City of Evans, Colorado

Contract Documents and Specification for

65th Avenue Improvements

City of Evans, Weld County Colorado

FEDERAL AID PROJECT NO. STM M415 - 019
PROJECT CODE NO. 20619

April, 2017

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ARTICLE 1.0

CONTRACTING PROCEDURES

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1.1 ADVERTISEMENT FOR BIDS

The City of Evans, Colorado will receive sealed bids for the following project:

65th Avenue Improvements

This project has a disadvantaged business enterprise (DBE) goal of **8.0** %. Bids will be received by the City Clerk of Evans, Colorado (herein called the "CITY"), at the Evans Community Complex, 1100 37th Street, Evans, CO 80620 until **9:00 A.M.** on **May 12th, 2017** at which time said bids will be publicly opened and read aloud.

Copies of the contract documents may be obtained through the Rocky Mountain Online Bid System or on the City of Evans web site. Go to www.bidnetdirect.com or www.evanscolorado.gov.

The Evans City Manager reserves the right to reject any or all bids, to waive any informalities in bids, and to accept the bid that is in the best interests of the City of Evans, Colorado.

CITY OF EVANS, COLORADO

By:_____
Fred Starr
Director of Public Works

Published on the Rocky Mountain Online Bid System on **April 28th, 2017**.

Dated: April 27, 2017

1.2 INFORMATION FOR BIDDERS

1.2.1 OWNER

The OWNER of this project is the City of Evans, 1100 37th Street, Evans, Colorado 80620; phone number (970) 475-1113 and fax number (970) 330-3472.

1.2.2 ENGINEER

The ENGINEER is City of Evans, 1100 37th Street, Evans, Colorado 80620. The City Engineer is **Dawn R. Anderson**, phone number (970) 475-1160. The City of Evans Project Manager is **William H. Welborn,** phone number **(970) 475-1113**. The City of Evans has contracted with Interwest Consulting Group for the design of this project and this is a grant funded project in coordination with the Colorado Department of Transportation, CDOT.

1.2.3 BID SUBMITTAL

Bids will be received by the City Clerk of Evans, Colorado (herein called the "CITY"), at the Evans Community Complex, 1100 37th Street, Evans, CO 80620 until **9:00 A.M.** on **May 12th, 2017** at which time said bids will be publicly opened and read aloud.

Each Bid must be submitted in a sealed envelope, addressed to:

City Clerk
City of Evans
1100 37th Street
Evans, CO 80620

Each sealed envelope containing a bid must be plainly marked on the outside as bid for

65th Avenue Improvements

and the envelope should bear on the outside the name of the bidder, his address, and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to: City Clerk, City of Evans, 1100 37th Street, Evans, CO 80620.

All bids must be made on the required bid sheet. All blank spaces for bid prices must be filled in, in ink or typewritten, and the bid sheet must be fully completed and executed when submitted. Only one copy of the bid sheet is required.

The CDOT Form 347, Certification of EEO Compliance, is no longer required to be submitted in the bid package. This form certified that the contractor/proposed subcontractors were in compliance with the Joint Reporting Committee EEO-1 form requirements. The EEO-1 Report must still be submitted to the Joint Reporting Committee if the contractors and subcontractors meet the eligibility requirements (29CFR 1602.7); we will, however, no longer require certification. For additional information regarding these federal requirements, please refer to: http://www.eeoc.gov/stats/jobpat/e1instruct.html

1.2.4 INFORMALITIES

The CITY may waive any informalities, minor defects, or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. In the event of strikes, wars, acts of God or other good cause as determined by the City Manager, bid openings may be extended for a reasonable time not to exceed thirty calendar days. No bidder may withdraw a bid within 60 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the CITY and the bidder.

1.2.5 CONDITIONS OF WORK

Bidders must satisfy themselves of the accuracy of the estimated quantities in the Bid Schedule(s) by examination of the site. After bids have been submitted, the bidder shall not assert that there was a misunderstanding concerning the quantities of work or of the nature of the work to be done.

The CITY shall provide to any and all bidders, prior to bidding, all information that is pertinent to and delineates and describes the land owned and rights-of-way acquired upon request.

The Contract Documents contain the provisions required for the construction of the project. Information otherwise obtained from an officer, agent or employee of the CITY or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve him from fulfilling any of the conditions of the contract.

1.2.6 BID SECURITY

Each bid must be accompanied by a Bid Bond payable to the City for **five percent (5%) of the total amount of the bid**. As soon as the bid prices have been compared, the CITY will return the bonds of all except the three lowest responsible bidders within three days after the date of the bid opening. When the Agreement is executed, the Bid Bonds of the two remaining unsuccessful bidders will be returned. The Bid Bond of the successful bidder will be retained until the Agreement, Payment Bond and Performance Bond have been executed and approved, after which it will be returned.

A Performance Bond and Payment Bond, each in the amount of 100 percent of the Contract Price, with a corporate surety approved by the CITY, will be required for the faithful performance of the contract.

1.2.7 POWER OF ATTORNEY

Attorneys-in-fact who sign the Bid Bonds or Payment Bonds and Performance Bonds must file with each bond a certificate and effective dated copy of their Power of Attorney.

1.3 AWARD OF CONTRACT

The party to whom the contract is awarded will be required to execute the Agreement and obtain the Performance Bond, Payment Bond, and Certificates of Insurance within ten (10) calendar days from the date when Notice of Award is delivered to the bidder. The Notice of Award shall be accompanied by the necessary Agreement. In case of failure of the bidder to execute the Agreement and to furnish said Bonds and Certificates, the CITY may at its option, consider the bidder in default, in which case the Bid Bond accompanying the proposal shall become the property of the CITY. The CITY will be entitled to such other rights as may be granted by law.

The CITY within ten (10) days of receipt of acceptable Performance Bond, Payment Bond Certificates of Insurance and Agreement signed by the party to whom the Agreement was awarded, shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the CITY not execute the Agreement within such period, the bidder may, by written notice, withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the CITY.

The Notice to Proceed shall be issued within ten (10) days of the execution of the Agreement by the CITY or as otherwise stated in the Special Conditions. Should there be reasons why the Notice to Proceed cannot be issued within such period; the time may be extended by mutual agreement between the CITY and the CONTRACTOR. If the Notice to Proceed has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

The CITY may make such investigations as deemed necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the CITY all such information and data for this purpose as the CITY may request. The CITY reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the CITY that such bidder is qualified to carry out the obligations of the Agreement and to complete the work contemplated therein. The CITY reserves the right to reject any conditional or qualified bid.

The CONTRACTOR shall commence work not later than fifteen (15) calendar days after date of the Notice to Proceed issued by the CITY to the CONTRACTOR and shall complete the work as specified, within the time specified in the contract. In the event no written Notice to Proceed is issued by the CITY, the contract time as specified in the contract shall be counted from the first day of actual work on the project. All work shall be prosecuted in an orderly and diligent manner. The CONTRACTOR shall cooperate with, and conform to, the request of the CITY to expedite particular portions of the work or to suspend or transfer his operations on any portion of the work where such alteration of the CONTRACTOR's operations is deemed advisable by the CITY.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout.

Each bidder is responsible for inspecting the site and informing himself of the conditions under which the work is to be performed and for reading and being thoroughly familiar with the contract documents. The bidder's inspection shall cover the ground structure, obstacles which may be encountered, location of water tables, and other matters relevant to the work both above and below ground. Where test boring logs, indicating underground conditions, are shown on the drawings, this data is for the bidder's information and to reflect the conditions observed at the time and place of drilling. Neither the CITY nor the ENGINEER shall be held responsible for any variance or deviation from the data shown on the drawings, as encountered during actual construction. The failure or omission of any bidder to do any of the foregoing shall in no way relieve any bidder from any obligation in respect to his bid. The successful bidder will not be allowed any extra compensation in the form of contract price or time by any matter or thing on which he could have fully informed the CITY of prior to the bidding.

The low bidder shall supply the names and addresses of major material suppliers and subcontractors when requested to do so by the CITY.

The successful bidder will provide the CITY of Evans with a current list of references of previous work performed in this field.

The OWNER reserves the right to reject any or all bids and to pass upon the regularity or waive any irregularities of the bidders and to determine the acceptability of the surety offered.

If Bid Schedules are set forth in the Proposals, the CONTRACTORS must bid on all the Schedules. The CONTRACTOR'S bid considered for award shall be for the combined low bid for the Base Bid and Force Account.

Portions of any project may have been termed "Alternates or Contingent" and the OWNER reserves the right to include or remove any or all of these Alternates from the Contract at his sole option or discretion.

1.3.1 CONSIDERATION OF PROPOSALS:
After the proposals are opened and read, they will be compared on the basis of the summation of the products of the approximate quantities shown in the bid schedule by the unit bid prices. The results of such comparisons will be immediately available to the public. In the event of a discrepancy between unit bid prices and extensions, the unit bid price shall govern.

The right is reserved to reject any or all proposals, to waive technicalities or to advertise for new proposals, if in the judgment of the awarding authority the best interests of the CITY will be promoted thereby.

1.3.2 AWARD OF CONTRACT:
The award of contract, if it is awarded, will be made within 60 calendar days after the opening of proposals to the lowest responsible and qualified bidder whose proposal complies with all the requirements prescribed. The successful bidder will be notified, by letter mailed to the address shown on his proposal, that his bid has been accepted and that he has been awarded the contract.

1.3.3 CANCELLATION OF AWARD:
The CITY reserves the right to cancel the award of any contract at any time before the execution of said contract by all parties without any liability against the CITY.

1.3.4 EXECUTION AND APPROVAL OF CONTRACT:
The Contract shall be signed by the successful bidder and returned, together with requisite attachments outlined in Section 1.5.7. All documents will be executed in triplicate and shall be submitted to the CITY within 10 calendar days after the date of award. If the signed Contract and Bond is returned by the successful bidder within 10 calendar days after award and if the Contract is not executed by the CITY within 60 days from date of award, the bidder shall have the right to withdraw his bid without penalty. No Contract shall be considered effective until it has been fully executed by all of the parties thereto.

1.3.5 FAILURE TO EXECUTE CONTRACT:

Failure to execute the Contract and file acceptable bonds within 10 calendar days after the date of award shall be just cause for the cancellation of the award and the forfeiture of the proposal guaranty which shall become the property of the CITY. The CITY may elect to waive forfeiture of the proposal guaranty only if it is determined that the bidder has made a good faith remedial error and that no damages were sustained by the CITY as a result of the failure by the successful bidder to execute the contract and file acceptable bonds within the time prescribed. Award may then be made to the next lowest responsible bidder, or the work may be re-advertised and constructed under contract or otherwise, as the CITY may decide.

1.4 THE CONTRACT: FOLLOWING EXECUTION

1.4.1 MATERIALS:

Unless otherwise stipulated, the CONTRACTOR shall provide and pay for all materials, labor, water, tools, equipment, light power, transportation, and other facilities necessary for the execution and completion of the work. The CONTRACTOR shall furnish satisfactory evidence as to the kind and quality of materials.

1.4.2 PROGRESS SCHEDULE:

The CONTRACTOR shall submit, at such times as may reasonably be requested by the ENGINEER, schedules which shall show the order in which he proposes to carry on the work, with dates at which the CONTRACTOR will start the several parts of the work, and estimated dates of completion of the several parts. The Special Conditions or Drawings may require that certain phases or parts of the work be completed first or in a certain order. If the CONTRACTOR elects to use PERT or CPM charts, he shall furnish copies of them and all revisions thereto or amendments thereto as the work progresses to the ENGINEER upon request.

1.4.3 ASSIGNMENT OF CONTRACT:

No assignment by the CONTRACTOR of this contract or any part thereof or of the funds to be received thereunder by the CONTRACTOR will be recognized unless such assignment has had the written approval of the CITY and the surety has been given due notice of such assignment and has furnished written consent thereto. Such written approval by the CITY shall not relieve the CONTRACTOR of the obligations incurred by him under the terms of this contract. In addition to the usual recitals in assignment contracts, the following language must be set forth:

> It is agreed that the funds to be paid to the assignee under this assignment are subject to a prior lien for services rendered or materials supplied for the performance of the work called for in said contract in favor of all persons, firms, or corporations rendering such services or supplying such materials."

1.4.4 SUBLETTING OF CONTRACT:

The CONTRACTOR shall as soon as practical after signing the contract, notify the ENGINEER in writing, giving the names and qualifications of all subcontractors proposed for work and shall not employ any that the ENGINEER may within a reasonable time object to. The CONTRACTOR will not be allowed to subcontract more than fifty percent (50%) of the total monetary value of the contract without prior approval of the OWNER. The CONTRACTOR shall notify the ENGINEER of each subcontract he awards, giving:

A. Name, address, and telephone number of the subcontractor

B. Branch of work covered

C. Total price of subcontract

D. Date of subcontract

Subcontractors, before commencing work, must file with the ENGINEER satisfactory certificates in duplicate showing insurance coverage. Failure of the subcontractor to provide such certificates shall not relieve the CONTRACTOR of his obligation to insure and to hold the CITY harmless. Subcontractors shall also file with the ENGINEER copies of applicable permits and licenses required to do the subcontracted work.

1.4.5 OTHER CONTRACTS:

The CITY may award other contracts for additional work, and the CONTRACTOR shall fully cooperate with such other contractors and carefully fit his own work to that provided under the other contracts as may be directed by the ENGINEER. The CONTRACTOR shall not commit or permit any act that will interfere with the performance of work by any other contractor.

COLORADO DEPARTMENT OF TRANSPORTATION

ANTI-COLLUSION AFFIDAVIT

PROJECT NO.
LOCATION

I hereby attest that I am the person responsible within my firm for the final decision as to the price(s) and amount of this bid or, if not, that I have written authorization, enclosed herewith, from that person to make the statements set out below on his or her behalf and on behalf of my firm.

I further attest that:

1. The price(s) and amount of this bid have been arrived at independently, without consultation, communication or agreement for the purpose or with the effect of restricting competition with any other firm or person who is a bidder or potential prime bidder.

2A. Neither the price(s) nor the amount of this bid have been disclosed to any other firm or person who is a bidder or potential prime bidder on this project, and will not be so disclosed prior to bid opening.

2B. Neither the prices nor the amount of the bid of any other firm or person who is a bidder or potential prime bidder on this project have been disclosed to me or my firm.

3A. No attempt has been made to solicit, cause or induce any firm or person who is a bidder or potential prime bidder to refrain from bidding on this project, or to submit a bid higher than the bid of this firm, or any intentionally high or non-competitive bid or other form of complementary bid.

3B. No agreement has been promised or solicited for any other firm or person who is a bidder or potential prime bidder on this project to submit an intentionally high, noncompetitive or other form of complementary bid on this project.

4. The bid of my firm is made in good faith and not pursuant to any consultation, communication, agreement or discussion with, or inducement or solicitation by or from any firm or person to submit any intentionally high, noncompetitive or other form of complementary bid.

5. My firm has not offered or entered into a subcontract or agreement regarding the purchase or sale of materials or services from any firm or person, or offered, promised or paid cash or anything of value to any firm or person, whether in connection with this or any other project, in consideration for an agreement or promise by any firm or person to refrain from bidding or to submit any intentionally high, noncompetitive or other form of complementary bid or agreeing or promising to do so on this project.

6. My firm has not accepted or been promised any subcontract or agreement regarding the sale of materials or services to any firm or person, and has not been promised or paid cash or anything of value by any firm or person, whether in connection with this or any other project, in consideration for my firm's submitting any intentionally high, noncompetitive or other form of complementary bid, or agreeing or promising to do so, on this project.

7. I have made a diligent inquiry of all members, officers, employees, and agents of my firm with responsibilities relating to the preparation, approval or submission of my firm's bid on this project and have been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, or other conduct inconsistent with any of the statements and representations made in this affidavit.

8. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as a fraudulent concealment from the Colorado Department of Transportation, of the true facts relating to submission of bids for this contract.

I DECLARE UNDER PENALTY OF PERJURY IN THE SECOND DEGREE, AND ANY OTHER APPLICABLE STATE OR FEDERAL LAWS, THAT THE STATEMENTS MADE ON THIS DOCUMENT ARE TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

Contractor's firm or company name	By	Date
	Title	
2nd contractor's firm or company name. (If joint venture.)	By	Date
	Title	

Sworn to before me this day of, 20

Notary Public	
My commission expires	
NOTE: This document must be signed in ink.	

COLORADO DEPARTMENT OF TRANSPORTATION

BIDDERS LIST

Project Name and Number	Project Code	Proposal Date	Contractor	Region

Subcontractors/Suppliers/Vendors: The bidder must list all firms seeking to participate on the contract. This information is used by the Colorado Department of Transportation (CDOT) to determine overall goals for the Disadvantaged Business Enterprise Program. Failure to submit this form may result in the proposal being rejected.

Firm Name	Email	Work Proposed (Select all that apply)	DBE (Y/N)	Selected (Y/N)

I certify that the information provided herein is true and correct to the best of my knowledge.

Name	Signature/Initials	Title	Date

Work Proposed Categories:

1. *Materials and Supplies*
2. *Flagging and Traffic Control*
3. *Trucking and Hauling*
4. *Precast Concrete, Foundations, and Footings*
5. *Concrete Paving, Flatwork and Repair*
6. *Lighting and Electrical*
7. *Signs, Signal Installation, and Guardrail*
8. *Fencing*
9. *Buildings and Vertical Structures*
10. *Utility, Water and Sewer Lines*
11. *Structural Steel and Steel Reinforcement*
12. *Riprap and Anchored Retaining Walls*
13. *Landscape and Erosion Control*
14. *Bridge and Bridge Deck Construction*
15. *Asphalt Paving*
16. *Road and Parking Lot Marking*
17. *Chip Seal, Crack Seal, Joint Seal and Crack Fill*
18. *Bridge Painting and Coating*
19. *Stairway and Ornamental Metal*
20. *Parking Lots and Commercial Sidewalks*
21. *Clearing, Demolition, Excavation and Earthwork*
22. *Engineering and Surveying Services*
23. *Public Relations and Involvement*
24. *Piles and Deep Foundations*
25. *Waste Management and Recycling*
26. *Site Clean Up*
27. *Mechanical and HVAC*
28. *Tunnel Construction*
29. *Profiling and Grinding*
30. *Environmental Health and Safety*

This form must be submitted by the proposal deadline. For CDOT projects, submit to cdot_hq_dbeforms@state.co.us.

CDOT Form #1413 01/14

COLORADO DEPARTMENT OF TRANSPORTATION

ANTICIPATED DBE PARTICIPATION PLAN

Bidder:		Project:	
Contact:		Project Code:	
Phone:		Date of Proposal:	
Email:		Contract Goal:	
Preferred Contact Method:		Region:	

DBE Commitments

DBE Firm Name	Work to Be Performed	Commitment Amount	Eligible Participation
		Total Eligible Participation	
		Total Bid Amount	
		Total Eligible Participation Percentage	

Bidder Signature

This section must be signed by an individual with the authority to bind the Bidder. By signing this form, as an authorized representative of the Bidder, you declare under penalty of perjury in the second degree and any other applicable state or federal laws that the statements made in this document are true and complete to the best your knowledge. Further, you attest that you have read the Standard Special Provision Disadvantaged Business Enterprise Requirements and understand the following:

CDOT shall not award a contract until it has been determined that the contract goal has been met or that you have otherwise demonstrated good cause. Once your proposal has been submitted, commitments may not be modified or terminated without the approval of CDOT. If selected as the lowest apparent bidder, you shall submit a Form 1415 for each commitment listed above. If you have not met the contract goal, you will also be required to submit documentation of all good faith efforts to meet the contract goal.

It is your responsibility to ensure that the selected DBEs are certified for the work to be performed and that their eligible participation has been properly counted. For additional information and instructions on calculating eligible participation, see the Standard Special Provision Disadvantaged Business Enterprise Requirements.

Name	Title	Signature	Date

This form must be submitted by the proposal deadline. For CDOT projects, submit to cdot_hq_dbeforms@state.co.us.

1.5.2 BID PROPOSAL

65th Avenue Improvements

Proposal of _____ (hereinafter called bidder, doing business as *_____organized and existing under the laws of the State of_____, to the City of Evans (hereinafter called CITY).

In compliance with your Advertisement for Bids, bidder hereby proposes to perform all work for the **65th Avenue Improvements** in strict accordance with contract documents, within the time set forth therein, and at prices stated below.

By submission of this bid, each bidder certifies, and in cases of a joint bid, each party hereto certifies as to his own organization, that this bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this bid with any other bidder or with any competitor.

Bidder hereby agrees to commence work under this contract on or before a date specified in the Special Conditions. Bidder further agrees to pay liquidated damages as provided in the Special Conditions.

Bidder acknowledges receipt of the following Addendum:

_____
_____
_____
_____

Bid shall include all applicable taxes and fees.

Bidder agrees to perform all work described in the contract documents in accordance with the attached Bid Schedule.

1.5.3 BID SCHEDULE - Original

65TH AVENUE IMPROVEMENTS						
#	CONTRACT ITEM NO.	CONTRACT ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST ($)
1	201-00000	Clearing and Grubbing	LS	1		
2	202	Removal of Gravel Drive	SY	325		
3	202	Removal of Ornamental Brick Post	EA	2		
4	202-00001	Removal of Structure (Ashcroft Draw)	EA	1		
5	202-00012	Removal of Tree Stump	EA	5		
6	202-00021	Removal of Manhole	EA	1		
7	202-00035	Removal of Pipe	LF	332		
8	202-00037	Removal of End Section	EA	4		
9	202-00200	Removal of Sidewalk	SY	33		
10	202-00220	Removal of Asphalt Mat	SY	3,437		
11	202-00250	Removal of Pavement Marking	SF	418		
12	202-00810	Removal of Ground Sign	EA	7		
13	202-00828	Removal of Traffic Signal Equipment	LS	1		
14	202-01000	Removal of Fence	LF	1,092		
15	203-00060	Embankment Material (Complete In Place)	CY	1,523		
16	203-00100	Muck Excavation	CY	200		
17	203-01596	Potholing	LS	1		
18	206-00000	Structure Excavation	CY	3,350		
19	206-00100	Structure Backfill (Class 1)	CY	2,093		
20	206-00360	Mechanical Reinforcement of Soil	CY	1,078		
21	206-01781	Shoring (Area 1)	LS	1		
22	207-00205	Topsoil	CY	770		
23	208-00002	Erosion Log Type 1 (12 Inch)	LF	1,775		
24	208-00035	Aggregate Bag	LF	96		
25	208-00045	Concrete Washout Structure	EA	1		
26	208-00051	Storm Drain Inlet Protection (Type 1)	LF	50		
27	208-00070	Vehicle Tracking Pad	EA	1		
28	208-00205	Erosion Control Supervisor	HR	120		
29	210	Temporary Reconfigure of Ex Traffic Signal for Phased Construction	LS	1		
30	210	Reset Fire Hydrant	EA	1		
31	210	Modify Irrigation System	LS	1		
32	210-00760	Reset Luminaire	EA	4		
33	210-00815	Reset Sign Panel	EA	6		
34	210-00827	Reset Pull Box	EA	1		
35	210-00831	Reset Traffic Signal Head	EA	2		
36	210-00860	Reset Pedestrian Push Button	EA	5		
37	210-00865	Reset Pedestrian Signal Head	EA	5		
38	210-00867	Reset Fire Preemption Unit	EA	2		
39	210-00890	Reset Intersection Detection System (Camera)	EA	4		
40	210-04010	Adjust Manhole	EA	3		
41	210-04050	Adjust Valve Box	EA	5		
42	212-00006	Seeding (Native)	AC	0		
43	212-00032	Soil Conditioning	AC	0		
44	214-01015	Willow Cuttings	EA	184		

45	214-01025	Dormant Log Cutting	EA	2		
46	216-00201	Soil Retention Blanket (Straw-Coconut) (Biodegradable Class 1)	SY	2,055		
47	304-06000	Aggregate Base Course (Class 6)	TON	3,683		
48	304-06007	Aggregate Base Course (Class 6)	CY	102		
49	403-33751	Hot Mix Asphalt (Grade S) (75) (PG 64-28)	TON	2,181		
50	412-00600	Concrete Pavement (6 Inch) (Driveway Entrance)	SY	114		
51	503-00018	Drilled Caisson (18 Inch)	LF	5		
52	503-00036	Drilled Caisson (36 Inch)	LF	76		
53	504-04410	Block Facing (MSE)	SF	2,180		
54	506	Buried Riprap (Type 'L' 18" thick w/ 6" vegetated soil & w/6" bedding)	SY	6		
55	506	Buried Riprap (Type 'M' 24" thick w/ 9" bedding)	SY	184		
56	601-03000	Concrete Class D	CY	76		
57	602-00020	Reinforcing Steel (Epoxy Coated)	LB	12,002		
58	603	15 Inch SDR 35 PVC Pipe (Complete In Place)	LF	434		
59	603	6 Inch Cleanout with Concrete Collar	EA	3		
60	603	15 Inch ADS Flared End Section (Complete In Place)	EA	1		
61	603-01185	18 Inch Reinforced Concrete Pipe (Complete In Place)	LF	60		
62	603-01245	24 Inch Reinforced Concrete Pipe (Complete In Place)	LF	609		
63	603-01305	30 Inch Reinforced Concrete Pipe (Complete In Place)	LF	39		
64	603-02245	30 x 19 Inch Reinforced Concrete Pipe Elliptical (Complete In Place)	LF	61		
65	603-71812	18 x 12 Foot Concrete Box Culvert (Precast)	LF	82		
66	604-00305	Inlet Type C (5 Foot)	EA	1		
67	604-19210	Inlet Type R L 10 (10 Foot)	EA	2		
68	604	4' Diameter Manhole (10 Foot)	EA	2		
69	604	5' Diameter Manhole (5 Foot)	EA	1		
70	604	6' Diameter Manhole (10 Foot)	EA	1		
71	606	Precast Type 7 Concrete Barrier (Temporary)	LF	100		
72	606-01370	Transition Type 3G (31 IN MGS)	EA	2		
73	606-01380	Transition Type 3H (31 IN MGS)	EA	2		
74	606-01390	End Anchorage Type 3K (31 IN MGS)	EA	4		
75	606-11032	Bridge Rail Type 10M (Special)	LF	173		
76	607-11200	Fence Combination Wire with Metal Posts	LF	477		
77	607-11530	Fence (Special)	LF	445		
78	607-11580	Fence (Temporary)	LF	922		
79	608	Concrete Channel (Connect Ex FES with Type C Inlet)	LS	1		
80	608-00006	Concrete Sidewalk (6 Inch)	SY	1,446		
81	608-00010	Concrete Curb Ramp	SY	26		
82	609-21010	Curb and Gutter Type 2 (Section I-B)	LF	512		
83	609-21020	Curb and Gutter Type 2 (Section II-B)	LF	228		
84	609-21023	Curb and Gutter Type 2 (Section II-B) (Special)	LF	1,715		
85	610-00020	Median Cover Material (Patterned Concrete)	SF	1,748		
86	613-00200	2 Inch Electrical Conduit	LF	75		
87	613-00206	2 Inch Electrical Conduit (Bored)	LF	320		
88	613-00300	3 Inch Electrical Conduit	LF	150		
89	613-00306	3 Inch Electrical Conduit (Bored)	LF	640		
90	613-07026	Pull Box (16" x 24" x 12")	EA	3		
91	613-10000	Wiring	LS	1		

92	614-00011	Sign Panel (Class I)	SF	65		
93	614-70336	Traffic Signal Face (12-12-12)	EA	6		
94	614-70560	Traffic Signal Face (12-12-12-12-12)	EA	6		
95	614-81125	Traffic Signal - Light Pole Steel (1-25 Foot Mast Arm)	EA	1		
96	614-81135	Traffic Signal - Light Pole Steel (1-35 Foot Mast Arm)	EA	2		
97	614-81150	Traffic Signal - Light Pole Steel (1-50 Foot Mast Arm)	EA	1		
98	614-84100	Traffic Signal Pedestal Pole (Aluminum)	EA	1		
99	620-00020	Sanitary Facility	EA	1		
100	625-00000	Construction Surveying	LS	1		
101	626-00000	Mobilization	LS	1		
102	627-00005	Epoxy Pavement Marking	GAL	20		
103	627-30405	Preformed Thermoplastic Pavement Marking (Word-Symbol)	SF	246		
104	627-30410	Preformed Thermoplastic Pavement Marking (Xwalk-Stop Line)	SF	546		
105	630-00000	Flagging	HR	500		
106	630-00003	Uniformed Traffic Control	HR	100		
107	630-00007	Traffic Control Inspection	DAY	45		
108	630-00012	Traffic Control Management	DAY	75		
109	630-80335	Barricade (Type 3 M-A) (Temporary)	EA	12		
110	630-80341	Construction Traffic Sign (Panel Size A)	EA	40		
111	630-80342	Construction Traffic Sign (Panel Size B)	EA	60		
112	630-80350	Vertical Panel	EA	100		
113	630-80355	Portable Message Sign Panel	EA	4		
114	630-80358	Advance Warning Flashing or Sequencing Arrow Panel (C Type)	EA	18		
115	630-80360	Drum Channelizing Device	EA	200		
116	630-80380	Traffic Cones	EA	100		

BASE BID TOTAL ($):	

NOTE TO BIDDERS:

X Bid Winner will be determined by the base bid total.

