agencies regarding the discharges of storm water to storm drains and drainage channels.
6. This plan does not cover the removal of hazardous or toxic waste. In the event of a discharge or release of a reportable quantity of toxic waste, work should be stopped until the spill can be assessed and a mitigation report prepared by a qualified environmental consultant, and if necessary, reviewed by Weld County, City of Greeley and any other agency having jurisdiction.
7. Permits: A storm water discharge permit from State of Colorado is required for this project because the area of disturbance is over one acre. The Contractor shall obtain and maintain the permit for the project. The overall impact area is approximately 1.7 acres.

8. Contact Information:

Owner: City of Greeley
Project Manager, Brian Ward
1001 9th Avenue, Greeley, CO 80631
970-350-9357

Contractor / Discharger: Company Name:

Contact Name:
Company Address:
Contact Phone:

Civil Engineer: AVI Professional Corporation
Thomas Kent, P.E.
2290 East Prospect Road, Ste 5, Fort Collins, CO 80524
970-420-0086

Regional Environmental Protection Agency
Region VIII EPA, Denver, Colorado
800-759-4372

Federal Environmental Protection Agency
U.S. EPA, Washington, D.C. 20460
202-475-9518

9. Site Description:

- A. This project includes the reconstruction of portions of Centennial Park located at the northwest corner of 23rd Avenue and Reservoir Road in Greeley. In particular, this project includes new sidewalk, turn lane, landscaping, irrigation system, and complete reclamation.
- B. Potential pollutants during construction are: generation of dust during grading, mud and debris being tracked into the streets, and fuels and fluids needed to operate and maintain construction equipment.

Best Management Practices (BMP's) to Reduce Pollution

- A. Prohibition on most non-storm water discharges: there is one location where offsite storm water will enter the storm system. BMP's will be implemented at this point to ensure clean, water as to not allow the collection of dirt, debris and trash while flowing to a storm drain inlet.
- B. Sources of storm water pollutants: storm water pollutants include soil sediment and nutrients, solvents, and typical vehicle gases, oils and fuels. Sources of storm water pollutants include but are not limited to soil erosion by water and/or wind; clearing of vegetation; grading; paints, solvents and adhesives; and landscaping work.
- C. Erosion and sediment controls:
 - 1. Areas will only be disturbed when needed.
 - 2. Long term stockpile areas (areas where stockpiles will lay dormant for four weeks or more) will be protected using perimeter containment berms or siltfencing.
 - 3. Re-vegetate areas where landscaping has died or not taken hold.
 - 4. Stabilize all construction site entrances to the site with a temporary or permanent material. This is intended to reduce significant amounts of mud-tracking onto the existing streets.

5. Storm water inlets: Provide protection for all storm water inlets as identified on Sediment and Erosion Control Plans of the construction drawings to be clean and free of dirt and debris. Refer to detail sheet DT-702, 703 for additional inlet protection details and requirements.
6. Provide a sign to identify the concrete washout area to truck drivers. The sign shall read "CONCRETE WASHOUT AREA."

D. Other controls

1. Waste disposal:
 - a. Keep waste disposal containers covered.
 - b. Provide for the disposal of waste containers every other week (or more frequent, if necessary).
 - c. Provide containers at convenient locations around the site.
2. Sweeping of site:
 - a. Provide sweeping by hand or mechanical means every other week to keep the paved areas of the site free of dust, dirt, and debris. Sweeping of streets during stormy periods may be required more frequently.
 - b. Dispose of accumulated dirt in waste containers, or haul it off the site to a landfill.
3. Sanitary sewer:
 - a. Provide and maintain restroom facilities.
4. Spills:
 - a. Store adequate absorbent materials, rags, brooms, shovels, and waste containers on the site to clean-up spills of materials such as fuel, paint, solvents, or cleaners. Clean up minor spills immediately.
 - b. For reportable quantity of hazardous or toxic substance, secure the services of qualified personnel for clean-up and disposal.
5. Landscaping operations
 - a. Use only the minimum amount of landscaping fertilizers, nutrients, and other chemicals that are needed.
 - b. Do not over-water fertilized or treated landscape areas. Minimize runoff of irrigation water from landscaping.

E. Final stabilization and post-construction controls

1. After construction has been completed, the site shall be swept clean, storm water inlets (grates and basins) shall be cleaned, and all waste and leftover materials shall be removed from the site.
2. All landscaping and planting areas should be well maintained to prevent erosion. Avoid over watering of landscaping.
3. All paved and sidewalk areas should be swept either by hand or by mechanical means to keep the site clear of dirt, dust, and debris.
4. Waste materials should be removed from the site and properly disposed of.

5. Storm drain lines should be checked and cleaned annually to keep them clean and clear of debris.
6. All on-site storm water inlets should be clearly marked "storm water only".
7. Temporary BMPs should be removed once the site is stabilized.
8. Permanent BMPs include detention basins, surface drainage across grass areas and re-vegetation.

BMP Inspection (Provided by the City of Greeley)

1. Discharger Responsibility: All dischargers are required to: conduct inspections of the construction site prior to anticipated storm events and after actual storm events, to identify areas contributing to a storm water discharge, to evaluate whether measures to reduce pollutant loadings identified in this SWPPP are adequate, to properly implement in accordance with the terms of the general permit, and to determine whether additional control practices are needed.
2. Frequency: Regular interval inspection to occur at a minimum of every 14 days and also before anticipated storm events and within 24 hours after storm events of ½ inch of moisture or more. Inspections shall continue until the site is stabilized.
3. Documentation: Contractor must keep an inspection log on site at all times until construction is complete. If modifications to this plan are required, the modifications must be made within 7 calendar days of inspected deficiency. Inspection report must be signed and dated by the inspector.
4. Deficiencies: All deficiencies identified in the scheduled report must be corrected by the discharger within 7 calendar days of the notice of deficiency.
5. Retention of Records: The discharger is required to retain records of all monitoring information, copies of all reports required by this general permit, and records of all data used to complete the notice of intent for construction activity for a period of at least three years. This period may be extended by request of the State. With the exception of noncompliance reporting, dischargers are not required to submit the records except upon specific request by the State of Colorado Division of Water Quality.

Maintenance of Controls (Contractor)

1. Maintenance and Repair: All controls and measures indicated on this plan should be maintained in good and effective condition. If any controls or measures are damaged or removed, they should be promptly repaired or restored.
2. Plan Revisions: If construction activity or conditions change from those shown in this plan, then this plan shall be revised to reflect the current conditions. An updated copy of this site plan shall be kept on site at all times during construction. All revisions shall be noted with a signed acknowledgment of the change at the end of this document.
3. Accumulated Sediment: Sediment that has accumulated inside control structures, pipes, or conveyances must be removed when the capacity of the structure, pipe, or conveyance has been reduced by 50% of the available full capacity.

Completion of Construction Activities and Notice of Termination:

1. Transfer to City: At the completion of construction activities the Contractor shall transfer maintenance responsibilities of ongoing BMP's to the City. This transfer shall include transfer of all operation and maintenance manuals and maintenance instructions.
2. Removal of Temporary BMP's: After the area has been stabilized and a notice of termination has been received, all temporary erosion control measures shall be removed in a manner that minimizes disturbance to the site.