X The successful bidder understands and agrees that the work shall be in compliance with the current Davis- Bacon Wage Rates, U.S. Department of Labor Decision Number: CO170024, Highway Construction for Larimer, Mesa, and Weld Counties.

X ACCEPTANCE OF FUEL COST ADJUSTMENTS:
Bidders have the option to accept Fuel Cost Adjustments in accordance with the Revision of Section 109 - Fuel Cost Adjustment. To accept this standard special provision, the bidder must fill in an "X" next to "YES" below. No Fuel Cost Adjustment will be made due to fuel cost changes for bidders who answer "NO". If neither line is marked, the Department will assume the bidder rejects Fuel Cost Adjustments for this project. After bids are submitted, bidders will not be given any other opportunity to accept or reject this adjustment.
(Mark only one line with an "X"):

____ YES, I choose to accept Fuel Cost Adjustments for this project

____ NO, I choose NOT to accept Fuel Cost Adjustments for this project (if neither line is marked, the default is "NO", I choose NOT to accept Fuel Cost Adjustments for this project

The undersigned, if awarded the Contract, at the prices shown in the bid, agrees to complete the work within **One Hundred and Twenty (120) Calendar Days** after the Notice to Proceed is issued.

_____
Date

_____
Company

Official Address:

_____
_____
_____

_____
Signature

_____
Title

1.5.4 BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____ as Principal, and _____surety, are hereby held and firmly bound unto the City of Evans in the penal sum of ($_____) for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed this ____day of _____, **2017**.

The condition of the above obligations is such that whereas the Principal has submitted to the City of Evans a certain bid, attached hereto and hereby made a part hereof, to enter into a contract in writing, for the

65th Avenue Improvements

NOW THEREFORE,

(A) If said bid shall be rejected, or in the alternate,

(B) If said bid shall be accepted and the Principal shall execute and deliver a contract in the form of contract attached hereto (properly) completed in accordance with said bid and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid,

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

The Surety, for value received, hereby stipulates and agrees that the obligations by any extension of the time within which the CITY may accept such bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunder set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____

Principal

_____

Surety

By**:** _____

1.5.5 NOTICE OF AWARD

TO: _____
_____
_____
_____

PROJECT DESCRIPTION: **65th Avenue Improvements**

The CITY, represented by the undersigned, has considered the bid submitted by you for the above described work in response to its Advertisement for Bids dated **April 27, 2017**.

You are hereby notified that your bid has been accepted for **65th Avenue Improvements** in the amount of **$_____.**

You are required by the Information for Bidders to execute the Agreement and furnish the required Contractor's Performance Bond, Payment Bond, and Certificates of Insurance within ten (10) calendar days from the date of this Notice to you. If you fail to execute said Agreement and to furnish said bonds and certificates within ten (10) days from the date of this Notice, said CITY will be entitled to consider all your rights arising out of the CITY's acceptance of your bid as abandoned and as a forfeiture of your Bid Bond. The CITY 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 to the CITY.

Dated this ___ day of _____, **2017**.

The City of Evans
(CITY)

By: William (Bill) Welborn, P.E.
Title: Project Engineer

1.5.6 ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged on this, the ___ day of_____ _____ **2017**.

By: _____

Title: _____

IMPORTANT: Surety companies executing bonds must appear on the Treasury Department's most current list (circular 570 as amended) and be authorized to transact business in the State of Colorado.

1.5.7 AGREEMENT

THIS AGREEMENT, made this ____ day of _____, **2017**, by and between the City of Evans, hereinafter called "CITY", and _____ doing business as hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the phased construction of **65th Avenue Improvements**.

2. The CONTRACTOR shall furnish all material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the project described herein.

3. The CONTRACTOR shall commence the work required by the Contract Documents in accordance with the date stated in the Special Conditions and shall complete the work within the time stated in the Special Conditions unless the period for completion is extended otherwise by the Contract Documents.

4. The CONTRACTOR agrees to perform all the work described in the Contract Documents and comply with the terms therein for the sum of **$_____** for the **65th Avenue Improvements**.

5. The term "Contract Documents" means and includes the following:
   (A) Advertisement for bids
   (B) Information for Bidders
   (C) Non-Collusion Statement
   (D) Bid Proposal
   (E) Bid Schedule
   (F) Bid Bond
   (G) Notice of Award
   (H) Acceptance of Notice
   (I) Agreement
   (J) Payment Bond
   (K) Performance Bond
   (L) Certificate of Incorporation
   (M) Certificates of Insurance
   (N) Notice to Proceed
   (O) Special Conditions
   (P) General Conditions
   (Q) Technical Provisions
   (R) Change Order
   (S) Addendum
   No._____, dated_____, **2017**
   No._____, dated_____, **2017**
   No._____, dated_____, **2017**

(T) Notice of Contractor's Settlement
(U) Final Receipt and Guarantee
(V) Other

6. The CITY will pay the CONTRACTOR in the manner and at such time as set forth in the General Conditions, such amounts required by the Contract Documents.

7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement, each of which shall be deemed an original on the date first written above.

THE CITY OF EVANS

BY _____
NAME John Morris
TITLE Mayor

(SEAL)

ATTEST:

NAME _____
TITLE _____

CONTRACTOR

BY _____
NAME _____
TITLE _____
ADDRESS _____
_____
_____

ATTEST:

NAME _____
TITLE _____

APPROVED AS TO FORM:

_____
Evans City Attorney

APPROVED AS TO SUBSTANCE

_____
Evans City Manager – Jim Becklenberg

1.5.8 PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____
(Address of Contractor)

a _____, hereinafter called Principal, Corporation, Partnership or Individual

_____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto the City of Evans, 1100 37th Street, Evans, Colorado 80620, hereinafter called CITY, 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, severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas the Principal entered into a certain Contract with the CITY, dated the _____ day of _____, **2017**, a copy of which is hereto attached and made a part hereof for the construction of:

65th Avenue Improvements

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

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to work to be performed thereunder or the specifications accompanying the same shall in any ways affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

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

IN WITNESS WHEREOF, this instrument is executed this _____ day of _____, **2017**.

ATTEST:

_____
Principal

_____ By _____(S)
Principal Secretary

(SEAL)

_____
Witness as to Principal

_____
Address

ATTEST:

_____
Surety Secretary

(SEAL)

_____ By _____
Witness as to Surety Attorney-in-Fact

_____ _____
Address Address

_____ _____

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

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

1.5.9 PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
Name of Contractor

_____
Address of Contractor

a _____ hereinafter called Principal, and Corporation, Partnership or Individual

_____
Name of Surety

_____
Address of Surety

hereinafter called Surety, are held and firmly bound unto the City of Evans, 1100 37th Street, Evans, Colorado 80620 hereinafter called "CITY", in the penal sum of $_____ in a lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the CITY, dated the _____ day of _____ **2017**, a copy of which is hereto attached and made a part hereof for the construction of:

65th Avenue Improvements

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

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work or to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on time, alteration or addition to the terms of the contract or to the work or to the specifications.

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

IN WITNESS WHEREOF, this instrument is executed in _____ (number) counterparts, each one of which shall be deemed an original, this the _____ day of _____ **2017**.

ATTEST:

_____
Principal

_____ By _____ (S)
Principal Secretary

(SEAL)

_____
Witness as to Principal

_____
Address

ATTEST:

_____
Surety Secretary

(SEAL)

_____ By _____
Witness as to Surety Attorney-in-Fact

_____ _____
Address Address

_____ _____

\NOTE: Date of bond must not be prior to date of contract. If CONTRACTOR is a partnership, all partners should execute bond.

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

1.5.10 NOTICE TO PROCEED

TO: _____ DATE: _____

_____

_____

_____

Project: **65th Avenue Improvements**

You are hereby notified to commence work in accordance with the Agreement dated **_____, 2017**, on or before _____, and you are to complete the work within **-One Hundred and Twenty (120)** calendar days thereafter (110 calendar days to substantial completion). The date of completion of all work is therefore **_____.**

THE CITY OF EVANS

By _____

Title Project Engineer

1.5.11 ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by

_____

_____

this the __day of _____, **2017**.

By _____

Title_____

1.5.12 CHANGE ORDER

CHANGE ORDER NO. _____
DATE: _____

PROJECT: **65th Avenue Improvements**

TO (CONTRACTOR): _____

JUSTIFICATION: _____

You are directed to make the following changes in the work. All other terms and conditions of the contract not expressly modified hereby shall remain in full force and effect.

ITEM NO.	DESCRIPTION	EST. QTY.	UNIT	UNIT COST	AMOUNT

The original contract sum was	$ _____
Net change by previous change orders	$_____
The contract sum prior to this Change Order was	$_____
The contract sum will be (increased) (decreased) or (unchanged) by this Change Order	$_____
The contract sum including this Change Order will be	$_____
The new contract time will be (increased) (decreased) or (unchanged) by (___) days.	

The date of completion as of the date of this Change Order is therefore _____, **2017**.

ACCEPTED BY:

_____
Contractor

Address

By_____

Date_____

ORDERED BY:

The City of Evans
1100 37th Street
Evans, CO 80620

By _____

Date _____

1.5.13 NOTICE OF CONTRACTOR'S SETTLEMENT

This is to notify all persons interested that the City of Evans, Colorado will make final payment to _____ for work completed on **65th Avenue Improvements.**

Said final payment will be made on _____.

Anyone having claims in conjunction with this project may file same with the undersigned no later than _____.

CITY OF EVANS

By _____
Fred Starr, Public Works Director

Dated: _____

The Greeley Tribune

1.5.14 FINAL RECEIPT AND GUARANTEE

CITY OF EVANS
Date: _____

Received this date of _____, as full and final payment of the cost of improvements provided for in the Contract executed by _____ and Payee on or about _____, together with all amendments, change orders, and additions thereto, the sum of Dollars ($_____), by checking, being the remainder of the full amount accruing to the undersigned by virtue of said contract and extra work performed thereunder, said payment covering and including full payment for the cost of all extra work and material furnished by the undersigned in the construction of said improvements, and all incidentals thereto, for the additional consideration of One Dollar ($1.00) for the execution hereto, and the undersigned hereof releases the City of Evans from any claims whatsoever resulting from said contract and all work performed thereunder.

The undersigned by these present certifies that all persons doing work upon or furnishing materials for said improvements under the foregoing contract and all additions thereto have been paid in full. The undersigned further certifies that all work has been completed in a workmanlike manner in conformity with the plans and specifications. That should any portion of said work or material prove defective within **two (2) years** from the date of initial acceptance of the entire project by the CITY, the undersigned shall replace any such defective material and remedy any such defective work to the satisfaction of the City of Evans and shall defend, indemnify, expenses, and charge of every kind which may arise as a result of any such defective material and workmanship during said period. **The Performance and Payment Bonds for this contract shall remain in effect for the period of the guarantee.**

65th Avenue Improvements

Signature: _____

Name: _____

Title: _____

1.6 INSURANCE REQUIREMENTS

The CONTRACTOR shall secure and maintain such insurance policies as will protect himself, his subcontractors, and the City of Evans, from claims for bodily injuries, death or property damage, which may arise from operations under this contract whether such operations be by himself or by any subcontractor or anyone employed by them directly or indirectly. The following insurance policies are required:

(a) Statutory Worker's Compensation

(b) Commercial General Liability

General Aggregate	$1,200,000
Products/ (Completed Operations Aggregate)	$1,200,000
Each Occurrence	$ 990,000
Personal & Advertising Injury	$ 990,000
Fire Damage	$ 50,000
Medical Expense	$ 5,000

(c) Automobile Liability

Bodily Injury and Property Damage/ (Combined Single Limit)	$ 990,000

The Certificate of Insurance must show the City of Evans and Colorado Department of Transportation, as Additional Insureds.

All policies shall be for not less than the amounts set forth above or as stated in the Special Conditions. Other forms of insurance shall also be provided if called for by the Special Conditions.

Certificates or copies of policy of such insurance shall be filed with the CITY and shall be subject to its approval as to adequacy of protection, within the requirements of the specifications. Said Certificates of Insurance shall contain a 30-day written notice of cancellation in favor of the CITY.

ARTICLE 2.0

GENERAL CONDITIONS

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2.1 DEFINITIONS

(a) The Contract Documents shall consist of the Advertisement for Bids, Information for Bidders, Non-Collusion Statement, Bid Proposal, Bid Bond, Notice of Award, Agreement, Performance Bond, Payment Bond, Insurance Requirements, Notice to Proceed, Change Order, Notice of Contractor's Settlement, Final Receipt and Guarantee, Drawings, Specifications, and Special and General Conditions, including all modifications thereof incorporated in any of the documents before and after the execution of the Contract.

(b) The CITY and the CONTRACTOR are those named as such in the Agreement. They are treated through the Contract Document as if each were of singular number and masculine gender.

(c) Wherever in this Contract the word "ENGINEER" is used, it shall be understood as referring to the City Engineer, acting personally or through any assistants or assigns.

(d) Any written notice served pursuant to the terms of the Agreement shall be deemed to have been duly served as if delivered in person or by registered mail to the individual, or to a partner, or to an officer of the corporation for whom it is intended, or any authorized representative thereof.

(e) The term "subcontractor" shall mean anyone, other than the contractor, who furnished at the site, under an agreement with the CONTRACTOR, labor, or labor and materials, or labor and equipment, but shall not include any person who furnished services of a personal nature.

(f) Work shall mean the furnishing of all labor, materials, equipment, and other incidentals necessary to the successful completion of the Contract and the carrying out of all duties and obligations imposed by the Contract.

(g) Extra work shall mean such additional labor, materials, equipment, and other incidentals as are required to complete the Contract for the purpose for which it was intended, but was shown on the Drawings or called for in the Specifications, or is authorized by the CITY in addition to that work called for in the Drawings and Specifications.

(h) Dispute shall mean lack of agreement between any parties that have any obligations, duties, or responsibilities under the terms of the Contract Drawings or Specifications.

(i) Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for work on the project; and for all other work land operations which must be performed in order to begin work on the various items on the project site.

2.1.1 ABBREVIATIONS

Wherever the following abbreviations are used in these general conditions, supplemental condition, specifications, standard details or on the drawings, they are to be construed the same as the respective expressions represented.

AASHTO	American Association of State Highway and Transportation Officials
AAN	American Association of Nurserymen
AB	Aggregate Base
Aban	Abandon
ABC	Aggregate base course
AC	Asphalt cement or concrete
ACB	Asphalt concrete base
ACI	American Concrete Institute
ACP	Asbestos cement pipe
ACPA	American Concrete Pipe Association
ACWS	Asphalt concrete wearing surface
AGC	Associated General Contractors of America, Inc.
Agg	Aggregate
Ahd	Ahead
AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
APA	American Plywood Association
Approx	Approximate
APWA	American Public Works Association
AR	Aged residue
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
Asph	Asphalt
ASTM	American Society for Testing Materials
Ave	Avenue
AWPA	American Wood Preservers Association
AWSC	American Welding Society Code
AWWA	American Water Works Association
Bbl	Barrel
BC	Beginning of curve
BCR	Beginning of curb return
Beg	Beginning
Bk	Book or Back
Blvd	Boulevard
BM	Bench Mark or Board Measure
Brg	Bearing
BST	Bituminous Surface Treatment

BTB	Bituminous Treated Base
BTU	British Thermal Units
BVC	Beginning of vertical curve
BVCE	Beginning of vertical curve elevation
BVCS	Beginning of vertical curve station
C	Centigrade or Curb
CB	Catch Basin
CBF&C	Catch basin frame & cover
CC or C/C	Center to Center
CCA	Colorado Contractor's Association, Inc.
CDOT	Colorado Department of Transportation
CE	City or County Engineer
Cem	Cement
CF	Curb face
cfs	Cubic Feet per second
CIP	Cast Iron pipe
CIPP	Cast-in-place concrete pipe
CL or C	Centerline
Cm	Centimeter
CMP	Corrugated metal pipe
CO	Clean out
Col	Column
Conc	Concrete
Const	Construct
CP	Concrete pipe(non-reinforced)
CRS	Colorado Revised Statutes
CTB	Cement Treated Base
Cu	Cubic
CY	Cubic Yards
Deg	Degree
DF	Douglas Fir
DG	Decomposed granite
Dia	Diameter
Dim	Dimension
DIP	Ductile Iron Pipe
Div	Division
Dr	Drive
DRCOG	Denver Regional Council of Governments
Drwg	Drawing
Dwy	Driveway
Ea	Each
Ease	Easement
E	East
EC	End of curve

ECR	End of curb return
El or Elv	Elevation
Equa or Eq	Equation
EVC	End of vertical curve
EVCE	End of vertical curve elevation
EVCS	End of vertical curve station
Ex or Exist	Existing
F	Fahrenheit
FB	Field Book
F & C	Frame & cover
FH	Fire hydrant
FL or F	Floor line or flow line
FlEl	Floor Elevation
Fnd	Found
fps	Feet per second
FS	Finished surface
FSS	Federal Specifications and Standards
Ft	Foot or feet
G	Gutter
Ga	Gage
Galv	Galvanized
GL	Ground line
gpm	Gallons per minute
Gr	Grade
H	High or height
HC	House connection
Hdwl	Headwall
Horiz	Horizontal
Hwy	Highway
ID	Improvement District or inside diameter
IE	Invert Elevation
IEEE	Institute of Electrical and Electronic Engineers
In	Inch
Inv	Invert
IP	Iron Pipe
IPS	Iron Pipe Size
Irrig	Irrigation
Jt	Joint
JC	Junction Chamber
Jct	Junction
JS	Junction Structure

L	Length
Lb	Pound
L&T	Lead and tack
LD	Local depression
LF	Linear Feet
LH	Lamp hole
Lin	Linear
Long	Longitudinal
Lt	Left
M	Map or maps
Max	Maximum
Meas	Measured
MH	Manhole
MHF&C	Manhole frame and cover
Min	Minutes or minimum
Misc	Miscellaneous
MLorM	Monument line
Mm	Millimeter
Mon	Monolithic or monument
MTD	Multiple tile duct
MUTCD	Manual of Uniform Traffic Control Devices
N	North
NBS	National Bureau of Standards
NCPI	National Clay Pipe Institute
NE	Northeast
NEC	National Electric Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NP	Non-plastic
NPI	Non pay item
NSC	National Safety Council
NSF	National Sanitation Foundation
NW	Northwest
No	Number
OC	On center
OD	Outside diameter
Oz	Ounces
PC	Point of curvature
PCR	Point of curb return
PCC	Point of compound curve or Portland Cement Concrete
PI	Point of intersection or plastic index
PL	Property line
POC	Point of Curve

POS	Point of Spiral
PP	Power pole
ppm	Parts per million
PRC	Point of reverse curve
Prod	Proposed or property
psi	Pounds per square inch
psf	Pounds per square foot
PTorPOT	Point of Tangent
P&TP	Power and telephone pole
Pvmt	Pavement
Q	Rate of flow
R	Radius
RC	Reinforced concrete
RCP	Reinforced concrete pipe
Rd	Road
Rdwy	Roadway
Reinf	Reinforced, Reinforcing
Ret Wall	Retaining Wall
RGRCP	Rubber Gasket Reinforced Concrete Pipe
rpm	Revolutions Per Minute
Rt	Right
R/W or Row	Right-of-way
S	South or slope
SAE	Society of Automotive Engineers
San	Sanitary
SC	Spiral to Curve
SCCP	Steel cylinder concrete pipe
SD	Storm drain or Sewer District
SDDTC	Storm Drainage Design and Technical Criteria
Sdl	Saddle
Sec	Seconds
Sect	Section
SE	Southeast
SF	Square feet
Sht	Sheet
Spec	Specifications
SPR	Simplified Practice Recommendation
SpMH	Special manhole
Sq Ft Yd	Square Foot, Yard
SS	Sanitary sewer
St	Street
Sta	Station
Std	Standard
Str gr	Structural grade

Struct	Structure or structural
SW	Southwest
SY	Square Yard
T	Tangent Distance
Tel	Telephone
Temp	Temporary
TH	Test hole
TP	Telephone pole
Tr	Tract
Trans	Transition
TS	Traffic signal or Tangent to spiral
TSC	Traffic signal conduit
Typ	Typical
UD & FCD	Urban Drainage and Floor Control District
USDCM	Urban Storm Drainage Criteria Manual
UL	Underwriters Laboratories
USC&GS	United States Coast and Geodetic Survey
USGS	United States Geological Survey
V	Velocity of flow
VC	Vertical curve
VCP	Vitrified clay pipe
Vert	Vertical
W	West or width
WI	Wrought iron
WS	Wearing surface
Wt	Weight
Yd	Yard
'	feet or minutes
"	inches or seconds
o	degrees
%	percent
#	number or pound
@	at
/	per
=	equals

2.1.2 GENERAL DEFINITIONS AND TERMS:

Whenever in these specifications or in other contract documents the following terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

Addendum: A Supplement to any of the Contract Documents issued, in writing, after advertisement of but prior to the opening of bids for a contract.

Advertisement: The public announcement, as required by law, inviting bids for work to be performed or materials to be furnished.

Agency: The government agency for which the construction is being done, either by permit or contract.

Agreement: The written agreement between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are made a part thereof as provided therein.

Application for Payment: The form accepted by the ENGINEER which is to be used by CONTRACTOR in requesting progress or final payment and which is to include such supporting documentation as required by the Contract Documents.

Award: The formal action of the governing body in accepting a proposal.

Backfill: Material placed in an excavated space to fill such space. For trenches this space will be the area from 1 foot above the top of the pipe or conduit to the existing or proposed finished grade of pavement.

Base Course: The upper course of the granular base of a pavement or the lower course of an asphalt concrete pavement structure.

Bedding: Is the material placed in the area from the bottom of the trench to 1 foot above the top of the pipe or conduit.

Bid: The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

Bidder: Any qualified individual, firm, partnership, corporation or combination thereof, acting directly or through a duly authorized representative who legally submits a proposal for the advertised work.

Bond Issue Project: A project financed from bonds issued by the CITY pledging credit or a revenue resource.

Bridge: A structure, including supports, erected over a depression or an obstruction, as

water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads and having a length measured along the center of roadway of more than 20 feet between undercopings of abutments or extreme ends of openings for multiple boxes.

(Length) The length of a bridge structure is the over-all length measured along the line of survey stationing back to back of backwalls of abutments, if present, otherwise end to end of the bridge floor; but in no case less than the total clear opening of the structure.

(Roadway Width) The clear width measured at right angles to the longitudinal centerline of the bridge between the bottom of curbs or guard timbers or in the case of multiple height of curbs, between the bottom of the lower risers.

Budget Project: A project financed by funds from General Tax levies and shared revenue funds set aside in the annual budget adopted by the Evans City Council.

Building: Any structure built for the support, shelter, or enclosure of persons, animals, chattel or movable property.

Building Code: A regulation adopted by the governing body establishing minimum standards of construction for the protection of the public health, safety, and welfare in terms of measured performance rather than in terms of rigid specifications of materials and methods.

Calendar Day: Every day shown on the calendar.

Change Order: A written order issued by the ENGINEER to the CONTRACTOR to make changes in the work or to perform extra work, and setting forth conditions for payment and/or adjustment in time of completion.

City: A municipal corporation, organized and existing under and by virtue of the laws of the State of Colorado.

City Clerk: The duly authorized person who performs the duties of clerk for the Contracting Agency.

Completion Time: The number of calendar days for completion of an act, including authorized time extensions. In case a calendar date of completion is shown in the proposal in lieu of the number of calendar days, the contract shall be completed by that date. The time within which an act is to be done shall be computed by excluding the first and including the last day; and if the last day be Sunday or a legal holiday, that shall be excluded.

Conflicting Utility Line: An existing utility line, shown or not shown on the drawings, is a conflicting line when any part falls within the trench pay widths as listed or within the dimensions, as shown on the drawings, for appurtenant structures.

Construction Project: The erection, installation, remodeling, alteration, of durable

facilities upon, under, or over the ground. This shall include, but is not limited to buildings, roadways and utility pipes, lines, poles or other structures.

Contingent Bid Item: This is a minor bid item which is likely, but not certain, to occur during the course of work. If the ENGINEER determines that this work is required, the CONTRACTOR will accomplish the work and payment will be made based on the contingent unit bid price included in the proposal. Since the quantity listed in the proposal is primarily for bid comparison, the amount of work required by the ENGINEER may vary materially from this.

Contract: The written instrument executed by the CONTRACTOR and the Contracting Agency by which the CONTRACTOR is bound to furnish all labor, equipment, and materials and to perform the work specified, and by which the Contracting Agency is obligated to compensate the CONTRACTOR therefore at the prices set forth therein. The Contract Documents are herewith by reference made a part of the contract as if fully set forth therein.

Contract Documents: The Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all amendments, modifications and supplements issued on or after the Effective Date of the Agreement.

Contracting Agency: The legal entity that has contracted for the performance of the work or for whom the work is being performed.

Contractor: The individual, firm, partnership, corporation or combination thereof entering into a contract with the Contracting Agency to perform the advertised work.

Council: The City Council that by law constitutes the Legislative Department of the City organized and existing under and by virtue of the laws of the State of Colorado.

Culvert: Any structure not classified as a bridge, which provides an opening under or adjacent to the roadway.

Days: Unless otherwise designated, days will be understood to mean calendar days.

Emergency: Unforeseen occurrences and combinations of circumstances involving the public welfare or the protection of work already done under the Contract Documents, or which endanger life or property and call for immediate action or remedy.

Engineer: The person, appointed as ENGINEER by the CITY acting directly or through their duly authorized representative.

Equipment: (Construction)-All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and also tools and apparatus necessary for the proper construction and acceptable completion of work.

(Installed)-All material or articles used in equipping a facility as furnishings or apparatus to fulfill a functional design.

Extra Work: An item of work not provided for in the contract as awarded but found essential to the satisfactory completion of the contract within its intended scope.

Field Order: A written set of emergency instructions to the CONTRACTOR issued only where the time required for preparation and execution of a formal Change Order would result in a delay or a stoppage of work, or would allow a hazardous condition to exist.

Flooding: Flooding will consist of the inundation of the entire lift with water, puddled with poles or bars to insure saturation of the entire lift.

Foundation: For buildings or structures, this will be the substructure. For pipe this will be the native material or prepared material on which the pipe rests; normally, this is the bottom grade line of the trench.

Full Depth Pavement: An asphalt concrete pavement structure in which the granular base and sub-base are replaced by equivalent structural thickness of asphalt concrete.

General Conditions: Uniform general specifications adopted as standard specifications by the ENGINEER.

Holiday: Holidays recognized by collective bargaining agreements in the State of Colorado are:

New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Additional holidays recognizable by the State of Colorado Cities and Counties are:

Martin Luther King's Birthday
Presidents Day
Columbus Day
Veteran's Day
General Election Day in even-numbered years

When New Year's Day, Independence Day or Christmas Day fall on Sunday, the following Monday shall be considered a holiday.

Additional legal holidays, when designated by the State Governor or President of the United States, will also be recognized by the State, City and/or County.

Improvement District Project: A project financed by assessments against the property included in a special assessment district authorized under, or implemented by an act of the legislature of the State and/or a procedural ordinance of the City or County.

Inspector: The ENGINEER's authorized representative assigned to make detailed inspections of contract performance.

Jetting: Jetting is the densification of material, using a continuous supply of water, under pressure, transmitted to the material through a rigid pipe of sufficient length to reach the bottom of the lift being densified. In all cases, the entire lift will be completely saturated working from the top to the bottom.

Laboratory: The established materials testing laboratory of the Contracting Agency's Engineering Department, or other laboratories acceptable to and/or authorized by the ENGINEER to test materials and work involved in the Contract.

Liquidated Damages: A daily charge made against the CONTRACTOR for each working day, including free time, that any work shall remain uncompleted after elapse of Contract time.

Major Item: Any item of work and/or materials having an original contract value that exceeds ten percent of the amount of the original contract.

Materials: Any substance specified in the project, equipment and other material used or consumed in the performance of the work.

Median: The portion of a divided highway separating the roadways used by traffic going in opposite directions.

Method of Measurement: The manner in which a "Pay Item" is measured to conform to the "Pay Unit."

Non Pay Item: An item of work for which no separate payment will be made under the proposal, but which must be included as an incidental cost for payment on an associated pay item included in the proposal.

Notice of Award: A letter from the CITY advising the CONTRACTOR that he is the successful Bidder and the Evans City Council has accepted their proposal.

Notice to Bidders: The standard forms inviting proposals or bids.

Notice to Proceed: A directive issued by the Engineer, authorizing the CONTRACTOR to start the work or improvements required in the Contract.

Obligee: One to whom another is obligated. For bonding purposes, the OWNER is the obligee.

Open Trench: The excavated area shall be considered as open trench until all the aggregate base course for pavement replacement has been placed and compacted or, if outside of a pavement area, until the excavated area is brought to finish grade or natural grade.

Owner: City of Evans, State of Colorado, acting through its legally constituted officials, officers or employees.

Pavement: Any surface of streets, alleys, sidewalks, courts, driveways, etc., consisting of mineral aggregate bound into a rigid or semi-rigid mass by a suitable binder such as, but not limited to, portland cement or asphalt cement.

Pavement Structure: The combination of sub-base, base course, and surface course placed on a sub-grade to support the traffic load and distribute it to the roadbed.

Pay Item: A detail of work for which individual payments are to be made under the Contract, as specified in the proposal.

Payment Bond: The security provided by the CONTRACTOR solely for the protection of claimants, supplying labor and materials to the CONTRACTOR or its Subcontractors.

Performance Bond: The security by the CONTRACTOR solely for the protection of the Contracting Agency and conditioned upon the faithful performance of the contract in accordance with the contract documents, drawings, specifications and conditions thereof.

Permit: The license to do construction in public rights-of-way and/or easements; issued by an Agency to a CONTRACTOR working for another party.

Plans: All approved drawings or reproductions thereof pertaining to the work and details therefor, which are made a part of the Project Manual and Contract Documents.

Plant: The Contractors' and/or subcontractors' facilities, including but not limited to small tools and mobile equipment, located on and/or offsite, necessary for preparation of materials and prosecution of work for the project.

Principal: The individual, firm or corporation primarily liable on an obligation, as distinguished from a surety.

Profile Grade: The trace of a vertical plane intersecting the top surface of the proposed wearing surface, usually along the longitudinal centerline of the roadbed. Profile grade means either elevation or gradient of such trace according to the context.

Project: A specific coordinated construction or similar undertaking identified by a single project number and bid and awarded as one contract. On occasion two or more projects may be bid and awarded as a single contract.

Project Manual: All the integral documents of the contract including but not limited to, Contract Documents, General Conditions, Supplemental Conditions, Specifications and drawings.

Project Supplemental Conditions: See definition for Supplemental Conditions.

Proposal: The offer of a bidder on the prescribed form, to perform the work and to furnish the labor and materials at the prices quoted.

Proposal Form: The approved form on which the Contracting Agency requires bids to be prepared and submitted for the work.

Proposal Guarantee: The security furnished with a bid to guarantee that the bidder will enter into the contract if their bid is accepted.

Proposal Pamphlet: The book or pamphlet pertaining to a specific project, containing proposal forms, special provisions and other information necessary for and pertinent to the preparation of the proposal or bid.

Referred Documents: On all work authorized by the Contracting Agency, any referenced documents in the specification, i.e., Bulletins, Standards, Rules, Methods of Analysis or test. Codes and Specifications of other Agencies, Engineering Societies or Industrial Associations, refer to the Latest Edition thereof, including Amendments, which are in effect and published at the time of Advertising for Bids or the issuing of a permit for the work, unless otherwise stated.

Resident Project Representative: The authorized representative of ENGINEER who may be assigned to the site or any part thereof. Also called the Inspector.

Reasonably Close Conformity: Compliance with reasonable and customary manufacturing and construction tolerances where working tolerances are not specified. Where working tolerances are specified, reasonably close conformity means compliance with such working tolerances.

Right-of-Way: A general term denoting, land, property or interest therein, usually in a strip, acquired for or devoted to a street, highway, or other public improvement.

Road: A general term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

Roadside: A general term denoting the area adjoining the outer edge of the roadway. Extensive areas between the roadways of a divided highway may also be considered roadside.

Roadside Development: Those items necessary to the complete roadway that provide for the preservation of landscape materials and features; the rehabilitation and protection against erosion of all areas disturbed by construction through seeding, sodding, mulching and the placing of other ground covers; such suitable planting and other improvements as may increase the effectiveness and enhance the appearance of the roadway.

Roadway: The portion of the right-of-way intended primarily for vehicular traffic, and including all appurtenant structures and other features necessary for proper drainage and protection. Where curbs exist, it is that portion of roadway between the faces of the curbs.

Salvageable Material: Material that can be saved or salvaged. Unless designated or directed by the ENGINEER or shown on the drawings, all salvageable material shall remain the property of the CONTRACTOR.

Sewers: Conduits and related appurtenances employed to collect and carry off water and waste matter to a suitable point of final discharge.

Shop Drawings: Drawings or reproduction of drawings, detailing; fabrication and erection of structural elements, falsework and forming for structures, fabrication of reinforcing steel, installed equipment and installation of systems, or any other supplementary drawings or similar data, which the CONTRACTOR is required to submit for approval.

Shoulder: The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

Sidewalk: That portion of the roadway primarily constructed for the use of pedestrians.

Supplemental Conditions: The special conditions, requirements, additions, and/or revisions to the General Conditions and Standard Specifications, applicable to the work, to cover conditions or requirements peculiar to the project under consideration. Supplemental Conditions fall within one of the two following categories and take precedence over the General Conditions.

(a) Project Special Conditions. Special Conditions peculiar to the project and not otherwise thoroughly nor appropriately set forth in the general conditions or standard specifications or drawings.

(b) Standard Special Conditions. Special directions or requirements not otherwise thoroughly or appropriately set forth in the standard specifications, and which are peculiar to a selected group of projects or which are intended for temporary use.

Specifications: The descriptions, directions, provisions, and requirement for performing the work as contained in the Contract Documents.

State: The State of Colorado.

Standard Details: Uniform detail drawings of structures or devices adopted as Standard Details by the ENGINEER.

Standard: Uniform general specifications adopted as Standard Specifications by the ENGINEER.

Storm Drain: Any conduit and appurtenance intended for the reception and transfer of stormwater.

Street: Streets, avenues, alleys, highways, crossings, lanes, intersections, courts, places, and grounds now open or dedicated or hereafter opened or dedicated to public use and public ways.

Structures: Bridges, culverts, catch basins, drop inlets, retaining walls, cribbing, manholes, endwalls, sewers, service pipes, underdrains, foundation drains, fences, swimming pools, and other features which may be encountered in the work and not otherwise classed herein.

Sub-base: The lower course of the base of a roadway, immediately above the sub-grade.

Subcontractors: Those having direct contracts with the CONTRACTOR and those who furnish material worked into a special design according to the Drawings and Specifications for the work, but not those who merely furnish material not so worked.

Sub-grade: The supporting structures on which the pavement and its special undercourses rest.

Substantial Completion: The work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER and OWNER as evidenced by a letter of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it was intended. The terms "substantially complete" and "substantially completed" as applied to any work refer to Substantial Completion thereof. The work must meet the following criteria for Substantial Completion to apply:

- X At least 90% of all pay items have been completed and are eligible for payment.
- X The facilities constructed by CONTRACTOR are ready for use.
- X All traffic features have been completed.
- X A list of incomplete work items has been issued by the OWNER or ENGINEER to the CONTRACTOR and the CONTRACTOR has accepted and acknowledges

the list.

Substructure: All of that part of the structure or building below the bearings of simple and continuous spans, skewbacks of arches and tops of footings of rigid frames, together with the backwalls, wingwalls, and wing protection railings.

Superintendent: The Contractor's authorized representative in responsible charge of the work.

Superstructure: The entire structure or building except the substructure.

Supplemental Specifications: Additions and revisions to the Standard Specifications that are adopted subsequent to issuance of the printed Project Manual.

Surety: The individual, firm or corporation, bound with and for the CONTRACTOR for the acceptable performance, execution, and completion of the work, and for the satisfaction of all obligations incurred.

Surface Course: The finish or wearing course of an asphalt concrete pavement structure.

Title or Headings: The titles or headings or the sections and subsections herein are intended for convenience of reference and shall not be considered as having any bearing on their interpretation.

Township, City, Town or District: A subdivision of the COUNTY used to designate or identify the location of the proposed work.

Traveled Way: The portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

Utility: Pipe lines, conduits, ducts, transmission lines, overhead or underground wires, railroads, storm drains, sanitary sewers, irrigation facilities, street lighting traffic signals, and fire alarm systems, and appurtenances of public utilities and those of private industry, businesses or individuals solely for their own use or use of their customers which are operated or maintained in, on, under, over or across public right-of-way or public or private easement.

Waterworks (Water Supply System): The reservoirs, pipe lines, wells, pumping equipment, purification works, mains, service pipes, and all related appliances and appurtenances utilized in the procurement, transportation and delivery of an adequate, safe, and palatable water supply for the Contracting Agency.

Work: Any of all of the improvements mentioned and authorized to be made, and the construction, demolition, reconstruction, and repair of all or any portion of such improvements, and all labor, services, incidental expenses, and material necessary or incidental thereto.

Working Day: A calendar day, exclusive of Saturdays, Sundays and Contracting Agency recognized legal holidays, on which weather and other conditions not under the control of the CONTRACTOR will permit construction operations to proceed for the major part of the day with the normal working force engaged in performing the controlling item or items of work which would be in progress at that time.

2.2 GENERAL CONTRACT REQUIREMENTS

2.2.1 FAMILIARITY WITH WORK

The CITY has endeavored to ascertain all pertinent information regarding site conditions, and subsurface conditions, and has, to the best of their ability, furnished all such information to the CONTRACTOR. Such information is given, however, as being the best factual information available to the CITY, but is advisory only. The CONTRACTOR, by careful examination, shall satisfy itself as to the nature and location of the work, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters that can in any way affect the work under this Contract.

Bidder shall examine the site of the proposed work and all documents pertaining to the work. It is mutually agreed that the submission of a proposal shall be considered prima facie evidence that the bidder has made such examination and is familiar with the character, quality and quantity of the work to be performed and material to be furnished.

Logs of test hole, ground water levels, and any accompanying soil reports as furnished by the Contracting Agency are furnished for general information only. The field condition so set forth shall not constitute a representation or warranty, expressed or implied, that such conditions are actually existent. Bidders shall make their own investigations and form their own estimates of the site conditions. After the submission of the proposal, no complaint or claim that there was any misunderstanding as to the quantities, conditions or nature of the work will be entertained.

2.2.2 CHANGED CONDITIONS

The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of any emergency, notify the CITY in writing of: (1) Subsurface or latent physical conditions at the site differing materially from those indicated in this Contract; or (2), previously unknown physical or other conditions at the site, of an unusual nature, not generally recognized as inherent in work of the character provided for in this Contract. The ENGINEER shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or the time required for, performance of this Contract, an equitable adjustment shall be made and the Contract modified in writing accordingly. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless he has given notice as above required, provided that the ENGINEER may, if he determines the facts so justify, consider and adjust any such claims assessed before the date of final settlement of the Contract. If the parties fail to agree upon the adjustment to be made, the dispute shall be determined as provided in Paragraph 2.2.33 hereof.

2.2.3 ORDER OF COMPLETION

The CONTRACTOR shall submit, at such times as may reasonably be requested by the ENGINEER, schedules which shall show the order in which the CONTRACTOR proposes to carry on the work, with dates at which the CONTRACTOR will start the several parts. The special provisions or plans may require that certain phases or parts of the work be completed first or in a certain order. If the CONTRACTOR elects to use PERT or CPM charts, he shall furnish copies of them to the ENGINEER upon request.

2.2.4 DESIGN AND INSTRUCTIONS

It is agreed that the CITY will be responsible for the adequacy of design and Specifications. The CITY, through the ENGINEER, shall furnish Specifications, which adequately represent the requirements of the work to be performed under the Contract. All such instructions shall be consistent with the Contract Documents and shall be true developments thereof. Specifications that adequately represent the work to be done shall be furnished prior to the time of entering into the Contract. The ENGINEER may, during the life of the Contract, and in accordance with Paragraph 2.2.15, issue additional instructions, by means of drawings or other media, necessary to illustrate changes in the work.

2.2.5 SURVEYS

The CITY has provided a suitable number of bench marks adjacent to the work. From the information provided by the CITY, the CONTRACTOR shall develop and make all detail surveys needed for construction, such as slope stakes, batter boards, stakes for pile locations, and other working points, lines, and elevations. The CONTRACTOR shall be responsible for any mistakes made in its detailed surveys.

The CONTRACTOR shall carefully preserve bench marks, reference points and stakes, and in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their necessary loss or disturbance.

2.2.6 CLAIMS

If the CONTRACTOR claims that any instructions by drawings or otherwise, issued after the date of the Contract, involve extra cost under the Contract, he shall give the ENGINEER written notice thereof within ten (10) days, after the receipt of such instruction, and in any event before proceeding to execute the work, except emergency endangering life or property, and the procedure shall than be as provided for changes in the work. No such claim shall be valid unless so made.

2.2.7 EXECUTION AND CORRELATION OF DOCUMENTS

The Agreement shall be signed in duplicate by the CITY and the CONTRACTOR.

The Contract Documents are complimentary and what is called for by anyone shall be as

binding as if called for by all. In case of conflict between Drawings and Specifications, the Specifications shall govern. Special Specifications shall govern over Standard Specifications. Materials or work described in words which so applied have a well-known technical or trade meaning shall be held to refer to such recognized standards.

2.2.8 MATERIALS AND APPLIANCES

Unless otherwise stipulated, the CONTRACTOR shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation and other facilities necessary for the execution and completion of work. The CONTRACTOR shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

2.2.9 EMPLOYEES

The CONTRACTOR shall, at all times, enforce strict discipline and good order among its employees, and shall seek to avoid employing, for the Contract, any unfit person or anyone not skilled in the work assigned to them.

Adequate sanitary facilities shall be provided by the CONTRACTOR.

Employees of the CONTRACTOR and/or any subcontractor working on the project shall not be considered as employees of the City of Evans, nor shall they be entitled to any of the benefits provided to City of Evans employees.

2.2.10 ROYALTIES AND PATENTS

The CONTRACTOR shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement for any patent rights and save the CITY harmless from loss on accounts thereof, except that the CITY shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, unless the CITY has notified the CONTRACTOR prior to the signing of the Contract that the particular process, design, or product is patented or is believed to be patented.

2.2.11 PERMITS, LICENSES AND REGULATIONS

Permits and licenses of a temporary nature, necessary for the prosecution of the work, shall be secured and paid for by the CONTRACTOR. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the CITY, unless otherwise specified. The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the CONTRACTOR observes that the Specifications are at variance therewith, he shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted in the Contract for changes in the work.

2.2.12 INSPECTION OF WORK

All materials and equipment used in the construction of the project shall be subject to adequate testing in accordance with generally accepted standards as required by the Contract Documents.

The CITY shall provide sufficient competent personnel, working under qualified supervision for the inspection of the work, while such work is in progress, to ascertain that the completed work will comply in all respects with the standards and requirements set forth in the Specifications. The inspection of the Contract will be as it relates to the compliance with the Specifications, quality of workmanship, and material. Notwithstanding such inspection, the CONTRACTOR will be held responsible for the acceptability of the work.

The ENGINEER and its representatives shall at all times have access to work whenever it is in preparation or progress, and the CONTRACTOR shall provide proper facilities for such access and for inspection.

If the Specifications, the ENGINEER's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the CONTRACTOR shall give the ENGINEER timely notice to its readiness for inspection, and if the inspection is by an authority other than the ENGINEER, a date shall be fixed for such an inspection. Inspections by the ENGINEER shall be promptly made, and where applicable, at the source of supply. Any work required by the ENGINEER to be uncovered for examination shall be properly restored at the CONTRACTOR's expense unless the ENGINEER has unreasonably delayed inspection.

Re-examination of any work may be ordered by the ENGINEER, and if so ordered, the work must be uncovered by the CONTRACTOR. If such work is found to be in accordance with the Contract Documents, the CITY shall pay the cost of re-examination. If such work is not in accordance with the Contract Document, the CONTRACTOR shall pay such cost.

2.2.13 SUPERINTENDENTS

The CONTRACTOR shall keep on its work at all times during its progress, competent superintendents and/or responsible assistants. The superintendent shall represent the CONTRACTOR and all directions given to them shall immediately be confirmed in writing to the CONTRACTOR. Superintendent shall be named in writing by CONTRACTOR at the beginning of the work.

2.2.14 PRECONTRACT EXAMINATION AND DISCOVERY OF DISCREPANCIES DURING WORK

Before submitting their proposal, the CONTRACTOR will examine all construction plans and the entire and complete specifications. The CONTRACTOR will become well and fully informed as to the materials and the character of the work required, the relationship of all of the particular parts of the work, and he will visit and inspect the site, observing and examining the conditions existing.

After the execution of the Contract, no consideration will be granted for any misunderstanding of the materials to be furnished or the work to be done, it being mutually understood that the tender of the proposal carried with it an agreement to this end and all other conditions mentioned in the Contract and the Specifications, and implied a full and complete understanding of them and all construction plans, drawings, notes, indications, and requirements.

Should anything be omitted from the construction plans or specifications necessary to the proper completion of the work herein described, it shall be the duty of the CONTRACTOR to so notify the CITY before signing the Contract, and in the event of failure of the CONTRACTOR to give such notice, they shall make good any damage or defect in its work caused thereby without extra charge. No allowance will be made for lack of full knowledge of all conditions, except such underground conditions as are determined after commencement of the work and were unknown to the CONTRACTOR.

If the CONTRACTOR, in the course of the work, finds any discrepancy between the Specifications and the physical conditions of the locality, or any errors or omissions in the layout as given by survey points and instruction, he shall immediately inform the ENGINEER, in writing, and the ENGINEER shall promptly verify the same. Any work done after such discovery, until authorized, will be done at the CONTRACTOR's risk, except in the event of an emergency.

2.2.15 CHANGES IN THE WORK

At any time by written order, the CITY may make changes in the Specifications or scheduling of the Contract within the general scope. All such work shall be executed under the time constraints of the original contract except that any claim for extension of time caused thereby shall be allowed and adjusted at the time of ordering such change or at such time as it can be ascertained.

In giving instruction, the ENGINEER shall have authority to make minor changes in the work not involving extra cost, and not inconsistent with the purpose of the work. Except in an emergency endangering life and property, no claim for an addition to the contract sum shall be valid unless the additional work was so ordered by the ENGINEER.

The CONTRACTOR shall proceed with the work as changed and the value of any such work or change shall be determined as provided for in the Agreement herein.

The CITY may at any time, as the need arises, order changes within the scope of the work without invalidating the Agreement. If such changes increase or decrease the amount due under the Contract Documents, or in the time required for performance of the work, the CONTRACTOR shall perform the same at the unit prices or lump sum indicated in the bid. Changes may occur to a maximum of twenty-five percent (25%) of the contract price. After exceeding twenty-five percent (25%), the applicable unit price or lump sum may be negotiable and an equitable adjustment shall be authorized by change order.

2.2.16 EXTENSION OF TIME

a. Extension of time stipulated in the Contract for completion of the work will be made when changes in the work occur, as provided in Paragraph 2.2.15; when the work is suspended as provided in Paragraph 2.2.17; and when the work of the CONTRACTOR is delayed on account of conditions which could not have been foreseen, or which were beyond the control of the CONTRACTOR, their subcontractors or suppliers, and which were not the result of their fault or negligence.

Extension of time for completion shall also be allowed for any delays in the progress of the work that in the opinion of the ENGINEER entitles the CONTRACTOR to an extension of time.

b. The CONTRACTOR shall notify the ENGINEER promptly of any occurrence or condition which in the CONTRACTOR's opinion entitles them to an extension of time. Such notice shall be in writing and shall be submitted in ample time to permit full investigation and evaluation of the CONTRACTOR's claim. Failure to provide such notice shall constitute a waiver by the CONTRACTOR of any claim.

2.2.17 SUSPENSION OF WORK

The CITY may at anytime suspend the work, or any part thereof, by giving three (3) days' notice to the CONTRACTOR in writing.

2.2.18 THE CITY'S RIGHT TO TERMINATE CONTRACT

If the CONTRACTOR should be adjudged bankrupt, or if they should make a general assignment for the benefit of their creditors, or if a receiver should be appointed as a result of their insolvency, or if he should persistently or repeatedly refuse or should fail, except for cases in which extensions of time are provided, to supply enough properly-skilled workmen or materials, or if he should fail to make payments to subcontractors or for materials or labor so as to affect the progress of the work or persistently be guilty of a substantial violation of the Contract, then the CITY, upon written notice from the ENGINEER that sufficient cause exists to justify such action and without prejudice to any other right or remedy, and after giving the CONTRACTOR and its Surety seven (7) days' written notice, terminate the employment of the CONTRACTOR and take possession of the premises and of all materials, tools, equipment and other facilities installed on the work and paid for by the CITY, and finish the work by whatever method the ENGINEER may be deem expedient. In such case, the CONTRACTOR shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expense of finishing the work, including compensation for additional managerial and administrative services, such excess shall be paid to the CONTRACTOR. If such expense shall exceed such unpaid balance, the CONTRACTOR shall pay the difference to the CITY. The expense incurred by the CITY as herein provided, and the damage incurred through the CONTRACTOR's default, shall be certified by the ENGINEER.

Where the Contract has been terminated by the CITY, said termination shall not affect or terminate any of the rights of the CITY then existing or which may thereafter accrue because of such default as against the CONTRACTOR or their Surety. Any retention or

payment of moneys by the CITY due to the CONTRACTOR under the terms of the Contract, shall not release the CONTRACTOR or their Surety from liability for the CONTRACTOR's default.

2.2.19 CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

If the work should be stopped under an order of any court, or other public authority, for a period of more than three (3) months, through no act or fault of the CONTRACTOR, the CITY will pay an amount not to exceed 50% of an undisputed sum within forty-five (45) days of its maturity and presentation, then the CONTRACTOR may, upon seven (7) days' written notice to the ENGINEER, stop work or terminate this Contract and recover from the CITY payment for all work executed, plus any loss sustained upon any plant or materials, plus reasonable profit and damages.

2.2.20 CANCELLATION OF CONTRACT

Failure of the CONTRACTOR to comply with any of the requirements of the Contract and the Specifications may be considered as evidence of the inability on the part of the CONTRACTOR to maintain the quality and service standards deemed necessary, and shall be sufficient cause for the cancellation of the Agreement and the initiating of legal action against the Performance Bond of the CONTRACTOR.

2.2.21 CORRECTION OF WORK BEFORE FINAL PAYMENT

The CONTRACTOR shall promptly remove from the premises all materials and work condemned by the ENGINEER as failing to meet contract requirements, whether incorporated in the work or not, and the CONTRACTOR shall promptly replace and re-execute its own work in accordance with the Contract and without expense to the CITY and shall bear the expense of making good all work of other CONTRACTORS destroyed or damaged by such removal or replacement.

All removal and replacement work shall be done at the CONTRACTOR's expense. If the CONTRACTOR does not take action to remove such condemned work and materials within ten (10) days after written notice, the CITY may remove them and store the material at the expense of the CONTRACTOR. If the CONTRACTOR does not pay the expense of such removal and storage within ten (10) days' time thereafter, the CITY may, upon ten (10) days' written notice, sell such materials at auction or at private sale and shall pay the CONTRACTOR any net proceeds thereof, after deducting all costs and expenses that should have been borne by the CONTRACTOR.

2.2.22 REMOVAL OF EQUIPMENT

In the case of termination of this Contract before completion for whatever cause, the CONTRACTOR, if notified to do so by the CITY, shall promptly remove any part or all of its equipment and supplies from the property of the CITY, failing which, the CITY shall have the right to exercise control over and to remove such equipment and supplies at the expense of, and without recourse, by the CONTRACTOR.

2.2.23 RESPONSIBILITY FOR WORK

The CONTRACTOR assumes full responsibility for the work. Until final acceptance, the CONTRACTOR shall be responsible for damage to or destruction of the work, except for any part covered by partial acceptance as set forth in Paragraph 2.2.24 and except such damage or destruction that is caused by the negligent or willful acts of the CITY.

2.2.24 PARTIAL COMPLETION AND ACCEPTANCE

If at any time prior to the issuance of the final certificate, referred to in Paragraph 2.2.34 hereinafter, any portion of the permanent construction has been satisfactorily completed to the ENGINEER's satisfaction, and if the ENGINEER determines that such portion of the permanent construction is not required for the operations of the CONTRACTOR, but is needed by the CITY, the ENGINEER shall issue to the CONTRACTOR a Certificate of Partial Completion, and thereupon or at any time thereafter, the CITY may take over and use the portion of the permanent construction described in such certificate.

The issuance of a Certificate of Partial Completion shall not be construed to constitute an extension of the CONTRACTOR's time to complete the portion of the permanent construction to which it relates, if he fails to complete it in accordance with the terms of this Contract. The issuance of such a certificate shall not operate to release the CONTRACTOR or their Sureties from any obligations under this Contract or the Performance Bond.

If such prior use increases the cost of or delays the work, the CONTRACTOR shall be entitled to extra compensation, or extension of time, or both, as the ENGINEER may determine, unless otherwise provided.

2.2.25 PAYMENT WITHHELD PRIOR TO FINAL ACCEPTANCE OF WORK

As a result of subsequently discovered evidence, the CITY may withhold or nullify the whole or part of any certificate of payment to such extent as may be necessary to protect itself from loss occasioned by:

(a) Defective work not remedied by the CONTRACTOR

(b) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the CONTRACTOR for work done on the project

(c) Failure of the CONTRACTOR to make payments properly to subcontractors or for material or labor

(d) Damage by the CONTRACTOR to subcontractors or to another contractor

When the above grounds are removed, or the CONTRACTOR provides Surety Bond satisfactory to the CITY that will protect the CITY in the amount withheld, payment shall be made for amounts withheld because of them. No moneys may be withheld under (b) and

(c) if a Payment Bond is included in the Contract.

2.2.26 CONTRACTOR'S INSURANCE AND INDEMNIFICATION

The CONTRACTOR shall secure and maintain such insurance policies as will protect itself, its subcontractors, and City of Evans, its employees and agents, from claims for bodily injuries, death, or property damage, which may arise from operations under this Contract, whether such operations be by itself or by any subcontractor or anyone employed by them directly or indirectly. The following insurance policies are required and must be evidenced by Certificates of Insurance:

(a) Statutory Workers' Compensation

(b) Commercial General Liability

General Aggregate	$1,200,000
Products/ (Completed Operations Aggregate)	$1,200,000
Each Occurrence	$ 990,000
Personal & Advertising Injury	$ 990,000
Fire Damage	$ 50,000
Medical Expense	$ 5,000

(c) Automobile Liability

Bodily Injury and Property Damage (Combined Single Limit)	$ 990,000

Certificates of Insurance must show "City of Evans, its employees and agents" as an Additional Insured.

All policies shall be for not less than the amount set forth above or as stated in the Special Conditions. Other forms of insurance shall also be provided if called for by the Special Conditions.

All Certificates of Insurance must be filed with the ENGINEER along with the Performance and Payment Bonds and shall be subject to their approval as to adequacy of protection, within the requirements as stated herein. Said Certificates of Insurance shall contain a thirty (30) days' written notice of cancellation in favor of the CITY.

The CONTRACTOR shall indemnify and hold harmless the City of Evans, its employees and agents, from and against any and all claims, damages, losses, injuries and expenses, including attorney's fees, arising out of or resulting from the performance of work.

All insurance and bonding companies providing coverage or surety under this contract shall have a Best Insurance Rating of "A" or better.

2.2.27 SURETY BONDS

The CITY shall have the right, prior to the signing of the Contract, to require the CONTRACTOR to furnish Payment and Performance Bonds in such form as the CITY may prescribe in the bidding documents and executed by one or more financially responsible Sureties licensed to do business in the State of Colorado. The premiums for said Bonds shall be paid by the CONTRACTOR. Such Bonds shall cover the entire Contract amount, regardless of changes therein, shall remain in full effect for a period of one year from the date of issuance of a Certificate of Completion, and shall be filed with the ENGINEER prior to the commencement of any work on the project.

2.2.28 CONTRACTOR'S INSURANCE

The CONTRACTOR shall secure and maintain insurance to one hundred percent (100%) of the insurable value of the entire work in the Contract and any structures attached or adjacent thereto against fire, earthquake, flood, and other perils as he may deem necessary and shall name the CITY and subcontractors as Additional Insured.

All insurance and bonding companies providing coverage or surety under this contract shall have a Best Insurance rating of "A" or better.

2.2.29 ASSIGNMENT

Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other and it's Surety, nor shall the CONTRACTOR assign any moneys due or to become due to them hereunder, except to a bank or financial institution acceptable to the CITY.

2.2.30 RIGHTS OF VARIOUS INTERESTS

Wherever work being done by the CITY's forces, utility companies, or by other CONTRACTOR's forces is contiguous to work covered by this Contract, the respective rights of the various interest invoiced shall be established by the ENGINEER, to secure the completion of the various portions of the work in general harmony.

(a) Before issuance of final payment, the CONTRACTOR, if required in the Special Conditions, shall certify in writing to the ENGINEER that all payrolls, material bills, and other indebtedness connected with the work, have been paid or otherwise satisfied. If the Contract does not include a payment Bond the CONTRACTOR may submit, in lieu of certification of payment, a Surety Bond in the amount of the disputed indebtedness or liens, guaranteeing payment of all such disputed amounts, including all related costs and interest in connection with said disputed indebtedness or liens, which the CITY may be compelled to pay upon adjudication.

(b) The making and acceptance of the final payment shall constitute a waiver of all claims by the CITY, other than those arising from unsettled liens, from faulty work appearing with the guarantee period, provided in the Special Conditions, from the requirements of the Drawings and Specifications, or from manufacturer's guarantees. It shall also constitute a waiver of all claims by the CONTRACTOR, except those previously made and still

unsettled.

(c) If after the work has been substantially completed, full completion thereof is materially delayed through no fault of the CONTRACTOR, and the ENGINEER so certifies, the CITY shall, upon certificate of the ENGINEER, and without terminating the Contract, make payment of the balance due for that portion of the work fully and completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

(d) If the CITY fails to make payment as herein provided, there shall be added to each payment daily interest at the rate of six percent (6%) per annum commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the CONTRACTOR.

2.2.31 ENGINEER'S STATUS

The ENGINEER shall perform technical inspection of the work. He has authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the Contract. He shall also have authority to reject all work and materials which do not conform to the Contract and to decide questions which arise in the execution of the work.

2.2.32 ENGINEER'S DECISIONS

The ENGINEER shall, within a reasonable time after their presentation to them, make decisions in writing on all claims of the CONTRACTOR and on all other matters relating to the execution and progress of the work or the interpretation of the Contract Documents.

2.2.33 ARBITRATION

Any controversy or claim arising out of or relating to this Contract, or the breach thereof, which cannot be resolved by mutual agreement, shall be settled by arbitration in accordance with the Rules of the American Arbitration Association, and judgment upon the award rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

2.2.34 ACCEPTANCE AND FINAL PAYMENT

Upon receipt of written notice that the work is substantially complete or ready for final inspection and acceptance, the ENGINEER will promptly make such inspection and when he finds the work acceptable under the Contract and the Contract fully performed or substantially completed, they shall promptly issue a certificate, over their own signature, stating that the work required by this Contract has been substantially completed and is accepted by them under the terms and conditions thereof, and the entire balance found to be due the CONTRACTOR, including the retained percentage, unless a retention based on the ENGINEER's estimate of the fair value of the claims against the CONTRACTOR and the cost of completing the uncompleted or unsatisfactory items of work with specified amounts for each incomplete or defective item of work, is due and payable. No final payment shall be made by the CITY unless and until the CONTRACTOR has certified in writing to the ENGINEER that all payroll, material bills, and other indebtedness connected with the work have been paid or otherwise satisfied.

The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the project to bind the subcontractors to the CONTRACTOR by the terms of the Contract Documents, and to give the CONTRACTOR the same power as regard to terminating any subcontract that the CITY may exercise over the CONTRACTOR under any provision of the Contract Documents.

Nothing contained in this Agreement shall create any contractual relationship between any subcontractor and the CITY.

Subcontracts, or transfer of Contract, shall not release the CONTRACTOR of its liability under the Contract and Bonds.

2.2.35 LIQUIDATED DAMAGES

The CONTRACTOR agrees that he can and will complete the project within the prescribed time limit as stated in Article 1.5.9 (Notice to Proceed) and within the time as may be extended. In the event the CONTRACTOR fails to complete the work within the allotted time limit, the following liquidated damages will be applied:

Original Contract Amount		
From More Than	To And Including	Daily Charge
$ 0	$ 25,000	$ 85
25,000	50,000	140
50,000	100,000	205
100,000	500,000	280
500,000	1,000,000	420
1,000,000	2,000,000	560
2,000,000	4,000,000	840
4,000,000	8,000,000	1,120
8,000,000	10,000,000	1,400

These rates will be assessed per calendar day for each day which the CONTRACTOR fails to finish the work in excess of the time period allotted. The parties agree that the liquidated damages, as stated herein, are not a penalty and are reasonable, given the expected harm from a delay in completion, the difficulty of proving actual loss, and the inadequacy of any other remedy.

2.2.36 ADVANCE NOTICE

It shall be the responsibility of the CONTRACTOR to notify the ENGINEER or inspector sufficiently in advance of its operations to enable the ENGINEER or inspector to set the required control stakes and marks.

In order to assure proper availability of construction supervision or other personnel from the ENGINEER's staff, the following notices will be required as minimums:

(a) One (1) week notice for major additions or modifications to construction

staking.

(b) Two (2) working days' notice for all staking except for emergencies.

(c) Two (2) days' written notice shall be delivered to the ENGINEER or inspector prior to any work done on Saturday, Sunday, nights, and legal holidays.

The failure of the CONTRACTOR to provide minimum notices will not be considered for time extensions or extra compensations.

2.2.37 WORK DONE WITHOUT LINES OR GRADES

Any work done without having been properly located and established as determined by the Engineer may be ordered removed and replaced at the CONTRACTOR's expense.

2.2.38 TAXES

Except as may be otherwise provided in this Contract, the contract price is to include all applicable taxes, but does not include any tax from which the CITY and the Contractor are exempt. Upon request by the CONTRACTOR, the CITY shall furnish a tax exemption certificate or similar evidence of exemption with respect to any such tax not included in the contract price, pursuant to this provision.

2.3 LEGAL RELATIONS & RESPONSIBILITIES TO PUBLIC

2.3.1 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Laws and Regulations: The CONTRACTOR shall keep itself fully informed of all city and county ordinances and regulations, and state and federal laws which in any manner affect the work herein specified. He shall at all times observe and comply with said ordinances, regulations, or laws, caused by the negligent actions of the CONTRACTOR, its agent, or employees.

2.3.2 PROJECT SAFETY

The CONTRACTOR is solely responsible for and shall take reasonable precautions in the performance of the work under this Contract to protect all persons from hazards to life and property. The CONTRACTOR shall comply with all health, safety and fire protection regulations and requirements.

2.3.3 PROTECTION OF THE PUBLIC AND OF WORK AND PROPERTY

The CONTRACTOR shall provide and maintain all necessary watchmen, barricades, warning lights, and signs in accordance with the Manual of Uniform Traffic Control Devices, and take all reasonable precautions for the protection and safety of the public. He shall continuously maintain reasonable protection of all work from damage, and shall take all reasonable precautions to protect the CITY's property from injury or loss arising in connection with this Contract. Streets and highways shall be kept free of dirt and litter from CONTRACTOR's handling operations. The CONTRACTOR shall take reasonable precautions to protect private property adjacent to the project from such nuisances as dust and dirt, rock, and excessive noise. They shall make good any damage, injury or loss to their work and to the property owner resulting from lack of reasonable protective precautions, except such as may be due to errors in the Contract Documents, or caused by agents of adjacent private and public property, as provided by law and the Contract Documents.

2.3.4 EQUAL OPPORTUNITY

"During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. 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. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
(4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts

by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States."

2.4 MATERIALS & WORKMANSHIP

2.4.1 GUARANTEES

The CONTRACTOR shall guarantee its work against defective materials or workmanship for a period of two (2) years from the date of initial acceptance.

Contractor warrants and guarantees to the CITY that all equipment and materials furnished under this Contract are free from all defects in workmanship and materials.

Contractor shall remove from the project area all work or materials rejected by the CITY or its inspector for failure to comply with the Contract Documents, whether incorporated in the construction or not. The CONTRACTOR shall promptly replace the materials or re-execute the work in accordance the Contract Documents and without expense to the CITY which are or become defective due to such defects within two (2) years after the date of receipt by the CITY. The CONTRACTOR shall also bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.

2.4.2 WARRANTIES

The CONTRACTOR shall guarantee its work against defective materials and workmanship for a period of two (2) years from the date of initial acceptance.

2.5 MEASUREMENT & PAYMENT

2.5.1 PAYMENT

Partial payment under the Contract shall be made at the request of the CONTRACTOR once each month, based upon partial estimates to be furnished by the CONTRACTOR and approved by the CONTRACTOR once each month, based upon partial estimates to be furnished by the CONTRACTOR and approved by the ENGINEER or inspector. In making such partial payment, there shall be retained three percent (3%) of the estimated amounts until final completion and acceptance of all work covered by the Contract; provided, however, that the ENGINEER, at any time after fifty percent (50%) of the work has been completed, finds that satisfactory progress is being made, shall recommend that the remaining partial payment be paid in full.

In preparing estimates for partial payments, the material delivered on the site and preparatory work done may be taken into consideration.

Payments for work under subcontracts of the CONTRACTOR shall be subject to the above conditions applying to the contract after the work under a subcontract has been fifty percent (50%) completed. In preparing estimates for partial payments, the material delivered on the site and preparatory work done may be taken into consideration.

Should the CONTRACTOR fail to proceed properly and in accordance with the Guarantee, the CITY may have such work performed at the expense of the CONTRACTOR.

2.5.2 PAY QUANTITIES

The CONTRACTOR shall be paid on a unit price basis as indicated by the proposal for the actual quantities installed.

2.6 SCOPE OF WORK

2.6.1 CHANGES IN THE WORK

At any time by written order, the CITY may make changes in the Drawings and Specifications or scheduling of the Contract within the general scope. All such work shall be executed under the time constraints of the original Contract, except that any claim for extension of time caused thereby shall be allowed and adjusted at the time of ordering such change or at such time as it can be ascertained.

(a) Unit prices previously approved

(b) An agreed lump sum

(c) The actual cost of labor, direct overhead, materials, supplies, equipment and other services necessary to complete the work. In addition, there shall be added on an amount to be agreed upon, but not to exceed fifteen percent (15%) of the actual cost of the work, to cover the cost of general overhead and profit.

2.6.2 SUBLETTING OF CONTRACT

The CONTRACTOR shall not sublet, sell, transfer, assign, or otherwise dispose of the Contract, or of their rights, title, or interest therein, without written consent of the CITY. The CONTRACTOR may utilize the services of specialty subcontractors on those parts of the project which, under normal contraction practices, are performed by specialty subcontractors.

The CONTRACTOR shall not award work to subcontractors in excess of fifty percent (50%) of the contract price without prior written approval of the CITY.

The CONTRACTOR shall be as fully responsible to the CITY for the acts and omissions of their subcontractors and of persons directly or indirectly employed by them, as they are for the acts and omissions of persons directly employed by them.

2.6.3 SEPARATE CONTRACTS

The CITY reserves the right to let other contracts in connection with this project. The CONTRACTOR shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate its work with theirs. If the proper execution or results of any part of the CONTRACTOR's work depends upon the work of any other contractor, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such work that render it unsuitable for such proper execution and results.

2.6.4 SUBCONTRACTS

The CONTRACTOR shall, as soon as practicable after signing the Contact, but in any event prior to the performance of any work by any subcontractor, notify the CITY, in writing, of the names of the subcontractors proposed for the work, designating the portions of work to be performed by each.

The CONTRACTOR agrees that they are as fully responsible to the CITY for the acts and omissions of their subcontractors and of persons either directly or indirectly employed by them, as they are for the acts and omissions of persons directly employed by them.

Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the CITY.

2.6.5 UNDERGROUND OBSTRUCTIONS

The CONTRACTOR shall anticipate all underground obstructions, such as water lines, gas lines, sewer lines, concrete, debris, and all other types of utility lines. No extra payment will be allowed for the removal, protection, replacement, repair or possible increased cost caused by underground obstruction. Any such lines or obstructions indicated on the Drawings show only the approximate location from the information available and must be verified in the field by the CONTRACTOR. The ENGINEER will endeavor to familiarize the CONTRACTOR with all underground utilities and obstructions, but this will not relieve the CONTRACTOR from full responsibility for anticipating all underground obstructions.

In accordance with C.R.S. Section 9-1.5-103 (1973), the CONTRACTOR shall not make or begin excavation without first notifying the owners, operators or association of owners and operators having underground facilities in the area of such excavation. Notice may be given in person, by telephone, or in writing and shall be given at least two business days prior to beginning work.

The CONTRACTOR shall protect the existing utilities in a manner as requested by the respective utility owners at no extra compensation. The CONTRACTOR, by their signature on this proposal and subsequently on the Agreement, agrees to hold City of Evans, the agencies thereof, and their officers and employees, harmless from any and all losses, damages or claims which may arise out of, or be connected with, construction performed where said utilities are located.

Should it be necessary to relocate utilities in the area of construction, the CITY, at its own expense, will coordinate these relocations with the utility owner and the CONTRACTOR.

2.6.6 EMERGENCY WORK

In an emergency affecting the safety of life or of the work or of adjoining property, the CONTRACTOR is, without special instructions or authorization from the ENGINEER, hereby permitted to act at its discretion to prevent such threatening loss or injury. He shall also act, without appeal, if so authorized or instructed by the ENGINEER. Any compensation claimed by the CONTRACTOR as a result of emergency work, shall be determined by agreement or in accordance with Article 2.2.33.

2.6.7 CLEANING UP

The CONTRACTOR shall remove, at their own expense, from the CITY's property and from all public and private property, all temporary structures, rubbish and waste materials resulting from their operations. This requirement shall not apply to property used for permanent disposal of rubbish or waste materials in accordance with permission of such disposal granted to the CONTRACTOR by the CITY thereof where such disposal is in accordance with local ordinances and is approved by the ENGINEER.

ARTICLE 3.0

SPECIAL CONDITIONS

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3.1 GOVERNING DOCUMENTS

The governing documents for this Work are as follow:

- Contract Documents Articles 1.0 through 5.0
- Construction Drawings, "65TH AVENUE IMPROVEMENTS; Federal Aid Project # STU M415-019, Project Code 20619", dated March, 2017.
- The City of Evans, "Street Specifications", dated April 2004.
- Colorado Department of Transportation,"Standard Specifications for Road and Bridge Construction", latest edition.

In the case of conflict, documents shall have the following priorities: (1) Contract Documents Article 4.0 –Standard Special Provisions and Project Specials, (2) Article 3.0 – Special Conditions, (3) Contract Documents Article 2.0 – General Conditions, (4) City of Evans Street Specifications, and (5) Standard Specifications for Road and Bridge Construction.

3.2 SCOPE

3.2.1 DESCRIPTION OF WORK

The work for the 65th Avenue Improvements project is a continuation of 65th Avenue improvements that was done north of the Evans and Greeley city limits. This continuation of improvements will widen the traffic lanes to four and include on street bike lanes and curb gutter and sidewalk improvements. Improvements for this project extend south to the intersection of 65th Ave and 37th Street. Improving this portion of 65th Avenue will increase traveler safety, decrease wait times and traffic flow patterns will be improved.

3.3 GENERAL

It is the intent of these Special Conditions to require a functionally complete project (or part thereof) to be constructed in accordance, and in conjunction with, all Contract Documents as defined within Article 1.0 – Contracting Procedures and Article 2.0 – General Conditions. Any work, materials, or equipment that may be reasonable inferred, as being required to produce the intended result will be provided whether or not specifically called for. When words, which have a well-known technical or trade meaning, are used to describe work, materials, or equipment, such words shall be interpreted in accordance with that meaning.

Use of these Special Conditions in conjunction with related Contract Documents to establish the total requirements of the project. The CONTRACTOR shall obtain all required documents and have them available during the execution of work. Exceptions, additions and/or modifications to the referenced documents are noted as follows:

3.3.1 EXISTING CONDITIONS

Prior to starting work on the project, the CONTRACTOR shall walk the project site in the areas scheduled for work with the ENGINEER to discuss conditions that may affect the work being performed. These conditions may include: fencing, curbs, walls, berms, driveways, asphalt, lawns, sprinklers and other existing improvements (collectively surface improvements) that are to remain on both public and private property. The ENGINEER may record the existing conditions and/or features using a video camera for future reference and/or comparisons prior to final project acceptance.

If in the opinion of the ENGINEER, there is sufficient operating space to perform the work in a reasonable manner without disturbing, destroying and/or removing existing improvements, the

CONTRACTOR shall perform the work without disturbing, destroying and/or removing said improvements. In no event shall the CONTRACTOR remove trees, shrubs, vines, or other items without receiving prior approval (in writing) of the ENGINEER.

The CONTRACTOR shall make every effort to prevent or limit damage to surface improvements within or adjacent to the work area. The CONTRACTOR is responsible for protecting or restoring all such surface improvements to their original or improved condition. Any of these surface improvements damaged by the CONTRACTOR shall be replaced by the CONTRACTOR at his/her own expense.

3.3.2 SALES TAX

Sales Tax shall not be paid for materials purchased for use on this project.

3.3.3 PROJECT TIME, SCHEDULE, SEQUENCE

It is the intent of the CITY to award this project as soon as possible after receiving bids. The CONTRACTOR shall commence and complete work in accordance with the Agreement within Article 1.0 – Contracting Procedures.

At the pre-construction meeting, the CONTRACTOR shall submit and update a construction schedule that clearly outlines the work sequence. This schedule will be reviewed by the CITY, and when requested, the CONTRACTOR shall revise his work sequence to better suit job conditions.

3.3.4 WORKING HOURS

The CONTRACTOR shall restrict working hours to between 7:00 A.M. and 5:00 P.M. on normal City of Evans business days unless prior approval has been obtained from the City.

3.3.5 PROJECT COORDINATION

The CONTRACTOR is responsible for contracting and coordinating with all project affected stakeholders. These affected stakeholders may include:

- Property Owners
- Utility Companies (listing of possible companies can be obtained from the CITY)
- Evans Police Department
- Evans Fire Protection District
- Weld County Sheriffs Department
- Weld County Ambulance
- Greeley-Evans School District 6

The locations of utilities shown on the drawings are approximate. It is the responsibilities of the CONTRACTOR to field verify locations of utilities prior to initiating construction. In addition, any street closures must be properly coordinated with any and/or all the affected stakeholders listed above. Proper traffic control measures per an approved Traffic Control Plan will be implemented – All anticipated closure times shall be approved by the CITY.

3.3.6 PUBLIC AND CONSTRUCTION IMPACTED BUSINESS MEETING

The contractor will host a public meeting at The City of Evans Complex. This meeting will be held on an evening coordinated with the city's project manager. The contractor project manager, superintendent and foreman will be available to accept and respond to public and local businesses that will be affected by the construction work.

3.3.7 PROJECT WARRANTY

The CONTRACTOR shall provide a two (2) year warranty for all construction beginning on the date of initial acceptance. Any work that fails during the first or second year of this warrantee

period shall be replaced. There will be no additional cost to the CITY for material, equipment, labor and/or traffic control for warranty work. Warranty work shall be completed in accordance with these contract specifications within Thirty (30) days of written notification by the CITY.

3.3.8 MATERIALS, MANUFACTURER'S CERTIFICATES & RECOMMENDATIONS

Shop drawings or samples required by these specifications shall be submitted before confirmation of orders.

Certifications by the manufacturer that the material or equipment conforms to all applicable requirements shall be submitted. These certifications shall reference the standard specifications with which compliance is required.

Shop drawings shall be submitted in triplicate to the ENGINEER and shall bear the CONTRACTOR's certification the he has reviewed, checked, and approved the shop drawings and that they are in conformance with the requirements of the Contract Documents.

The ENGINEER shall return shop drawings to the CONTRACTOR within 14 days from the time of receipt. If they are returned noted "disapproved," they shall be re-submitted with necessary revisions and the 14-day review period again shall be required.

The CONTRACTOR shall maintain a set of reviewed shop drawings in good order at the site of work. Said drawings shall be available to the ENGINEER.

3.3.9 EROSION AND DUST CONTROL

The CONTRACTOR is responsible for the control of erosion and dust within the project limits. The contractor will be solely responsible for executing ALL permit requirements and for all record keeping and reporting requirements. Dust shall be controlled at all times in accordance with applicable regulations and as directed by the Engineer.

3.3.10 CONSTRUCTION WATER

Construction water shall consist of providing a water supply sufficient for the needs of the project and the hauling and applying of all water required. The CONTRACTOR SHALL NOT use water from local residences for construction purposes or to provide water to laborers.

The CONTRACTOR is encouraged to use water obtained from the Evans Ditch whenever possible. Contact the City of Evans Public Works Department to arrange for use of Evan Ditch water. Evans Ditch water may not be available at the time of construction.

The CONTRACTOR shall make arrangements for and provide all necessary water for his construction operation and domestic use at his own expense. The CONTRACTOR shall secure permission from the water utility and notify the ENGINEER and Fire Department/District before obtaining water from the fire hydrants.

If the CONTRACTOR purchases water from a water utility at a fire hydrant on or near the project, he shall make all arrangements at his own expense and payment made direct to the water utility as agreed upon. The CONTRACTOR shall follow all rules and regulations of the respective district. Use only special hydrant-operating wrenches to open hydrants. Make certain that the hydrant valve is open "full" since cracking the valve causes damaged to the hydrant. If any hydrants are damaged, the CONTRACTOR will be held responsible and shall immediately notify the appropriate agencies so that all damages can be repaired as quickly as possible. Fire hydrants shall be completely accessible to the Fire Department/District at all times. Upon completion of the work, the CONTACTOR shall remove all temporary piping from the facilities.

The CONTRACOR shall meet all applicable requirements of OSHA, state, and other governing agencies pertaining to sanitary facilities for workers. No separate payment will be made for construction water. All of the CONTRACTOR's costs of whatsoever nature shall be included in all associated Bid Items on the bid schedule.

3.3.11 SANITATION FACILITIES
The CONTRACTOR shall provide chemical toilets of a suitable type and number and shall maintain the facilities in a sanitary condition at all times. The chemical toilets shall be of watertight construction so that no contamination of the area can result from their use. The facilities shall conform to code requirements and shall be acceptable to the sanitary authorities. Upon completion of the work, the sanitary facilities shall be removed and the area restored to its original condition.

3.3.12 REMOVALS
The CONTRACTOR shall be responsible for locating sites and making arrangements for disposal of all materials removed from the site. The CONTRACTOR's handling and disposition of excavation material shall be to a disposal site designated and/or approved by the ENGINEER. This includes concrete, asphalt, unsuitable or unstable subgrade material, and any other trash, rubbish, or debris generated as a result of the construction. No trash, rubbish, or debris shall be allowed on the lawns of local residences by the CONTRACTOR's work force. No separate payment will be made for disposal of excavation material generated. This disposal shall be considered incidental to the construction and all costs thereof shall be included in various unit CONTRACT process.

3.3.13 REPAIRS TO EXISTING CONDITIONS
The CONTRACTOR is responsible for protection and/or replacement of existing sidewalks, curbs, fencing and paving not scheduled for demolition within area of work. No measurement for payment shall be made for removal or replacement of materials and/or existing features damaged by the CONTRACTOR in his operation.

All materials shall be installed and/or applied, in kind, in accordance with applicable specifications.

3.3.14 SAMPLES AND TESTING
All testing shall be completed by an independent testing laboratory hired by the CONTRACTOR.

3.3.15 SUBCONTRACTORS
All subcontractors are subject to approval by the CITY.

3.3.16 MINOR ITEMS OF CONSTRUCTION
Minor items of construction that do not have a bid item provided will not be paid for separately. The costs of these items shall be merged with unit prices shown on the bid form.

3.3.17 CLEANING DURING CONSTRUCTION
During execution of work, the CONTRACTOR shall clean the sites, adjacent properties, and public access roadways on a daily basis at a minimum or as directed by the ENGINEER and shall dispose of waste materials, debris, and rubbish to assure that buildings, grounds, and public properties are maintained free from accumulations of waste materials and rubbish. The CONTRACTOR shall wet down dry materials and rubbish to lay dust and prevent blowing dust.

The CONTRACTOR shall provide containers for collection and disposal of waste materials, debris, and rubbish.

The CONTRACTOR shall cover or wet loads of excavated material leaving the site or of material being imported to prevent blowing dust. The CONTRACTOR shall also clean the public access roadways to the site of any material falling from the trucks or equipment.

The CONTRACTOR shall clean debris from pipelines and manhole structures, as necessary and as directed by the ENGINEER.

3.3.18 FINAL CLEANUP

At the completion of the work and immediately prior to final inspection, the CONTRACTOR shall remove from the Construction Site all temporary structures and all materials, equipment, and appurtenances not required a part of, or appurtenant to, the completed work. The CONTRACTOR shall notify the CITY when final cleanup is ready for inspection.

The CONTRACTOR shall repair, patch, and touch-up marred surfaces to specified finish to match adjacent surfaces.

The CONTRACTOR shall broom-clean paved surfaces and rake clean other surfaces of ground as necessary and as directed by the ENGINEER.

3.4 MEASURMENT & PAYMENTS

3.4.1 GENERAL

All materials will be measured and paid for in accordance with the Contract Documents. All material shall arrive at the job site with load or batch tickets indicating time loaded or batched, material type, material quantity, and date. A copy of the tickets shall be given to the ENGINEER on the site the day the material arrives on site. Material delivered and placed without a load ticket will not be paid. The CITY will not pay for any material if the load ticket indicates that the vehicle and its load exceeded the legal weight limit for the vehicle type.

All work performed and all materials furnished shall conform to the requirements, including tolerances, provided within the Contract Documents. Materials not in conformance with the Contract Documents, but allowed to remain in place by the ENGINEER may be subject to applicable price reductions as specified in Section 105.03 of the CDOT Specifications.

The CONTRACTOR is responsible for providing a product to be in conformance with the Governing Document. The suitability of the finished product will be determined by the ENGINEER. A finished product that is not found suitable by the ENGINEER, may be subject to:

1. Disapproval and subsequent removal and replacement of the material/product at the CONTRACTOR's expense.

2. A reduction in pay as outlined with formulas in the CDOT Specifications. The CDOT Specifications are strictly used for determining the actual reduction of pay for unsuitable material/product and are not used to determine suitability of a final product. The ENGINEER will determine suitability.

3. The ENGINEER allows questionable product/material to remain in place with the CONTRACTOR providing some type of remedial action to make the product/material suitable. Type of remedial action to be determined by ENGINEER and paid for by CONTRACTOR.

4. The addition of an extended warranty for questionable materials/products to allow further review to determine suitability and any further action by CONTRACTOR at end of the warranty period.

The work performed under this Agreement shall be paid for on a unit price basis at the rate for the respective items on the Article 1.0 – Bid Proposal. The quantities provided on the Bid Schedule of the Article 1.0 – Bid Proposal are only estimates of the actual quantities of the work to be performed, and are only included for purposes of making the award. The CITY reserves the right to alter and/or eliminate any item of work. Modifications, if any, will be made by Change Order.

Unless otherwise provided for specifically in this section, all lump sum bid items will be paid for upon completion of all work associated with the lump sum bid item.

Payment shall be made only for those items included in the accepted proposal. All other costs incurred shall comply with the provisions of the Contract Documents and shall be included in the unit price bid for the associated items in the proposal. Except as may be otherwise stipulated, no material, labor, or equipment will be furnished by the CITY. The quantity of work that will be considered for payment is the actual number of units completed in accordance with all relative Contract Documents. The basis of measurement and payment are as noted, herein.

3.4.2 MEASUREMENTS

A. No measurement for payment shall be made for any of the work, materials, and equipment required for mobilization. A lump sum payment will be made based on Section 3.4.3.

B. The quantities of work to be paid will be measured as identified within Article 1.0 – Bid Proposal to perform work, including but not limited to, the furnishing and installation of all components and accessories, in accordance with the Contract Documents. No payment for items outside of the dimensions shown on the Drawings or field markings, unless directed and approved by the ENGINEER, will be included in the amount computed for payment.

C. No separate measurement shall be made for fittings and accessories necessary to install bid item.

D. No measurement for payment shall be made for removal or replacement of materials and/or existing features damaged by the CONTRACTOR in his operation.

3.4.3 PAYMENTS

A. Mobilization & demobilization lump sum bid price shall include all the CONTRACTOR's cost whatsoever the nature required for mobilization of personnel, equipment, construction trailers, or supplies at the project site in preparation for work on the project, and demobilization, location and protection of utilities. This item shall also include the establishment of all necessary facilities, on-site restrooms, and all other costs incurred or labor and operations that must be performed prior to beginning the other items under Contract. Also to be included shall be all costs whatsoever to obtain any and all required permits, taxes, licenses, fees, and bonds necessary as required by the CITY, water and sanitary districts, and other municipal governments to perform the Work. This item may also include the cost of required bonds, insurance, preparation of the Project schedule and required shop drawings, and clean-up of the site.

B. Mobilization & demobilization payment will be made as the work progresses. Fifty percent (50%) of the lump sum bid price will be paid at the time of the first monthly progress payment. An additional thirty percent (30%) will be paid when one-half the original contract is earned separately on each of the bid schedules. The remaining twenty percent (20%) will be paid upon final acceptance of the Project. The total amount for mobilization shall not exceed five percent (5%) of the total bid.

C. Payment for the Bid Item other than mobilization & demobilization shall include full compensation for, but is not limited to, all materials, labor, supplies, transportation, disposal, equipment required to complete the work in accordance with the Contract Documents.

D. No separate payment shall be made for fittings and accessories necessary to install bid item.

E. CONTRACTOR will not be reimbursed for the retesting of any materials that fail, or due to inclement weather, or for any other reason. All samples required for testing will be provided by the CONTRACTOR and at no cost to the OWNER.

F. Excess excavation shall be disposed of off-site and shall not be paid for separately.

G. All samples required for testing will be provided by the CONTRACTOR and at no cost to the OWNER.

ARTICLE 4.0

PROJECT STANDARD SPECIAL PROVISIONS AND SPECIAL PROVISIONS

COLORADO DEPARTMENT OF TRANSPORTATION

STANDARD SPECIAL PROVISIONS

65TH AVENUE

IMPROVEMENTS WELD

COUNTY

EVANS, COLORADO

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Revision of Section 105 – Construction Surveying	(July 31, 2014)	1
Revision of Section 105 – Contractor Submittals Traffic Signal Pedestal Pole	(February 3, 2011)	1
Revision of Section 105 – Violation of Working Time Limitation	(February 3, 2011)	1
Revision of Section 106 – Buy America Requirements	(November 6, 2014)	1
Revision of Section 106 – Certificates of Compliance and Certified Test Reports	(February 3, 2011)	1
Revision of Section 106 – Material Sources	(October 31, 2013)	1
Revision of Section 106 – Supplier List	(January 30, 2014)	1
Revision of Sections 106 and 412 – Surface Texture of Portland Cement Concrete Pavement	(October 29, 2015)	3
Revision of Section 107 – Project Payrolls	(May 2, 2013)	1
Revision of Section 107 - Responsibility for Damage Claims, Insurance Types, and Coverage Limits	(February 3, 2011)	1
Revision of Section 107 – Warning Lights for Work Vehicles and Equipment	(January 30, 2014)	1
Revision of Sections 107 and 208 – Water Quality Control, (Contractor Obtained Stormwater Permit	(March 29, 2016)	6
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COLORADO DEPARTMENT OF TRANSPORTATION

PROJECT SPECIALS

65TH AVENUE IMPROVEMENTS

WELD COUNTY

EVANS, COLORADO

The City of Evans Construction Specifications controls construction of this project and is supplemented with the 2011 Standard Specifications for Road and Bridge Construction. The following special provisions supplement or modify the Standard Specifications and take precedence over the Standard Specifications and plans.

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ON THE JOB TRAINING CONTRACT GOAL 5
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DISADVANTAGED BUSINESS ENTERPRISE (DBE) CONTRACT GOAL

This is a federally-assisted construction project. As described in the CDOT DBE Standard Special Provision, the Bidder shall make good faith efforts to meet the following contract goal:

8% Percent DBE participation.

COMMENCEMENT AND COMPLETION OF WORK

The Contractor shall commence work under the Contract no later than 10 days from the date of the Notice to Proceed, unless such time for beginning the work is changed by the Engineer. It is anticipated that construction will commence in Spring/Summer 2017. The Contractor shall be substantially complete with the work within 110 calendar days and the Contract time for completing the Contract work is ***120 Calendar Days.***

Section 108 of the Standard Specifications is hereby revised for this project as follows:

Subsection 108.03 shall include the following:

The Contractor's progress schedule shall be a Critical Path Method or Bar Chart Schedule.

Salient features to be shown on the Contractor's progress schedule are:

- Potholing
- Erosion and Sediment Control
- Construction Traffic Control (Lane Closures, Shifts, Width Restrictions, etc.)
- Mobilization
- Construction Surveying
- Pre-Work Meeting with Utility Owners
- Clearing and Grubbing
- Removals
- Utility Relocations and Coordination
- Roadway Earthwork
- Storm Sewer System and Box Culvert Replacement
- Median
- Curb, Gutter and Sidewalk
- Asphalt Pavement
- Traffic Signals
- Seeding
- Final Signing and Striping

Subsection 108.08 shall include the following:

Substantial Completion is defined as completion and acceptance of: removals, embankment, box culvert replacement, storm and irrigation system, curb and gutter, curb ramps sidewalk and driveway entrances, slope grading, and asphalt (bottom mat).

Final Acceptance is defined as, completion and acceptance of: top soil placement, final grading, sodding/seeding, removal of tree protection, removal of erosion control items, asphalt (top mat), and punch list items.

ON THE JOB TRAINING CONTRACT GOAL

The Department has determined that On The Job Training shall be provided to trainees with the goal of developing full journey workers in the types of trade or classification involved. The contract goal for On The Job Trainees working in an approved training plan in this Contract has been established as follows:

Minimum number of On The Job Training hours required: 260 hours.

REVISION OF SECTION 100 – GENERAL PROVISIONS

Section 100 of the Standard Specifications is hereby revised for this project as follows:

All references to the State, the Department, the Engineer, the Chief Engineer, etc. shall be understood to mean the City of Evans, Colorado or the City's designated representative.

END OF SECTION REVISION

REVISION OF SECTION 101 - DEFINITION OF TERMS

Certain terms utilized in the latest edition of the Colorado Department of Transportation Standard Specifications for Road and Bridge Construction shall be interpreted to have different meanings within the scope of this Contract. A summary of redefinitions follows:

Subsection 101.28: —"Department" shall mean City of Evans, Colorado.

Subsection 101.29: —"Chief Engineer" shall mean City of Evans' City Engineer.

Subsection 101.39: —"Laboratory" shall mean City of Evans, Colorado or their designated representative.

Subsection 101.51: —"Project Engineer" shall mean the City of Evans designated Project Engineer.

Subsection 101.58 —"Region Transportation Director" shall mean the City of Evans, Colorado or their designated representative.

Subsection 101.76 —"State" shall mean City of Evans, Colorado (where applicable).

END OF SECTION REVISION

REVISION OF SECTION 105 - CONTROL OF WORK, DISPUTES AND CLAIMS FOR CONTRACT ADJUSTMENT

Section 105 of the Standard Specifications is hereby revised for this project as follows:

Subsection 105.02 shall include the following:

j. Where applicable work shall conform to the City of Evans Construction Specifications.

Subsection 105.05, 105.06, 105.07 shall be revised as follows:

Incentive and Disincentive Payments will not be used for this project.

Subsection 105.09 shall have the second paragraph replaced as follows:

In case of discrepancy the order of precedence is as follows:

(b) City of Evans Design Criteria and Construction Specifications
(a) Plans
(c) Special Provisions
(d) General Conditions
(e) CDOT Standard Special Provisions
(f) CDOT Standard Specifications

Subsection 105.11 shall include the following:

The Contractor shall coordinate with all utilities well enough in advance that utility improvements do not delay the Contractor's work.

Subsection 105.12 delete and replace with the following:

The City, County, CDOT, and local utilities including but not limited to Xcel Energy, Zayo Bandwidth, PVREA, Atmos Energy, Comcast and CenturyLink may contract for and perform other or additional work on or near the Work of the project. When separate contracts are let within the limits of the project, each Contractor shall conduct the Work without interfering or hindering the progress or completion of the work performed by other contractors. Contractors working on the same project shall cooperate with each other as directed.

For all Traffic, Water, Sanitary Sewer and Stormwater Coordination the Contractor shall coordinate with the City of Evans Engineer:

City of Evans Contact: Dawn Anderson
Phone: (970) 475-1160

For traffic coordination this shall include, but not be limited to, closure of any City Streets, closure of any partial intersection movements, lane reductions, and detours. The Contractor is responsible for removal of pavement markings and installation and maintenance of temporary pavement markings necessary to control traffic during construction. This work will not be paid separately, but shall be included in Construction Traffic Control, Lump Sum. The Contractor shall coordinate with the City of Evans Engineer to schedule permanent signing and striping work in conjunction with other project activities. Full-compliance pavement markings in accordance with Section 627 shall be in place prior to opening the roadway to traffic.

For water and sanitary sewer coordination this shall include, but not be limited to, removing/relocating existing fire hydrant, installing new fire hydrant assembly and water meter, and adjusting valve boxes and manholes.

For stormwater coordination this shall include, but not be limited to, removing existing storm pipe and installing new storm sewer system, installing off-site irrigation system and box culvert replacement at Ashcroft Draw.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with the Contract and shall protect and save harmless the Owner from any and all damages or claims that may arise because of inconvenience, delay , or loss because of the presence and operations of Contractors working within the limits of the same or adjacent project.

Contractor is responsible to coordinate with private utilities. Any work to be performed by private utilities shall be identified in Contractor's schedule. Delays due to coordination issues will be the responsibility of the contractor.

Subsection 105.22 shall be revised as follows:

The Colorado Department of Transportation will not participate in the resolution process for any claims filed by the Contractor.

END OF SECTION REVISION

REVISION OF SECTION 106 - CONTROL OF MATERIAL

Section 106 of the Standard Specifications is hereby revised for this project as follows:

Subsection 106.03 shall include the following:

The Contractor shall provide Quality Control Sampling and Testing. Cost shall be included in the bid price for Mobilization.

Quality Acceptance Testing shall be done by the City of Evans 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.

Test frequencies shall be in accordance with the project specifications, CDOT Field Materials Manual and the approved Quality Control Plan (QCP).

END OF SECTION REVISION

REVISION OF SECTION 107 – PERMITS, LICENSES, PROTECTION OF EXISTING PROPERTY AND INSURANCE

Section 107 of the Standard Specifications is hereby revised for this project as follows:

Subsection 107.02 shall include the following:

Unless otherwise specified, the Contractor shall procure all required permits and licenses; pay all charges, fees, and taxes, including permits procured for this project by others; and give all notices necessary and incidental to the due and lawful prosecution of the work. The costs of these permits from the CDOT or other agencies will not be paid for separately, but shall be included in the work. The City of Evans permit fees will be waived.

Below is a list of anticipated permits that will be required for the project. This list is provided as an aid and shall not be interpreted as a complete list of all permits that may be required. It shall be the responsibility of the Contractor to determine the type of permits required for the work. A copy of all permits shall be available on the job site at all times.

1. Stormwater Discharge Permit Associated with Construction Activities (CDPHE)
2. Construction Dewatering Wastewater Discharge Permit (CDPHE) – If Required
3. City of Evans Excavation Permit
4. Current Business License
5. Other Applicable State or County Permits

Prior to beginning work, the Contractor shall furnish the Engineer with a written list of all permits required for the proper completion of the contract. The list shall clearly identify the types of permits that must be obtained before work on any particular phase or phases of work can be started. Copies of the fully executed permits shall be furnished to the Engineer upon request.

The Contractor shall comply with all applicable federal and state laws, orders, and regulations concerning the control and abatement of water and air pollution.

The Contractor shall comply with the permits (or permit applications if in progress) even if they have not yet been finalized at the time of construction.

The Contractor is responsible to keep all permits in compliance at all times until they can be terminated.

Subsection 107.12 is hereby revised to include the following:

The Contractor shall limit his work operations to within public right-of-way, permanent easements and temporary construction easements.

The Contractor shall fence specific areas of vegetation to be protected in the field as shown in the plans or as directed by the Engineer. All construction operations must be performed in such a manner which will avoid protected trees and landscape areas.

The Contractor shall perform all the work in such a manner that results in the least environmental damage.

The Contractor shall clearly mark the vegetation protection areas and all construction/demolition limits in the field before commencing demolition operations. Limits of construction are generally defined as the limits of demolition.

Burning of waste materials is not permitted.

Unless otherwise agreed to, remove excess excavated material and displaced trees from Owner's property.

Tree protection fencing will be considered incidental and not paid for as a separate item.

Subsection 107.18 is hereby revised to read:

For this project, all insurance certificates shall name the City of Evans and the Colorado Department of Transportation as an additionally insured party.

For this project, insurance coverage shall meet the requirements and limits per CDOT Standard Specifications and Revision of Section 107 Responsibility for Damage Claims, Insurance Types and Coverage Limits. In case of a conflict between the City's General Contract Conditions and CDOT Standard Specifications, the more stringent of the two shall apply.

Subsection 107.25(c) is hereby revised to include the following:

(c) Measurement and Payment.

Add the following to Paragraph 1:

All work associated with preparing, securing and concurring with the required permits (refer to Revision of Subsection 107.02) will not be measured and paid for separately, but shall be included in the work.

END OF SECTION REVISION

REVISION OF SECTION 107 – PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE

Section 107 of the Standard Specifications is hereby revised for this project as follows:

Add the following to section 107.12:

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.

MATERIALS

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.

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 will assign an experienced, qualified, licensed arborist to the Project site during execution of tree protection and trimming.

Contact the Owner's Representative prior to pruning trees. Owner's Representative shall review the contractors request for tree pruning and provide direction.

Before tree protection operations begin, meet with representatives of authorities having jurisdiction, Owner, consultants, and other concerned entities to review tree protection and trimming procedures and responsibilities.

Drainage Fill: Selected crushed stone, or crushed or uncrushed gravel, washed, ASTM D 448, Size 24, with 90 to 100 percent passing a 2-1/2-inch sieve and not more than 10 percent passing a 3/4-inch sieve. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 1.5 inch in diameter; and free of weeds, roots, and toxic and other non-soil materials. Obtain topsoil only from well-drained sites where topsoil is 4 inches deep or more; do not obtain from bogs or marshes. Filter Fabric: Manufacturer's standard, nonwoven, pervious, geo-textile fabric of polypropylene, nylon, or polyester fibers. Organic Mulch: to match project

Temporary Fencing: Orange Snow Fence; a minimum of 48 inches high; with 'T'-posts; with tie wires, and other accessories for a complete fence system OR snow fencing.

CONSTRUCTION REQUIREMENTS

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. 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. Mulch areas inside tree protection zones and other areas indicated. Apply 3-inch average thickness of organic mulch. Do not place mulch within six (6) inches of tree trunks. 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 root systems. Maintain tree protection zones free of weeds and trash. Do not allow fires within tree protection zones.

Do not excavate within tree protection zones, unless otherwise indicated. 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. 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 3 inches back from new construction. 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. Where utility trenches are required within tree protection zones, tunnel under or around roots by drilling, auger boring, pipe jacking, or digging by hand, but verify situation with Owner's Representative prior to performing any work under this Section.

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. The installation of utilities, irrigation lines or any underground fixture requiring excavation deeper than six (6) inches shall be accomplished by boring under the root system of protected existing trees at a minimum depth of twenty-four (24) inches. 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.

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

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

Prune trees to remain that are affected by temporary and permanent construction. 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. Pruning Standards: Prune trees according to ANSI A300 (Part 1). Cut branches with sharp pruning instruments; do not break or chop. Chip removed tree branches and dispose of off-site.

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. 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 of Evans 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. 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." Provide new trees of 6-inch caliper size and of a species selected by Owner's Representative when damaged trees more than 6 inches in caliper size, measured 12 inches above grade, are required to be replaced. Number of replacement trees required to mitigate loss of larger trees will comply with City Code. Promptly repair trees damaged by construction operations within 24 hours. Treat damaged trunks, limbs, and roots according to City of Evans staff instructions. Remove and replace trees indicated to remain that

die or are damaged during construction operations that City of Evans staff determines are incapable of restoring to normal growth pattern.

Burning of waste materials is not permitted. Disposal: Unless otherwise agreed to, remove excess excavated material and displaced trees from Owner's property.

METHOD OF MEASUREMENT

Tree protection fencing will not be measured.

BASIS OF PAYMENT

Tree protection, the addition of drainage fill, topsoil, filter fabric, organic mulch, trimming of existing trees shall be included in the work, and shall be considered incidental to the work.

END OF SECTION REVISION

REVISION OF SECTION 108 – PROSECUTION AND PROGRESS

Section 108 of the Standard Specifications is hereby revised for this project as follows:

Subsection 108.07 shall include the following:

It is anticipated that construction for this project will begin in Spring/Summer 2017.

Prior to the commencement of work, the Contractor shall submit to the Project Manager, for approval, a schedule showing the time of commencement and proposed progress of the work. In this schedule, the Contractor shall anticipate and account for adverse weather conditions, utility coordination and time restrictions for lane closures. If the Contractor falls behind the approved schedule, then all reasonable efforts shall be implemented to accelerate the schedule and complete the work within the contract time. The Contractor shall furnish additional resources (e.g. equipment, manpower, etc.) and implement other strategies to expedite the construction, at no additional cost to the project.

The Contract time for completing the Contract work is ***120 Calendar Days.*** Contract time commences on the date of the Notice to Proceed. "Calendar Day" is defined by CDOT Standard Specifications, paragraph 101.09. Determination and extension of contract time shall be as specified by paragraph 108.08 of CDOT Standard Specifications.

The Substantial Completion for the Work shall occur within 110 calendar days following issuance of the Notice to Proceed. Substantial Completion is defined as completion and acceptance of: removals, embankment, storm sewer system and box culvert replacement, curb and gutter, curb ramps sidewalk, slope grading, and asphalt (bottom mat). The project shall be considered substantially complete when, as determined by the Engineer, the Contractor has completed his work.

The liquidated damages amount will be per paragraph 108.09 of the CDOT Standard Specifications. Liquidated damages are based on additional costs to the City of Evans for delay of project completion and are not a "late penalty".

Listed below are the anticipated number 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)

When the Contractor considers the entire work ready for its intended use, he shall notify the Project Manager in writing and request that the Project Manager issue the Notice of Substantial Completion. Within a reasonable amount of time, the City, CDOT, and other stakeholders shall make an inspection of the work to determine the status of completion. If the work is substantially complete, the Project Manager will issue the Notice of Substantial Completion and attach a -punch list of items to be completed or corrected prior to final payment. Work items that are outside of the pavement limits and don't require lane closure(s) or other disruption to traffic may be performed after the substantial completion date.

Failure by the Contractor to complete the work on time will result in daily charges for liquidated damages. Liquidated damages will be assessed per Section 108.09 of the Colorado Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition. Contract time may be adjusted only through Change Order. Any requests for extension of time due to conditions outside the Contractor's control shall be made in writing to the Project Manager within 48 hours of the cause of delay. The Project Manager shall respond in writing within 48 hours of receiving the Contractor's request.

WORK HOURS

The Contractor is limited to working from 7 AM to 5 PM, Monday through Friday. If the Contractor chooses to work outside the normal business day/hours, then there will be a deduction from the final pay estimate to cover additional inspection costs. For one inspector working overtime on a job, the estimated cost to the City is $65.00/hr. Should any outside consultants be used for testing or inspections, their hourly rates will be charged to the Contractor and overtime will be included, if charged by the consultant. The amount deducted from the project will be the actual amount incurred by the City.

No work shall be permitted on weekends or holidays without written permission from the Project Manager. If the Contractor wants to work on the weekend they will need to submit a request to the Project Manager 24 hours prior to the request date.

Hours of operation for construction of the signal and “changeover” of the signal from the span wire to the mast arm shall be restricted to the weekends, as to not interfere with access on a school day for the nearby school (and no down time for pedestrian signal operations). The signal design is such that it can be built outside of the existing strain poles and span wire which should help the contractor.

END OF SECTION REVISION

REVISION OF SECTION 109 – MEASUREMENT AND PAYMENT

Section 109 of the Standard Specifications is hereby revised for this project as follows:

Subsection 109.02 shall include the following:

The City will not pay for defective work and will not pay for repair or additional work required to bring the project to a point of acceptance. Where the Standard Specifications call for a possible reduced price adjustment, such adjustments shall be at the sole discretion of the City of Evans. The City may require such items of work to be removed and replaced.

Bid prices shall include all costs in connection with the proper and successful completion of the Work, including furnishing all materials, equipment and tools; and performing all labor and supervision to fully complete the Work. All work not specifically set forth as a pay item in the Bid Schedule shall be considered a subsidiary obligation of the Contractor and all costs in connection therewith shall be included in the prices bid for the various items of work. Total Bid Prices shall be interpreted to cover all Work required by the Contract Documents.

END OF SECTION REVISION

REVISION OF SECTION 201 – CLEARING AND GRUBBING

Section 201 of the Standard Specifications is hereby revised for this project as follows:

Subsection 201.01 is hereby revised to include the following:

This work includes removal and disposal of existing landscape boulders, trees, stumps, shrubs, vegetation, trash and any other items necessary to complete the improvements within the limits of the right-of-way, easement areas, and other areas shown in the contract or required by the work. These items shall be removed and disposed of by the Contractor during construction and prior to final acceptance of the project.

The Contractor shall contact the City of Evans prior to any pruning trees and shrubs the will be necessary for the construction of the roadway.

Subsection 201.02 is hereby revised to include the following:

The Contractor may not dispose of clearing and grubbing materials on the project site. All unsuitable materials generated by clearing and grubbing operations shall be legally disposed of off the project site.

The Contractor shall coordinate the limits of work with the Engineer prior to commencing clearing and grubbing.

The Contractor shall remove and dispose of all visible abandoned utility appurtenances that are located within the work area or right-of-way and abandoned as a result of this project. These items shall not be disposed of within the project limits. Removal of utility appurtenances shall not be measured and paid for separately, but shall be included in the work for Item 201, Clearing and Grubbing. Refer to the Utility Special Provision for more information.

Subsection 201.02, delete the third paragraph and replace with the following:

The limits of clearing and grubbing shall be confined to the limits of work. Areas of protection shall be established by the Engineer prior to construction. All trees, shrubs, plants, grasses and other vegetative materials within those areas of protection shall remain, except as designated by the Engineer.

If noxious weeds are found before grading, areas to be disturbed shall be pre-treated with either an approved herbicide or mowing before grading.

Clearing and grubbing shall include the pruning of all trees that will remain within the final right-of-way. Pruning of trees shall include removal of all branches that conflict with construction of the proposed improvements and all dead branches.

Avoid the unnecessary removal of trees or shrubs; for example, prune the aerial portions of trees and shrubs that hang over a project area and interfere with equipment.

Migratory birds, as well as their eggs and nests, are protected under the Migratory Bird Treaty Act (MBTA). The active nesting season for most migratory bird species in Colorado is between April 1 and August 31. To avoid a violation of the MBTA, conduct habitat-disturbing activities (tree removal, clearing and grubbing, etc.) in the non-breeding season (September 1 to March 31). Clearing and grubbing of vegetation that may disturb ground nesting birds shall be completed before birds begin to nest or after the young have fledged. If work activities are planned between April 1 and August 31, vegetation shall be removed and/or trimmed to a height of six (6) inches or less prior to April 1. Once vegetation has been removed and/or trimmed, appropriate measures, i.e. repeated mowing/trimming, shall be implemented to assure vegetation does not grow more than six (6) inches. Failure to maintain vegetation height of six (6) inches or less may postpone project construction.

Once all clearing and grubbing is completed and approved, no additional clearing shall be allowed unless approved, in writing, by the Engineer.

Subsection 201.04 shall include the following:

Payment for clearing and grubbing shall be on a lump sum basis and shall include but not limited to the removal and disposal of trees, stumps, shrubs, trash, landscape boulders and protruding objects designated for removal within the project limits by the Engineer.

Payment will be made under:

Pay Item	Pay Unit
Clearing and Grubbing	Lump Sum

END OF SECTION REVISION

REVISION OF SECTION 202 – REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.01 is hereby revised to include the following:

This work includes the removal of items listed on the plans, as directed by the Engineer, or any other items necessary to complete the improvements within the limits of the right-of-way, easement areas, and other areas shown in the contract or required by the work. These items shall be removed and disposed of by the Contractor during construction unless otherwise noted and prior to final acceptance of the project.

The Contractor shall coordinate closely with the property owner prior to removing the ornamental brick posts. Owner may want to salvage the brick and concrete name plates mounted in the posts.

The Contractor shall coordinate with the property owners prior to demolishing any fences to address livestock needs and containment.

Subsection 202.02 is hereby revised to include the following:

Stumps in excavation areas shall be completely removed by heavy equipment during excavation. Stumps within areas that will have embankment, aggregate base course, concrete or pipe placed shall be removed down to a point at least 2 feet below the subgrade or embankment slope elevation. Holes created by stump removal shall be backfilled with suitable material compacted according to specifications and paid for as part of unit cost for stump removal. Stump grinding will not be allowed unless removal by other methods is deemed infeasible and it is directed by the Engineer.

The removal of pavement markings shall be done with water or sand blasting or other approved method by the City of Evans Project Engineer. Grinding of pavement markings will not be an acceptable method for removing existing pavement markings.

Subsection 202.02 delete the seventh paragraph and replace with the following:

The existing asphalt mat shall be removed in a manner that minimizes contamination of the removed asphalt with underlying material. The removed mat shall become the property of the Contractor unless the Contractor reclaims the asphalt pavement with a bomag machine or similar, than the City of Evans shall keep the reclaimed material. The Contractor shall be responsible for delivering the product to the City of Evans Operations Complex. Once the Contractor dumps the reclaimed asphalt material at the Operations Complex, City of Evans personnel will compile the material into the bins.

METHOD OF MEASUREMENT

Subsection 202.11 is hereby revised to include the following:

Removal of Structure is measured by the actual structure removed. This removal of structural shall include all removal work necessary to prepare the site for the construction of the new box culvert. This includes but not limited to the removal of guardrail, riprap, delineators, corrugated metal pipe, and reinforced concrete.

Removal of Tree Stump will be measured by the actual number of tree stumps removed. Removing, stockpiling and hauling off the stumps, suitable backfill material, and placing and compacting the suitable backfill material will not be paid for separately but included in the cost to remove the tree stump.

Removal of End Section will be measured by the actual number of end sections removed. This will include all

removal work necessary to prepare the site for construction of the new storm system and roadway. The removal of riprap and grates will not be paid for separately but include in the cost to remove the end section.

Removal of Ground Sign will be measured for the actual number of ground signs removed. The sign post and concrete bases for the ground signs will not be paid for separately but included in the cost to remove each ground sign.

Removal of Traffic Signal Equipment will be measured and paid for as a lump sum item. This includes removing all traffic signal equipment as detail on the plans and preparing site for the installation and resetting of new traffic signal equipment and overhead signing. The Contractor shall remove concrete caisson to 3 feet depth below grade and backfill with soil to grade. All existing equipment that is removed shall be salvaged for reuse by the City of Evans. As part of the cost for the removal of traffic signal equipment, the Contractor shall be responsible for delivering the salvaged equipment back to the City of Evans Operations Complex for reuse.

BASIS OF PAYMENT

Subsection 202.12: The accepted quantities measured as provided above will be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule.

Payment will be made under:

Pay Item:	**Pay Unit**
Removal of Gravel Drive	SY
Removal of Ornamental Brick Post	EA
Removal of Structure (Ashcroft Draw)	EA
Removal of Tree Stump	EA
Removal of Manhole	EA
Removal of Pipe	LF
Removal of End Section	EA
Removal of Sidewalk	SY
Removal of Asphalt Mat	SY
Removal of Pavement Marking	SF
Removal of Ground Sign	EA
Removal of Traffic Signal Equipment	LS
Removal of Fence	LF

Saw cutting required to complete any removal is incidental to the work and will not be measured or paid separately. Work shall include all materials, equipment, labor and disposal of materials required to complete the work.

END OF SECTION REVISION

REVISION OF SECTION 203 - EXCAVATION AND EMBANKMENT

Section 203 of the Standard Specifications is hereby revised for this project as follows:

Subsection 203.01 shall include the following:

The Contractor shall comply with all requirements of the soils report prepared by Earth Engineering Consultants, LLC September 10, 2015 in Appendix A.

Subsection 203.02 shall include the following:

(f) *Potholing*
Potholing of utilities, as required, shall be conducted by the Contractor to determine the location, depth, size and material composition of utility lines, and potential conflict(s) with the work. Contractor shall review the plans and determine the necessary pothole requirements to complete the work as specified, prior to determining bid price. Potholing will be paid for as lump sum and no additional payment will be made for utility potholing.

Where required, concrete pavement removed during potholing operations shall be replaced with Class B concrete in accordance with Revision of Section 412 of the Special Provisions and Section 412 of the Standard Specifications.

Subsection 203.05, (g) *Potholing*, add the following to the second paragraph:

Records of the potholed utilities shall be surveyed and submitted to the Engineer.

Subsection 203.07 shall include the following:

Subgrade Moisture and Density Treatment shall meet the compaction and moisture requirements in Revision of Section 306 of the Special Provisions and Section 306 of the Standard Specifications.

In Subsection 203.09, 3rd Paragraph, delete the 2nd sentence and replace with the following:

In areas that are observed to have soft spots in the subgrade, where deflection is not uniform or is excessive, as determined by the Engineer, the Contractor shall perform one of the following two methods for stabilization of the subgrade. The method will be determined by the Engineer.

(a) The area shall be ripped, scarified, dried or wetted as necessary and re-compacted to the requirements for density and moisture to the contract depth, at the Contractor's expense.

(b) The area shall be removed to the depth indicated by the Engineer and replaced with Class 6 aggregate base course. Class 6 aggregate base course shall meet the requirements of Section 304 of the Standard specifications and Revision of Section 304 of the Special Provisions.

Subsection 203.13 shall include the following:

The earthwork quantities include only that material excavated or placed as fill to construct the improvements to subgrade elevation.

(B) *Embankment*
Quantities of earthwork associated with Embankment Material (Complete in Place) will not be measured in place, but shall be paid for at the quantity shown in the bid schedule. See Tabulation of Earthwork.

(d) *Potholing*
Potholing will be paid for as lump sum.

Section 203.14 shall be revised to include the following:

Payment will be made under:

Pay Item	Pay Unit
Embankment Material (Complete in Place)	Cubic Yard
Muck Excavation	Cubic Yard
Potholing	Lump Sum

END OF SECTION REVISION

REVISION OF SECTION 207 – TOPSOIL

Section 207 of the Standard Specifications is hereby revised for this project as follows:

Section 207.01 shall include the following:

This work consists of stripping, stockpiling, placing and importing as necessary suitable topsoil to place on designated areas. It shall include the placing of topsoil upon constructed cut and fill slopes after grading operations are completed and in accordance with the City of Evans Lawn and Grass Specifications. See Tabulation of Earthwork.

MATERIALS

207.02 Topsoil material shall be in accordance with the City of Evans Lawn and Grass Specifications.

CONSTRUCTION REQUIREMENTS

Subsection 207.03 shall include the following:

Topsoil meeting project specifications shall be placed by the Contractor in seeded areas to a finished depth of 4 inches to be measured from proposed finish grades in seeded areas.

The Contractor is responsible for the following activities:

i) Protecting finish grade areas and regrading to correct irregularities caused by hauling materials or other construction activity over finish grade areas. The Contractor shall replenish planting areas found deficient of topsoil.

ii) Repairing erosion or other damage resulting from weathering action before final acceptance.

Finish grading shall conform to the grade elevations as shown on the approved engineered grading plans and shall be free of debris and other materials that would be detrimental to the plantings. Settling of finish grade shall not be more than 0.10 feet; if settling is greater, the Contractor shall bring the grade to specified elevations by addition of topsoil.

BASIS OF PAYMENT

Subsection 207.05 shall include the following:

Payment will be made under:

Pay Item	Unit
Topsoil	Cubic Yard

Importing topsoil from other sources and testing cost associated with this topsoil will not be measured and paid for separately, but shall be included in the work. Stockpile Topsoil will not be paid for separately, but shall be included in the work.

The addition of manure or soil amendments needed to bring the topsoil into conformance with the specifications will be measured and paid for in accordance with 212 Soil Conditioning.

END OF SECTION REVISION

REVISION OF SECTION 208 - EROSION CONTROL AND PERMANENT WATER QUALITY BMP

Section 208 of the Standard Specifications is hereby revised for this project as follows:

Any "vehicle tracking pad" references within Section 208 shall have the same meaning as "stabilized construction entrance".

Subsection 208.03 shall include the following:

Erosion and sediment control measures shall be constructed at the locations shown in the Contract Drawings and in accordance with the plan and erosion control details (CDOT Standard Plan No. M-208-1). As the work progresses, the location and amount of erosion and sediment control installations may increase or decrease depending on specific site conditions and weather conditions.

The full extent of erosion and sediment control installations will be determined on an as needed basis. Installations will be reviewed by the Contractor on a daily basis. The effectiveness of installations will be discussed at the construction progress meetings and revisions made accordingly.

Replace the last paragraph of Subsection 208.04(e) 1 with the following:

No direct payment will be made for temporary stabilization. This work shall be considered subsidiary to the project.

Delete paragraphs 6, 7 & 9 of Subsection 208.11 and replace with the following:

Removal of trash will not be measured but shall be conducted each day the construction activities are being performed. Any items not identified but needed to remain in compliance with the SWMP will be considered incidental and not paid for separately.

Erosion Control Supervisor will be measured by the total number of authorized 24 hour days used for erosion control services specific to this project. An authorized 24 hour day of ECS will be every calendar day that the ECS is required to be on the project performing the duties outlined in subsection 208.03(c). The Contractor shall record the tasks that were performed by the Erosion Control Supervisor. The records shall be submitted to the Engineer, weekly, after completion of the work, for approval and acceptance.

Vehicle Tracking Pad will be measured by the actual number constructed and accepted.

Revise Subsection 208.12 to include the following:

208.12 Erosion Control Supervisor and BMPs will be paid for at the Contract unit price for each of the items listed below that appear in the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
Erosion Log Type 1 (12 Inch)	Linear Foot
Aggregate Bag	Linear Foot
Concrete Washout Structure	Each
Storm Drain Inlet Protection (Type I)	Linear Foot
Vehicle Tracking Pad	Each
Erosion Control Supervisor	Hour

Payment for each BMP item will be full compensation for all work and materials required to furnish, install, maintain, remove, and dispose of it.

Payment for *Concrete Washout Structure*, whether constructed or prefabricated, will be full compensation for all work and materials required to install, maintain, and remove the item. This includes, but is not limited to: excavation, embankment, liner, erosion bales, fencing, signing, and containment and disposal of concrete washout

and all other associated waste material.

Payment for *Vehicle Tracking Pad* will be full compensation for all work, materials and equipment required to construct, maintain, and remove the entrance upon completion of the work. Aggregate and geotextile will not be measured and paid for separately, but shall be included in the work.

Payment for *Erosion Control Supervisor* will be full compensation for the erosion control supervisor and all materials and equipment necessary for the ECS to perform the work. The ECS's commute time will not be measured and paid for separately, but shall be included in the work.

Seeding will be measured and paid for in accordance with Sections 212. Soil Retention Blanket will be measured and paid for in accordance with Sections 216.

Surveying of permanent BMPS will not be measured and paid for separately. All work and materials required to perform the permanent BMP survey and furnish the three electronic files shall be included in the original unit price bid for surveying. Surveying will be measured and paid for in accordance with Section 625.

Work performed to install measures for the control of erosion and sedimentation, and water pollution, for which there is no bid item originally included in the Contract will be considered extra work in accordance with subsection 104.03.

Temporary erosion and pollution control measures required due to the Contractor’s negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or ordered by the Engineer or for the Contractor's convenience, shall be performed at the Contractor’s expense.

If the Contractor fails to complete construction within the approved contract time, payment will not be made for Section 208 pay items for the period of time after expiration of the approved contract time. These items shall be provided at the Contractor's expense.

END OF SECTION REVISION

REVISION OF SECTION 210 - RESET STRUCTURES

Section 210 of the Standard Specifications is hereby revised for this project as follows:

Subsection 210.02 shall include the following:
The work includes temporarily reconfiguring the existing traffic signal during each phase of construction, resetting fire hydrant, resetting traffic signal equipment, modifying irrigation system, adjusting manholes, and adjusting valve boxes to the proper finished grade as shown on the plans and conforming to the City of Evans Construction Standards.

Subsection 210.10 shall include the following:
Adjust Manhole and Valve Box
This work shall consist of adjusting all frames; manhole rings or valve boxes as indicated on the drawings or as designated by the Project manager. Adjustment of manholes and valve boxes shall be in accordance to the City of Evans Construction Details and Specifications.

In the event that the existing valve box assembly is defective due to damage caused by the Contractor, the valve box assembly shall be replaced at the Contractor's expense.

Subsection 210.12 shall include the following:

Temporary Reconfigure of Existing Traffic Signal for Phased Construction
Shall include all the work necessary to temporarily reconfigure the existing traffic signal heads to line up with proposed traffic lanes during each phase of the construction.

Resetting Fire Hydrant
Shall include all the work necessary to remove the fire hydrant from its existing location and move it to its new location. The resetting shall include all mounting hardware, pipe, appurtenances, thrust block, and all other work necessary to complete the reset.

Modify Irrigation System
Shall include all the work necessary to modify the recently installed irrigation system that was completed as part of the Greeley 65th Avenue Improvement Project. Contractor shall remove portions of this irrigation system and modify types of sprinkler heads and locations to continue irrigation in the sod area that is between the back of curb and sidewalk. This irrigation modification shall include all sprinkler heads, valves, hardware, pipe, appurtenances, thrust block, sod, bedding material, topsoil and all other work necessary to have this area completed with irrigated Buffalo Grass Sod.

Subsection 210.13 shall include the following:
Payment will be made under:

Pay Item	Pay Unit
Temporary Reconfigure of Ex Traffic Signal for Phased Construction	Lump Sum
Reset Fire Hydrant	Each
Modify Irrigation System	Lump Sum
Reset Luminaire	
Reset Sign Panel	Each
Reset Pull Box	Each
Reset Traffic Signal Head	Each
Reset Pedestrian Push Button	Each
Reset Pedestrian Signal Head	Each
Reset Fire Preemption Unit	Each
Reset Intersection Detection System (Camera)	Each
Adjust Manhole	Each
Adjust Valve Box	Each

END OF SECTION REVISION

REVISION OF SECTION 212 - SEEDING, FERTILIZER, SOIL CONDITIONER, AND SODDING

Section 212 of the Standard Specifications is hereby revised for this project as follows:

DESCRIPTION

212.01 This work consists of soil preparation, application of fertilizer, soil conditioners, or both, and furnishing and placing seed. The work shall be in accordance with the City of Evans Lawn and Grass Specifications, the Contract and accepted horticultural practices.

METHOD OF MEASUREMENT

212.07 shall be revised as follows:

Native seeding will not be measured but shall be the quantities designated in the Contract, except that measurements will be made for revisions requested by the Engineer, or for discrepancies of plus or minus five percent of the total quantity designated in the Contract. The quantity of native seeding shall include delivery of material, soil preparation and seed applied, completed, and accepted.

Soil conditioning will not be measured but shall be the quantities designated in the Contract, except that measurements will be made for revisions requested by the Engineer, or for discrepancies of plus or minus five percent of the total quantity designated in the Contract. The quantity of soil conditioning shall include delivery of material, soil preparation, fertilizer, soil conditioner, and spreading at the application rate accepted.

The Contractor shall furnish the Engineer with seed certifications and analysis, fertilizer analysis, and bag weight tickets prior to placing any seed or fertilizer.

Seed or fertilizer placed by the Contractor without the Engineer's approval will not be paid for.

Measurement for acres will be by slope distances.

BASIS OF PAYMENT

212.08 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Seeding (Native)	Acre
Soil Conditioning	Acre

Soil preparation, water, seed, and fertilizer, incorporated into the seeding or soil conditioning will not be paid for separately but shall be included in the work.

Payment for Soil Conditioning (compost) includes delivery of material to the project site, mixing and spreading at the application specified rates, and incorporation into the areas to be seeded as indicated on the drawings.

Adjusting or readjusting seeding or fertilizing equipment will not be paid for separately but shall be included in the work.

END OF SECTION REVISION

REVISION OF SECTION 214 – PLANTING

Section 214 of the Standard Specifications is hereby revised for this project as follows:

Subsection 214.01 shall be revised as follows:

This work consists of furnishing and planting willow cuttings and dormant log cuttings in Ashcroft Draw as shown on plans and as directed by the Engineer.

Subsection 214.02 shall include the following:

Dormant Log Cuttings. Recommend Peachleaf Willow as the dormant log cuttings and shall be 3 to 4 inch caliper at breast height.

Subsection 214.05 shall include the following:

Guy, webbing, tree stakes, protective caps and PVC pipe sleeve and wrap for trees, will not be measured and paid for separately but shall be included in the work.

Subsection 214.06 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Willow Cuttings	Each
Dormant Log Cuttings	Each

END OF SECTION REVISION

REVISION OF SECTION 216 – SOIL RETENTION COVERING

Section 216 of the Standard Specifications is hereby revised for this project as follows:

Subsection 216.01 shall be revised as follows:

This work consists of furnishing, preparing, applying, placing and securing the soil retention blanket in areas as shown on plans and as directed by the Engineer. The type, manufacture, and installation method for this soil retention blanket will be approved by the City of Evans Project Engineer.

Subsection 216.0 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Soil Retention Blanket (Straw-Coconut) (Biodegradable Class 1)	SY

END OF SECTION REVISION

REVISION OF SECTION 304 – AGGREGATE BASE COURSE

Section 304 of the Standard Specifications is hereby revised for this project as follows:

Subsection 304.01 Add the following:

This work consists of furnishing and placing one or more courses of aggregate and additives, if required on prepared subgrade, underneath curb and gutter, beneath median cover material, and/or between the box culvert and proposed roadway pavement section as shown on the plans or as directed by the engineer.

METHOD OF PAYMENT

Subsection 304.07 Add the following:

Aggregate Base Course will be measured by the Ton compacted in place on prepared subgrade, placed underneath curb and gutter, and beneath the median cover material. In full depth reconstruction areas of the roadway assume 9 inches of ABC. Under median cover material assume 8 inches of ABC.

Aggregate base Course will be measured by the Cubic Yard compacted in place for material required between the box culvert and the proposed roadway pavement section. See Structural Plans for details.

BASIS OF PAYMENT

Subsection 304.08 Add the following:

Payment will be made under:

Pay Item	Pay Unit
Aggregate Base Course (Class 6)	Ton
Aggregate Base Course (Class 6)	Cubic Yard

END OF SECTION REVISION

REVISION OF SECTION 403 - HOT MIX ASPHALT

Section 403 of the Standard Specifications is hereby revised for this project as follows:

Subsection 403.02 shall include the following:

The design mix for hot mix asphalt shall conform to the following:

Table 403-1

Property	Test Method	Value For Grading		
		S (75)		
Air Voids, percent at: N (design)	CPL 5115	3.5-4.5		
Lab Compaction (Revolutions): N (design)	CPL 5115	75		
Stability, minimum	CPL 5106	28		
Aggregate Retained on the 4.75 mm (No. 4) Sieve with at least 2 Mechanically Induced fractured faces, % minimum	CP 45	90 (80 for SG)		
Accelerated Moisture Susceptibility Tensile Strength Ratio (Lottman), minimum	CPL 5109 Method B	80		
Minimum Dry Split Tensile Strength, kPa (psi)	CPL 5109 Method B	205 (30)		
Grade of Asphalt Cement, Top Layer		PG 64-28		
Grade of Asphalt Cement, Layers below Top		PG 64-28		
Voids in the Mineral Aggregate (VMA) % minimum	CP 48	14-18%		
Voids Filled with Asphalt (VFA), %	AI MS-2	65 – 75		
Dust to Asphalt Ratio Fine Gradation Coarse Gradation	CP 50	0.6-1.2		

Note: AI MS-2 = Asphalt Institute Manual Series 2
Note: The current version of CPL 5115 is available from the Region Materials Engineer.
Note: Mixes with gradations having less than 40% passing the 4.75 mm (No. 4) sieve shall be approached with caution because of constructability problems.
Note: Gradations for mixes with a nominal maximum aggregate size of one-inch or larger are considered a coarse gradation if they pass below the maximum density line at the #4 screen.
Gradations for mixes with a nominal maximum aggregate size of ¾ inch or smaller are considered a coarse gradation if they pass below the maximum density line at the #8 screen.

All mix designs shall be run with a gyratory compaction angle of 1.25 degrees and properties must satisfy Table 403-1. Form 43 will establish construction targets for Asphalt Cement and all mix properties at Air Voids up to 1.0 percent below the mix design optimum.

Table 403-2

Minimum Voids in the Mineral Aggregate (VMA)			
Nominal Maximum Size*, mm (inches)	*****Design Air Voids ****		
	3.5%	**4.0%**	**4.5%**
37.5 (1½)	11.5	12.0	12.5
25.0 (1)	12.5	13.0	13.5
19.0 (¾)	13.5	14.0	14.5
12.5 (½)	14.5	15.0	15.5
9.5 (⅜)	15.5	16.0	16.5

* The Nominal Maximum Size is defined as one sieve larger than the first sieve to retain more than 10%.
** Interpolate specified VMA values for design air voids between those listed.
*** Extrapolate specified VMA values for production air voids beyond those listed.

The Contractor shall prepare a quality control plan outlining the steps taken to minimize segregation of HMA. This plan shall be submitted to the Engineer and approved prior to beginning the paving operations. When the Engineer determines that segregation is unacceptable, the paving shall stop and the cause of segregation shall be corrected before paving operations will be allowed to resume.

Hot mix asphalt for patching shall conform to the gradation requirements for Hot Mix Asphalt (Grading S). A minimum of 1 percent hydrated lime by weight of the combined aggregate shall be added to the aggregate for all hot mix asphalt.

Subsection 403.03 shall include the following:

The Contractor shall construct the work such that all roadway pavement placed prior to the time paving operations end for the year, shall be completed to the full thickness required by the plans. The Contractor's Progress Schedule shall show the methods to be used to comply with this requirement.

Subsection 403.04 shall include the following:

For full depth reconstruction areas the pavement section shall be:
6 1/2” of HMA (Grade S) (75) (PG 64-28)

Delete subsection 403.05 and replace with the following:

403.05 The accepted quantities of hot mix asphalt will be paid for in accordance with subsection 401.22, at the contract unit price per ton for the bituminous mixture.

Payment will be made under:

Pay Item	**Pay Unit**
Hot Mix Asphalt (Grade S) (75) (PG 64-28)	Ton

Aggregate, asphalt recycling agent, additives, hydrated lime, and all other work necessary to complete each hot mix asphalt item will not be paid for separately, but shall be included in the unit price bid. The pay item includes

the PG binder grade, the asphalt cement will not be measured and paid for separately, but shall be included in the work.

Excavation, preparation, and tack coat of areas to be patched will not be measured and paid for separately, but shall be included in the work.

Emulsified asphalt for prime and tack coats will not be measured and paid for separately, but shall be included in the Hot Mix Asphalt pay items.

END OF SECTION REVISION

REVISION OF SECTION 412 – CONCRETE PAVEMENT

Section 412 of the Standard Specifications is hereby revised for this project as follows:

CONSTRUCTION REQUIREMENTS

Subsection 412.02 Add the following:

Conform to CDOT Class P concrete. Joints shall comply with City of Evans Construction Details and supplemented with CDOT M&S Standards. The contractor is required to prepare and submit a Joint Layout Plan and Phasing Plan for approval prior to construction.

METHOD OF PAYMENT

Subsection 412.23 Add the following:

Concrete Pavement will be measured by the square yard complete in place at the concrete driveway entrances as shown on plans. The driveway entrance shall have 6 inches of concrete pavement on compacted subgrade.

BASIS OF PAYMENT

Subsection 412.24 Add the following:

Payment will be made under:

Pay Item	Pay Unit
Concrete Pavement (6 Inch) (Driveway Entrance)	Square Yard

END OF SECTION REVISION

REVISION OF SECTION 504 – CONCRETE BLOCK FACING MSE WALL

Section 504 of the Standard Specifications is hereby revised for this project to include the following:

DESCRIPTION

504.06 This work consists of constructing a Concrete Block Facing Mechanically Stabilized Earth (MSE) Retaining Wall System at the locations and to the lines and grades shown on the plans. Either metallic or geosynthetic reinforcement (woven fabrics or geogrids) as specified in this specification may be used as MSE reinforcement in the reinforced structure backfill zone. The retained structure backfill zone is the structure backfill retained by the reinforced structure backfill zone as shown on the plans.

MATERIALS

504.07 Shop Drawings. The Contractor shall submit six sets of shop drawings and certified material test reports for review prior to construction of the wall. See subsection 504.12 for a complete list of submittal requirements. Shop drawings shall be submitted in accordance with subsection 105.02.

The shop drawings shall provide the details necessary to demonstrate compliance with the Contract, including:

(a) *Wall Layouts*. Wall layouts shall conform to the lines and grades on the plans including start, corner, and end stations, leveling pad step breaks, total number of blocks and top and bottom of wall elevations. For walls with rail anchoring slabs, the top of block elevations or the cast in place leveling course shall be within 2 inches of the elevation shown on the plans measured from the bottom of the anchoring slab. The construction batter required to achieve the batter shown on the plans shall be shown on the shop drawings. If temporary walls are required for the construction of permanent walls, the permanent wall vendor shall provide the shop drawings and certified material test reports for temporary walls.

(b) *Block Reinforcement Locations*. Unless otherwise shown on the plans, each layer of soil reinforcement shall be connected to the facial blocks. The block placement sequence, if other than bottom up and end to end of wall, shall be shown. The block to block reinforcement connections and the cut block limits at curved wall corners shall be shown.

(c) *Wall Elevations*. Except for the top of the leveling pad, wall elevations given on the plans are based on an 8 inch nominal block height. The actual reinforcement elevations shall be marked on the shop drawings by taking into account the supplied block height, number of reinforced layers, thickness of soil reinforcing and shimming material, and, for curved corners, the interposing layers of reinforcement.

(d) *Soil Reinforcement Material*. The soil reinforcement type, Minimum Average Roll Value of the Ultimate tensile strength, T_{ULT} (MARV), for geosynthetic soil reinforcement or yield strength for metallic soil reinforcement, spacing, lengths, elevations, and the corresponding wall design height segments shall be shown on the shop drawings. The starting and ending stations for change in grade of reinforcement material shall be shown for walls with different grade of reinforcement material at the same elevation. Material grade shall be clearly identified on each roll of reinforcement to avoid errors in placement. Elevations of the reinforcement layers shall be as specified on the shop drawings.

(e) *Soil Reinforcement Length (RL)*. The soil reinforcement length shall be measured from the front face of the concrete block face to the end of the soil reinforcement as measured to the last cross member. Except for secondary reinforcement, soil reinforcement lengths shall not be less than the lengths specified on the plans.

For wall segments with a Design Height (DH) greater than or equal to 8 feet, the soil reinforcement shall be the same length from top to bottom of the wall.

For wall segments with a Design Height (DH) less than 8 feet, the length of the top layer of soil reinforcement shall be 8 feet and all other layers of soil reinforcement shall be the same length from top to bottom of the wall.

Unless shown otherwise on the plans, the soil reinforcement lengths shall be as follows:

Design Height (DH)	Reinforcement Length (RL)	Reinforcement Length Top Layer
DH ≤ 6'-0"	6'-0"	8'-0"
6'-0" < DH < 8'-0"	DH	8'-0"
DH ≥ 8'-0"	0.7 x DH but not less than 8'-0"	0.7 x DH but not less than 8'-0"

The Reinforcement Lengths shown on the shop drawings shall be the reinforcement length required for internal stability and pull-out only, but they shall not be less than those shown in the table above. External Stability (bearing pressure, sliding and overturning) and global stability have already been considered and checked in the design.

(f) *Soil Reinforcement Spacing*.

1. The first (bottom) layer of soil reinforcement shall be one or two times the block height, not to exceed 16 inches, above the top of the leveling pad.

2. The last (top) layer of soil reinforcement shall be no further than three times the block height, not to exceed 24 inches, below the top of the uppermost concrete block.

3. The vertical spacing between layers of adjacent soil reinforcement shall be less than four times the block height, not to exceed 32 inches. For walls deriving their connection capacity by friction the maximum vertical spacing of the reinforcement shall be limited to two times the block depth (front face to back face), not to exceed 24 inches, to assure construction and long-term stability. For tributary strength computations, the top row of reinforcement shall be one-half the vertical spacing immediately below the top of the wall.

(g) *Long Term Design Strength (LTDS) of Reinforcement*.

1. The design charts on the plans define the strengths required for the zone of mechanical reinforcement of soil. Based on the total summed LTDS, the reinforcement proposed by the shop drawings for a specific wall height shall meet or exceed the total LTDS shown on the plans. This proposed reinforcement shall allow for a maximum of plus or minus 15 percent variation in each individual layer.

2. Metallic (Inextensible) Soil Reinforcement. The net section at the soil reinforcement to block connection shall be used for the sacrificial thickness calculation. The following minimum sacrificial thickness for reinforcement shall be applied to the 75 year LTDS calculations:

Galvanization Loss	15 µm/year for first 2 years 4 µm/year for subsequent years
Carbon steel loss	12 µm/year after zinc depletion

3. C. Geosynthetic (Extensible) Soil Reinforcement. Geosynthetic soil reinforcement shall be a geogrid or woven geotextile. For polyester (PET), polypropylene (PP), and high-density polyethylene (HDPE) reinforcement, the LTDS of material shall be determined using the following K percentages to ensure the required design life. Unless otherwise specified, LTDS shall not exceed the following K percent of its ultimate tensile strength, T_{ULT} (MARV), i.e.

LTDS = K * T_{ULT} (MARV)

(1) Geogrid reinforcement (HDPE, PET):

Products	K
Tensar	20%
Fortrac, Miragrid, Strata, Synteen and Raugrid	24%

(2) All products not listed above:

Products	K
All geogrid or woven geotextile products meeting AASHTO Standard Specifications for Highway Bridges, 16th Edition	10%
Products not meeting AASHTO Standard Specifications for Highway Bridges, 16th Edition including Non-woven geotextile products	5%

(h) *Design Heights and Supplied Reinforcing Material*. Unless otherwise defined on the plans, the wall design height shall be measured vertically from the top of the leveling pad to the top of the concrete rail anchoring slab for walls with railing, or to the top of the cast-in-place concrete coping for walls without railing. For walls that are in front of a bridge abutment that is founded on a deep foundation, the design height used to determine the soil reinforcement length shall be measured vertically from the top of the leveling pad to the top of the roadway carried by the bridge and the wall. Bridge approach slabs shall not be considered in the design of the MSE wall.

For both geosynthetic and metallic reinforcement, the required reinforcement LTDS and the supplied LTDS (determined in accordance with the K factors or depletion of material as defined above) with corresponding brand and grade of material shall be marked clearly on the elevation view or in a tabulation summary. The LTDS of the supplied reinforcement grade must meet or exceed the required LTDS corresponding to the reinforcement spacing provided.

(i) *Tiered Walls*. For the reinforcement layouts of tiered walls, the overall geometry, the reinforcement length and the sum of the LTDS provided from all layers in all tiers shall be in close conformity with the retaining wall system shown on the plans in order to ensure that local, global, and internal stability requirements have been met.

(j) *Obstructions*. Details for the placement of soil reinforcement around obstructions (i.e. steel piles, concrete piers, concrete boxes, pipes, etc.) shall be shown on the shop drawings. Design calculations shall be provided showing that the internal stability of the wall meets the required safety factors in the area of the obstruction.

(k) *Table of Quantities*. A table comparing the Structural Backfill (Class 1), Mechanical Reinforcement of Soil, Geomembrane, and Block Facing quantities shown on the plans to the quantities shown in the shop drawings and percent difference (positive percent indicates an increase in shop drawing quantities from the plans) shall be shown on the shop drawings. Structure Backfill (Class 1), Mechanical Reinforcement of Soil, Geomembrane, and Block Facing quantities shall be calculated in accordance with the Contract. The Contractor shall notify the Engineer of the difference in plan and shop drawing quantities before wall

construction begins.

(l) *Placement Schedule*. Geomembrane placement schedule and clearances to soil reinforcements shall be shown.

(m) *Vertical Slip Joints*. Locations of stack bond blocks with vertical slip joints for differential settlement relief shall be as specified in subsection 504.19.

504.08 Backfill*.* Unless otherwise specified on the plans, wall backfill material in the reinforced structure backfill zone and the *associated* trapezoidal retained structure backfill zone shall conform to the requirements for Structure Backfill (Class 1) of Section 206. For reinforcement tensile stress and associated pullout, a friction angle of 34 degrees shall be assumed for Structure Backfill (Class 1). Structure Backfill (Class 1) shall be considered to be non-aggressive soil for corrosion and durability computations. All reinforcing elements shall be designed to ensure a minimum design life of 75 years for permanent structures.

504.09 Leveling Pad*.* Concrete for the leveling pad shall be Concrete (Class D) conforming to the requirements of Section 601. Unless specified on the plans, the maximum vertical step shall be no greater than either 24 inches or three blocks, whichever is less. The leveling pad shall be reinforced only at the steps. When the toe of the wall is founded on a slope steeper than 1.5 (H) to 1 (V), the leveling pad shall be constructed with reinforced concrete with same reinforcing schedule as at its steps. Leveling pad concrete shall be cured for at least 12 hours before placement of the concrete blocks.

504.10 Geomembrane and Joints*.* A Geomembrane shall be installed on all walls at the top of the reinforced structure backfill zone and retained structure backfill zone to intercept surface runoff and prevent salt penetration into the backfill of the wall as shown on the plans. The Geomembrane shall meet the requirements of subsection 712.08 for geomembrane, and shall have a minimum thickness of 30 mils. It shall be spliced with a dual track field seamed joint in accordance with ASTM D4437 or ASTM D7717. For small local coverage areas, less than 30 square feet, the membrane may be spliced using a 6 inch minimum overlap and an adhesive or a single seam portable thermal welding tool, as suggested by the membrane manufacturer and approved by the Engineer. Unless otherwise shown on the plans, the membrane shall have a minimum coverage length measured perpendicular to the wall face of at least the wall Design Height (DH) plus Soil Reinforcement Length (RL) plus 1.5 feet. The membrane shall be installed with a slope between 20:1 (minimum) and 10:1 (maximum), as shown on the plans, from the block facing to a drainage system located at the cut or pre-filled slope as shown on the plans.

The drainage system shall consist of a 12 inch wide Geo-Composite strip drain inserted into a slot in the Geomembrane, at 10 foot maximum spacing, that collects the water from the membrane and conveys it to a water collector system at the toe of the 1:1 slope as shown on the plans. The water collector system shall consist of a 4 inch diameter perforated collector pipe surrounded by Filter Material Class B and wrapped with Class 3 Geotextile. A 4 inch diameter non-perforated drain pipe, at 100 foot maximum spacing, shall be used to discharge the water in the water collector system out the face of the wall.

Alternatives for the drainage system shown on the plans may be used by the Contractor. A detailed layout of this equivalent water collection system shall be provided by the Contractor and approved by the Engineer.

For tiered walls, a Geomembrane shall be installed between the top of the bottom wall and the toe of the top wall as shown on the plans.

504.11 Prefabricated Concrete Facing Blocks*.* Concrete blocks including partial blocks shall conform to the requirements shown on the plans and these specifications including the color, texture, and pattern. The

Contractor shall provide certification that the results of tests performed in accordance with this subsection meet the requirements of the appropriate specification.

(a) Cementitious material shall meet the requirements of Section 701.

(b) Aggregates used in concrete blocks shall conform to ASTM C33 for normal weight concrete aggregate.

(c) The 28 day compression strength for concrete blocks shall be equal to or greater than 4500 psi. The quality of blocks shall be maintained such that the variations of the compression strengths are within 10 percent. The minimum oven dry unit weight shall be 125 pcf with a maximum water absorption rate by weight of 6 percent. Testing shall be performed in accordance with ASTM C140.

(d) All units shall be sound and free from cracks or other defects that would interfere with proper placement of the unit, or impair the strength or permanence of the construction. Cracks, chips, or color blemishes will be cause for rejection.

Any architectural or graffiti resistant treatments shall meet the requirements shown on the plans. If architectural coating is used and graffiti resistant treatments or water repellant sealer is required, the Contractor shall provide the Engineer with four sample blocks for each different color and texture prior to beginning wall construction. Water-resistant or repellant coatings shall conform to ASTM C1262.

The permissible variations in the exterior dimensions of the concrete blocks shall not differ more than plus or minus ⅛ inch, except the height of the block shall be within plus or minus $^{1}/_{16}$ inch from the specified dimensions for an individual block. The minimum thickness of any walls or webs within the block shall be on average 2.5 inches at the face and 1.5 inches and 2 inches at stem and back. The vertical edges, if applicable, shall be chamfered for splitting and precise dimensioning.

(e) The Engineer shall be allowed access to the manufacturer's facilities to inspect and sample units from lots prior to delivery with a minimum 2 working days advance notice. The Engineer will reject any concrete blocks, which do not meet the requirements of this specification. The Contractor shall notify the Engineer in writing at least 3 working days before shipment of blocks begins.

504.12 Certifications, Calculations and Testing Reports*.* The Contractor shall provide the following reports, certifications, calculations and checklists as needed to accompany the shop drawing submittal. All engineering calculations, as stated in subsections 504.07(g)2, 504.07(j), 504.07(k), 504.12(e) and 504.12(f) shall be certified and stamped by a Professional Engineer licensed in the State of Colorado.

(a) *Certification of T_{ULT} (MARV) or Ultimate Tensile Strength*. For geo-synthetic reinforced systems only, the Contractor shall submit a certification letter from the manufacturer which provides the T_{ULT} (MARV) and certifies that the T_{ULT} (MARV) of the supplied materials have been determined in accordance with ASTM D4595 or ASTM D6637 as appropriate. For metallic wall reinforcement, a mill test report containing the ultimate tensile strength for the soil reinforcement shall be included in the certification.

(b) *Report Of The Block-Reinforcement Connection Test*. The test report shall be prepared and certified by an independent laboratory. The block to reinforcement connection test method shall conform to the requirements of ASTM D6638 with a service state connection strength displacement criterion of ¾ inch or National Concrete Masonry Association (NCMA) Methods SRWU-1.

(c) *Report For Block-Block Connection Test*. An independent laboratory shall prepare the test report. The block-to-block connection test method shall conform to the requirements of NCMA Methods SRWU-2. The service state connection strength displacement criterion shall be ¾ inch.

(d) *Report For Soil To Reinforcement Interface Pullout Test*. The test report shall be prepared and certified by an independent laboratory. The soil to reinforcement interface pullout test method shall conform to the requirements of ASTM D6706. Tests shall include the full range of overburden pressures as defined by the wall design heights.

(e) *Certification of Facial Block To Reinforcement Long-Term Connection Strength*. A certification shall be provided with detailed calculations according to the latest AASHTO Standard Specification including Interim and independent laboratory test results performed in accordance with FHWA NHI-00-043, Appendix A3 to demonstrate that the facial block to reinforcement connection meets or exceeds the current AASHTO 75 year design life requirements.

(f) *Certification of Reinforcement Pullout*. A certification shall be provided with detailed calculations to demonstrate that reinforcement pullouts meet or exceed the current AASHTO requirements. The metal reinforcement breakage and pullout calculations shall include a combination of 75 years of material depletion for carbon steel and galvanization loss.

(g) *Report and Certification for Concrete Block 28 Day Compression Strength and Water Absorption Rate*. For the 28 day compressive strength test, either a full block or a saw cut coupon compressive test is acceptable to verify the 28-day concrete strength provided the sample allows the test to conform to ASTM C90. The sampling shall be done at manufacturer's casting yard and testing results shall be pre-approved before shipment. The Engineer will approve the sample selections for the coupon tests. Coupons shall be cut from the two sides or the back of block (not the front split face) with maximum two original concrete surfaces. The average compressive strength of three tests from three randomly selected blocks, with load applied in the bearing direction shall be equal to or greater than 4500 psi with the minimum of 4000 psi for individual tests in accordance with ASTM C90 and ASTM C140. For the water absorption rate test, a minimum of two coupons shall be prepared and marked for each block, one coupon for successfully conducting the supplier's tests and one spared for future Engineer's test. The spared coupons from the three tests shall be labeled and delivered to the Engineer with the certification. The minimum oven dry density of concrete coupons shall be 125 pcf with a maximum water absorption rate by weight of 6 percent as determined by ASTM C140. Coupons shall be cut from relatively the same location of each block and prepared with uniform workmanship. Each individual sample must test within 12 percent of the average of the three.

(h) *Efflorescence and Freeze and Thaw Test*. The block shall be visually efflorescence free. Efflorescence control agent shall be used in concrete mix design. An independent laboratory shall provide reports and certifications using one of the following tests in accordance with ASTM C1262 using tap water or 3 percent saline solution and ASTM C1372 as appropriate:

(1) Test results for freeze and thaw durability shall be graphed and supplied with test data points every 50 cycles up to 300 cycles to confirm that blocks with concrete additives alone can survive 150 cycles with weight loss for each of 4 of the five samples not exceeding 1.0 percent of the initial weight in a tap water solution.

(2) Test results for freeze and thaw durability shall be graphed and supplied with test data points every 25 cycles up to 100 cycles to confirm that blocks with concrete additives alone can survive 60 cycles with weight loss for each of 4 of the five samples not exceeding 1.0 percent of the initial weight in a 3 percent saline solution.

A project specific freeze and thaw durability test shall be required for walls meeting one of the following requirements:

(1) Projects with a total facing area greater than 6000 square feet, as calculated in subsection 504.25, item (1), or

(2) Projects with any wall in front of or adjacent to bridge abutments and piers.

Wall construction may begin when acceptable freeze and thaw durability test results of units made with the same material, concrete mix design, manufacturing process, and curing method, conducted not more than 12 months prior to delivery until the test results of the actual blocks used in the wall can be obtained and submitted. The test results shall be submitted within one week of being recorded. The frequency of the freeze and thaw durability test shall be a minimum of one test every 6000 square foot of facing, as calculated in subsection 504.25, item (1).

For walls not requiring a project specific freeze and thaw durability test, the Contractor shall submit a certification letter from the facing manufacturer. The certification letter shall include acceptable freeze and thaw durability test results conducted not more than 12 months prior to delivery, that meet the requirements of subsection 8 A or 8 B above. The Certification shall be for units made with the same material, concrete mix design, manufacturing process, and curing method. The Engineer shall be allowed access to the manufacturer's facilities and records to verify that the mix design used in the certified freeze and thaw durability test results is the same as the mix design used for the actual blocks used in the project.

(i) *Submittal Checklist*. The Contractor shall submit the Block Faced MSE Wall Submittal Checklist, Form 1401, with the Certifications, Calculations and Testing Report submittal package included with the shop drawing submittal.

514.13 Conditions to Waive the Block-Reinforcement Connection Testing Reports. Unless otherwise noted on the plans the Contractor's Professional Engineer seal requirement for the Facial Block to Reinforcement Long-Term Connection Strength certified test report required by subsection 504.12(e) may be waived if the following conditions are met:

(1) Every block shall be connected by friction with either a main or a secondary reinforcement starting at 2 inches maximum from the front face of block.

(2) The spacing for main reinforcement is two blocks maximum or 16 inches, whichever is less.

(3) The secondary reinforcement shall be applied in between the main reinforcement. The same grade of material as used for main reinforcement shall be used for the secondary reinforcement: however only a minimum of 36 inches total length measured from the face of block is required.

(4) Aggregate filled cells shall be filled with ¼ inch aggregate. In lieu of aggregate filled cells, the cells in the top four blocks of the wall shall be doweled with steel or fiberglass bars and grouted with cement. Punched or poked holes through fabric reinforcement are allowed to accommodate grout and dowel bars.

504.14 Hybrid MSE Wall Systems.

A hybrid system is one which combines elements of both externally and internally stabilized systems.

An externally stabilized system uses a physical structure to hold the retained soil. The stabilizing forces of this system are mobilized either through the weight of a shape stable structure or through the restraints provided by the embedment of wall into the soil, if needed, plus the tieback forces of anchorages.

An internally stabilized system involves reinforced soils to retain fills and sustain loads. Reinforcement may be added to either the selected fills as earth walls or to the retained earth directly to form a more coherent stable slope. These reinforcements can either be layered reinforcements installed during the bottom-to-top construction of selected fills, or be driven piles or drilled caissons built into the retained soil. All this reinforcement must be oriented properly and extend beyond the potential failure mass.

Hybrid MSE wall systems may be used unless otherwise noted on the plans. Hybrid MSE wall systems are subject to the same design requirements for MSE walls and this specification. The shop drawings for Hybrid MSE wall system shall include a combination of design calculations and appropriate test results to demonstrate that it meets or exceeds the block facing system. Each unit in the hybrid MSE wall system shall have a facing area of 3.5 square feet and be stabilized by a counterfort. Hybrid MSE wall facing units shall be factory made with Class B Concrete with the following additional requirements:

(1) Minimum Cementitious Material Content: 610 lb./cu. yd.
(2) No more than 50 percent fine aggregate (AASHTO M6) by volume of total aggregate.
(3) Ambient temperature shall be a minimum of 40° F and rising when casting.
(4) Hybrid MSE wall facing shall be cured in accordance with AASHTO M170.

The following Certifications, Calculations and Testing Reports in subsection 504.12(c), (e), (g), and (h) are not required for Hybrid MSE wall systems. The facing to soil reinforcement connection test, subsection 504.12(b), may be waived only if the soil reinforcing spacing is less than or equal to 8 inches or the facing is secured and stabilized by hybrid components with primary reinforcement spacing less than 24 inches. The Contractor shall provide the following additional reports, certifications and calculations to accompany the shop drawing submittal for Hybrid MSE wall systems:

The Contractor shall submit the Block Faced MSE Wall Submittal Checklist, Form 1401, and the Panel Faced MSE Wall Submittal Checklist, Form 1402, with the Certifications, Calculations and Testing Report submittal package included with the shop drawing submittal.

CONSTRUCTION REQUIREMENTS

504.15 Approval and Qualifications of MSE Wall Installer. The job site wall foreman shall have experience in construction of at least five transportation related MSE walls within the last three years. Transportation related MSE walls are walls that carry or are adjacent to vehicular traffic and are constructed with MSE reinforcement in the reinforced structure backfill zone. The foreman must have prior experience or adequate training on the products that the Contractor elects to use on the project. The resume and credentials of the foreman shall be submitted to the Engineer for approval prior to the pre-construction meeting. The foreman shall be on the site for 100 percent of the time during which the wall is being constructed.

504.16 Wall Test Segment. The wall test segment shall be the first segment of the wall constructed. The wall test segment shall be constructed in the presence of the Technical Representative and the Engineer and shall include construction of each of the 5 elements listed in subsection 504.17. The minimum length of the wall test segment shall be 40 feet or the full length of the wall if less than 40 feet. A wall test segment shall be constructed for the first wall constructed from each wall product used on the project.

504.17 Technical Representative of Wall Product Supplier. The Contractor shall arrange for a technical representative (Tech Rep) of the manufacturer of the wall products to be present during the construction of each wall test segment. If the wall products are supplied from different manufactures, a Tech Rep from each wall product shall be present. The Tech Rep shall be present for construction of the wall test segment and each of the following elements:

(1) Placement of a minimum of the first two layers of primary soil reinforcement and backfill,

(2) If obstructions (i.e. steel piles, concrete piers/abutments, concrete boxes, pipes, etc.) exist, placement of primary soil reinforcement and backfill at one of the obstructions,

(3) Placement of a minimum of the first six courses of blocks or a minimum of a four foot wall height,

(4) If a vertical slip joint is required, construction of the vertical slip joint in a minimum of a six course portion of block or a minimum of a four foot wall height, and

(5) If corners are required, construction of a corner representative of the corners in the wall in the project in a minimum of a six course portion of block or a minimum of a four foot wall height..

Before construction of the wall test segment the Tech Rep shall provide the Contractor and the Engineer the following:

(1) Technical instructions as required in the construction of the earth retaining wall system.

(2) Product specific specifications in the placement of the soil reinforcement and backfill in accordance with the wall system.

(3) Guidelines in placing the facing units and attaching them to the soil reinforcement in accordance with the system requirements.

(4) Provide technical assistance to the facing unit fabricator.

At the completion of the wall test segment the Tech Rep shall provide the following:

(1) Documentation that the wall test segment was constructed in accordance with the product specific specifications. This documentation shall include a location description (starting and ending stations and elevations) of the wall test segment.

(2) Documentation that the job site wall foreman is familiar with the wall products used to construct the walls on the project.

After completion of the wall test segment the Tech Rep shall be available whenever there is any special field condition such as change of geological condition, when there are equipment or personnel changes, or when requested by the Engineer.

504.18 Facial Block Quality Control, Placing Plan and Daily Placement Logs. Before the start of each wall construction, the Contractor shall provide a block-placing plan and shall supply daily placement logs to the Engineer weekly and at the completion of the wall. The daily placement log shall consist of an elevation view of the wall showing the dates, number of blocks placed, and the lot numbers of the blocks placed. The block quality control shall contain multiple submittals if required by subsection 504.12(g). Blocks shall be labeled with the manufacturer's lot number for each pallet and corresponding certification with one set of random samples tested for each 6000 blocks. At least one certification with supporting test results is required for each wall. Test results shall be reviewed and pre-approved by the Engineer before shipment. The Engineer may conduct separate tests with the spared coupons from the original samples. Block testing shall be increased to one set of sampling for every 3000 blocks if the Engineer identifies substandard blocks or when block color or concrete mix changes. With the Engineer's approval, block sampling may be reduced to one set of sampling for every 12,000 blocks after the first acceptable sampling results. The blocks used for Engineer's verification purposes shall be a maximum of 0.5 percent of the total number of blocks. The Engineer will conduct block sampling as early as possible and acquire blocks regularly. However, when tests are not performed within 90 days of the sampling date, the blocks will be returned untested. The Contractor shall coordinate and mark the block and backfill placing sequence on the daily placement logs. The log serves as means for the Engineer to identify where each lot of blocks was placed.

504.19 Wall with Curved Alignments, Tight Curved Corners, and Sections Adjacent To Bridge Abutment. The Contractor shall provide a placement plan that shows curved layouts, special block or saw cut block dimensions, sequence of block placement, and construction off-sets as recommended by the manufacture. For tight curved corners, 8 foot radius or less, and dissimilar foundations such as bridge abutment, to avoid blocks with random cracks, the Contractor shall install stack bond blocks with vertical slip joints as shown on the shop drawings; however reinforcement spacing shall be reduced to one block height, or other properly designed methods of block stabilization shall be used as approved by the Engineer. Short secondary reinforcements used to tied-back cut blocks in between main reinforcements are acceptable. A vertical slip joint for stress relief may be built either with pre-cut or partial pre-cut individual blocks or by saw cutting block face of breaking running bond vertically right after installation.

504.20 Excavation and Backfill. The base of the leveling pad shall receive the same compaction as cut areas required by subsection 203.07. The Contractor shall report to the Engineer in writing density test results for any unsatisfactory bearing material not meeting the minimum 90 percent compaction for walls less than 16 feet high and 95 percent of T-180 for walls higher than 16 feet. If the excavation for the placement of the leveling pad exposes an unsatisfactory bearing material, the Engineer may require removal and replacement of that material. The removed material shall be replaced with Structure Backfill (Class 1) compacted in conformance with subsection 206.03. The Engineer with the assistance of the geotechnical engineer of record will provide the limits including the depth of removal. As directed by the Engineer, and if required, Structure Backfill (Class 1) shall be reinforced with soil reinforcements in conjunction with wick drains and outlet pipes.

The Contractor shall grade the foundation for the bottom of the wall for a width equal to or exceeding the limits of the Reinforcement Length (RL) plus 18 inches as shown on the plans. This graded area shall be compacted with an appropriate vibratory roller weighing a minimum of 8 tons for at least five passes or as directed by the Engineer. For cut wall with continuous seepage, phasing of foundation construction or a different drainage and foundation improvement plan may be necessary.

The reinforced structure backfill zone and the retained structure backfill zone portion immediately behind the wall as defined on the plans shall be Structure Backfill (Class 1). Recycled asphalt, recycled concrete and flow-fill material shall not be substituted for Structure Backfill (Class 1). Each compacted layer of backfill within a distance equal to the reinforcement spacing away from the back of the block shall not exceed 4 inches. The triangular or trapezoidal portion behind the concrete blocks and above the spill of backfill, as shown on the plans, shall be filled with ⅜$^{+}$ inch crushed rock, filter aggregates with filter fabric, or wall system specific fill as approved by the Engineer. Density tests behind and parallel to the wall in the triangular or trapezoidal portion above the backfill spill zone are not required. Each compacted layer of backfill shall not exceed 8 inches and shall be roughly leveled with the top of block elevation of the lift. The fill and compaction operation shall start 3 feet from the wall back face and progress toward the end of the reinforcement. All Structure Backfill (Class 1) including fill material under the wall and on-site material as allowed under subsection 504.08 shall be compacted to a density of at least 95 percent of the maximum density as determined according to AASHTO T 180. For on-site foundation material containing more than 30 percent retained on the ¾ inch sieve, a method of compaction consisting of a conventional heavy vibratory roller starting with minimum 5 passes shall be used to establish the number of passes required to exceed the 95% T180 density requirement.

At least 6 inches of material shall be in place prior to operation of tracked vehicles over soil with reinforcement. Only power operated roller or plate compaction equipment weighing less than 1,000 pounds is allowed within 3 feet of the front face of the wall. The reinforcement shall not be connected to the wall until the compacted fill is at or slightly higher than the location of the connector.

Backfill containing frost or frozen lumps shall not be used. Backfill that has been placed and becomes frozen

shall be removed and replaced at the Contractor's expense. If cold weather conditions prevent the placement of Structure Backfill (Class 1), the Contractor may use Filter Material Class B as backfill without compaction at the Contractor's expense and approved by the Engineer. The Contractor shall provide a test report, prepared and certified by an independent laboratory, that the internal friction angle of soil for the Filter Material Class B meets or exceeds that shown on the plans.

The Contractor shall place additional blocks including partial height blocks and properly compacted fill material to return the finished grade to the plan elevations if settlement, as determined by the Engineer, has occurred. A final inspection before the installation of rail anchoring slab will be made after construction settlement, if any, has occurred or 30 days after the completion of the wall. The Contractor shall provide immediate temporary storm water protection and wind erosion control at the end of each day during construction. If settlement occurs as the result of loss of backfill due to wind or water erosion, non-conforming backfill such as frozen fill or over-saturated fill, or if the backfill does not meet compaction requirements, the Contractor shall remove the backfill, wash the soil reinforcement, and bring the elevation to the finished grade at the Contractor's expense. Before final project acceptance, the Contractor shall repair any backfill losses due to wind and water erosion.

To avoid the foundation of the leveling pad being washed out by rain, the area in front of the wall and around the leveling pad shall be backfilled as soon as practicable.

504.21 Reinforcement. Steel reinforcement shall be slack free and geosynthetic reinforcement shall be slightly pre-tensioned. The minimum coverage ratio for geogrid reinforcement shall be 67 percent and the spaces between rolls shall be staggered between layers of soil reinforcement. The minimum coverage ratio for woven fabric reinforcement shall be 100 percent and an overlap between rolls is not required. Woven fabric sheet reinforcement shall be laid to within 1 inch of the front face of block. Soil reinforcement shall not be cut to avoid obstructions unless shown on the shop drawings.

504.22 Leveling Pad. The foundation of the leveling pads shall meet the requirements of subsection 504.20. The leveling pad shall be level within the tolerance of $^{1}/_{16}$ inch for any two block lengths, and within ¼ inch for any two points that are 10 feet apart.

Cushion or shimming material (Expansion Joint Material, Concrete Mortar Grout, Roofing Felt, or Geosynthetic Reinforcement) shall be used to support the blocks that are to be directly founded on the leveling pad. Before starting a new course of blocks, the Contractor shall take measures to ensure that the wall elevations will be matched at the next leveling pad step. Cushion or shimming material or grinding as necessary shall be used to obtain the necessary block elevations at the next leveling pad step.

504.23 Block Facing. For walls that support a roadway, the wall layout line at the leveling pad shall be set back and pre-measured with appropriate batter (5 to 8 percent) from the top of the blocks according to the offset with respect to the centerline of the road. For walls adjacent to a roadway, the wall layout line at the leveling pad shall be directly offset from the centerline of the road. An overall negative batter (wall face leaning outward) between the bottom and the top of the wall is not allowed. For vertical walls, unless otherwise noted on the plans, the final wall face shall be vertical or shall have a positive batter that is not greater than 5 percent for construction control purposes. For walls higher than 16 feet, the 5 percent batter requirement shall be relaxed to a maximum of 8 percent as required for special block products. The surface of the wall face shall be tested with a 10 foot straightedge laid along the surface in the horizontal and vertical directions. Except as necessary for horizontal alignment of the wall, a convex deviation (wall belly) of the wall face from the straightedge shall not be allowed, and any concave deviation (wall depression) from the straightedge shall be less than ¾ inch.

Unless otherwise noted, all blocks shall be dry-stacked and placed with each block spanning the joint in the row below (running bond). Shimming or grinding shall control the elevations of any two adjacent blocks within 1/24

inch. The top of blocks shall be tested with a 3 foot or longer straight edge bubble level. All high points identified by the straight edge shall be ground flat. Tilting of the blocks, from front to back of the wall, shall be checked at each course, correction by shimming shall be done no later than three completed courses. For walls without a rail-anchoring slab, the top two courses, or a cast-in-place reinforced concrete cap course and the two courses directly below it, shall be pinned and internally grouted together with a minimum of two #4 rebars per block. The concrete block shall have cells to accommodate grouted pins and modifications shall be made for blocks that do not have such cells. Grout is limited to penetrate a maximum depth of three blocks measured from the top of fill for each operation. For grout more than three blocks in height, if specified on the plans, multiple grout operations are required. A layer of fabric shall retain the grout in the lowest grouted block layer. The aggregate for grout shall be modified according to cell size and geogrid aperture. Grout in any 20 foot long wall segment shall be placed and consolidated by a minimum of two simultaneously working concrete vibrators. Precast cap blocks shall not be used in lieu of a cast-in-place reinforced concrete cap. All concrete used for cast-in-place cap and grout shall have a minimum 28 day compression strength of 4500 psi.

For walls with rail anchoring slabs, the top of block elevations shall be within 2 inches of the bottom of the anchoring slab. Cast-in-place concrete or sawcut partial height blocks may be used to accomplish this without extra cost to the project.

Where the Geomembrane for drainage interferes with the continuation of reinforcement, the blocks beyond the termination shall be reinforced or shimmed with the same grade of soil reinforcing material to maintain the reinforcing at the constant block elevation.

As shown on the plans, facing blocks directly exposed to spray from deiced pavements and indirect windborne spray shall have three coats of water resistant or repellant concrete sealer applied to the front face of the wall before the wall is opened to traffic.

504.24 Fill under Leveling Pad. For walls requiring fill under the planned elevation of the leveling pad, the Contractor may lower the elevation of the leveling pad as approved by the Engineer, except that the finished elevation at the top of the wall shall not be altered. As requested by the Contractor, and with the Engineer's approval, the higher wall shall be redesigned with longer reinforcement length and revised reinforcement schedule.

METHOD OF MEASUREMENT

504.25 MSE retaining walls will not be measured for payment in the field, but will be paid for by the calculated quantities shown on the plans for the five major components of the wall: structure excavation, structure backfill, block facing, mechanical reinforcement of soil, and geomembrane. The Contractor's construction of a system that requires increased or decreased quantities of any of the components to complete the wall to the dimensions shown will not result in a change in pay quantities. Exceptions will be made when field changes are ordered or when it is determined that there are discrepancies on the plans in an amount of at least plus or minus five percent of the plan quantity.

(1) The block facing quantity was calculated for the square foot of wall front face area from the top of the leveling pad (or average pad elevations) as shown on the plans to the top of the anchoring slab for walls with railing, or to the top of the cast in place coping for walls without railing.
(2) The structure excavation quantity was calculated for the total volume of earth to be removed before the installation of the reinforced zone as shown on the plans.
(3) The structure backfill quantity was calculated for the total volume behind the wall (the retained structure backfill zone) including the material in the reinforced zone as shown on the plans.

(4) The mechanical reinforcement of soil quantity was calculated for the total volume of the reinforced zone as shown on the plans.
(5) Geomembrane was calculated as the design height (DH) plus soil reinforcement length (RL) plus 1.5 feet, disregarding the slope of the membrane.

The square foot and cubic yard quantities computed for payment are the wall plan quantities based on the height measured at 20 foot maximum intervals along the wall layout line.

BASIS OF PAYMENT

504.26 The accepted quantities will be paid for at the contract unit price per unit of measurement for the pay items listed below:

Payment will be made under:

Pay Item	**Pay Unit**
MSE Block Facing	Square Foot

Structure excavation will be paid for under the Section 206 Pay Item Structure Excavation. Structure backfill will be paid for under the Section 206 Pay Item Structure Backfill (Class 1). Soil reinforcement will be paid for under the Section 206 Pay Item Mechanical Reinforcement of Soil. Geomembrane will be paid for under the Section 420 Pay Item Geomembrane.

Rail anchoring systems (slabs) at the tops of walls and leveling pads at the bottom of wall will be measured and paid for separately under the Section 601 Pay Item Concrete and the Section 602 Pay Item Reinforcing Steel.

Payment will be full compensation for all work and materials required to construct the concrete block facing MSE wall. Miscellaneous items such as, dual track welding of Geomembrane, drainage ditches, rundowns, filter material, filter fabric, grout, pins, shimming material, concrete block coating and providing a technical representative will not be measured and paid for separately but shall be included in the work.

504.27 Block Facing Payment Reductions. In this subsection, “block” refers to either a concrete block or a hybrid unit.

(1) A dislocated block is where the edge of an individual block is offset outward more than ¼ inch or placed with a vertical joint more than ¼ inch from the edge of adjacent blocks.
(2) A cracked block is an individual block with any visible crack visible in natural light from a distance equal to the wall height.
(3) A corner knock-off is a block with any missing facial corners or any side longer than ½ inch at the corner.
(4) Substandard blocks are concrete blocks installed in any wall segments that do not meet the certified values of compression strength, water absorption rate, or freeze/thaw cycles; substandard blocks include blocks actually in the wall for which the Contractor does not provide reports and certifications as required in subsection 504.12.

In the completed wall, or completed portion of the wall, if the number of defective blocks (cracked blocks, corner knock-off blocks, dislocated blocks, efflorescence or cement blemished blocks and substandard blocks) and blocks failing the straightedge test exceeds 3 percent of the total number of blocks in any wall segment of 40 foot horizontal or arc length, a price reduction will be applied to that portion of the wall. The price reduction shall be 3 percent for each percent of defective blocks in this portion of the wall exceeding 3 percent. This percentage shall accumulate thereafter to a maximum reduction of 21 percent. For blocks subject to price reduction, if the defects are repairable or the overall quality of wall can be improved, with the consent from the Engineer, the Contractor may repair and reduce the percentage of price reduction. A walkthrough inspection will be made as requested by the Contractor before final payment.

% of Defective Blocks (x) in 40 foot section	$x \leq 3$	$3 < x \leq 4$	$4 < x \leq 5$	$5 < x \leq 6$	$6 < x \leq 7$	$7 < x \leq 8$	$8 < x \leq 9$	$9 < x \leq 10$	$x > 10$
% of Price Reduction for that section	0	3	6	9	12	15	18	21	Rejection

The overall payment reduction percentage shall be calculated by dividing the sum of all defective blocks by the total number of blocks in that portion of the wall. When this percentage exceeds 10 percent, the Engineer will reject the entire wall or portions thereof. The Contractor shall replace the rejected wall at his own expense.

END OF SECTION REVISION

REVISION OF SECTION 506 – RIPRAP

Section 506 of the Standard Specifications is hereby revised for this project as follows:

DESCRIPTION

Subsection 506.01 Add the following:

This work shall consists of installing buried Type 'L' riprap at the outfall of the 15" irrigation storm pipe as shown on plans and installing buried Type 'M' riprap in Ashcroft Draw as shown on plans for stream restoration.

CONSTRUCTION REQUIREMENTS

Subsection 506.03 Add the following:

The riprap at the outfall of the 15" irrigation storm pipe shall be 9' long x 6' wide x 18" thick Type 'L' buried riprap with 6" of vegetated soil and bedded with 6" of Type II bedding per details as shown on plans.

The riprap for stream restoration shall be buried Type 'M' riprap 24" thick with 9" of bedding per details as shown on plans.

METHOD OF MEASUREMENT

Subsection 506.04 Add the following:

Buried Riprap shall be measured on a per square yard basis of riprap constructed, buried and complete in place. This shall include but not limited to the excavation, shoring and bracing, soil, bedding, and backfill material (including filter material and geotextile) necessary to install the buried riprap as shown on plans and accepted by the Engineer.

BASIS OF PAYMENT

Subsection 506.05 Add the following:

Payment will be made under:

Pay Item	Pay Unit
Buried Riprap (Type 'L' 18" thick w/ 6" vegetated soil & w/ 6" bedding	Square Yard
Buried Riprap (Type 'M' 24" thick w/ 9" bedding)	Square Yard

END OF SECTION REVISION

REVISION OF SECTION 601 - CONCRETE FINISHING

Section 601 of the Standard Specifications are hereby revised for this project as follows:

Subsection 601.01 shall include the following:

Contractor shall coordinate with the City of Evans prior to the construction of the bridge deck to determine the final color scheme for the bridge. The City of Evans will select a Davis Concrete Color for the bridge.

In subsection 601.12 (a) delete the fifth paragraph and replace it with the following:

Water shall not be added to the surface of the concrete to assist in finishing operations.

Hand finishing should be minimized wherever possible. The hand finishing methods shall be addressed in the Quality Control Plan for concrete finishing. Hand finished concrete shall be struck off and screeded with a portable screed that is at least 2 feet longer than the maximum width of the surface to be struck off. It shall be sufficiently rigid to retain its shape. Concrete shall be thoroughly consolidated by hand vibrators. Hand finishing shall not be allowed after concrete has been in-place for more than 30 minutes or when initial set has begun. Finishing tools made of aluminum shall not be used.

The Contractor shall provide a Quality Control Plan (QCP) to ensure that proper hand finishing is accomplished in accordance with current Industry standards. It shall identify the Contractor's method for ensuring that the provisions of the QCP are met. The QCP shall be submitted to the Engineer at the Preconstruction Conference. Concrete placement shall not begin until the Engineer has approved the QCP. The QCP shall identify and address issues affecting the quality finished concrete including but not limited to:

(1) Timing of hand finishing operations
(2) Methodology to place and transport concrete
(3) Equipment and tools to be utilized
(4) Qualifications and training of finishers and supervisors

When the Engineer determines that any element of the approved QCP is not being implemented or that hand finished concrete is unacceptable, work shall be suspended. The Contractor shall supply a written plan to address improperly placed material and how to remedy future hand finishing failures and bring the work into compliance with the QCP. The Engineer will review the plan for acceptability prior to authorizing the resumption of operations.

In subsection 601.14(a) delete the fourth paragraph.

END OF SECTION REVISION

REVISION OF SECTION 603 - CULVERTS AND SEWERS

Section 603 of the Standard Specifications is hereby revised for this project to include the following:

Subsection 603.02 shall be revised to include the following:

All reinforced concrete pipe and bends shall be Class III unless otherwise specified in the plans. Reinforced concrete pipe and shall also meet the minimum requirements for Class 2 sulfate resistance (refer to Section 601 of the Standard Specifications).

Pipe joints for reinforced concrete pipe shall be bell and spigot complying with the applicable requirements of ASTM C 361. The spigot end shall be of a grooved or -profile‖ design to accommodate an appropriate rubber O-ring or -profile‖ gasket conforming to the requirements of ASTM C 361.

All plastic drainage pipe, fittings and bends shall SDR 35 PVC.

Subsections 603.03 through 603.10 shall be revised to include the following:

Culvert pipes and bends shall be constructed continuously, from downstream to upstream, except when otherwise approved by the Engineer. The Contractor is responsible for matching line and grade as shown within the Contract Drawings. Bedding material shall be placed in accordance with the Contract Drawings and applicable Standard Details to provide uniform and continuous support.

Culverts and pipe shall be placed with the groove end facing upstream. Each conduit section shall be set into position and checked for line and grade prior to continuing placement. The manufacturer's recommendations shall be closely followed during installation.

The Contractor shall ensure that all installed culverts are kept clean and free from gravel, dirt and debris during and after installation. The Contractor shall incur all costs associated with street failures, cave-ins, system washout and settlements, and culvert cleaning as a result of carelessness during this timeframe.

Subsection 603.11 shall include the following:

Pipe shall be measured on a per linear foot basis for the actual number of linear feet of specified pipe installed complete in place.

Cleanout shall be measured by the actual number of cleanouts installed on the 15 inch pipeline. Concrete collar for the cleanout will not be paid for separately but included with this installation of the cleanout.

Flared end section shall be measured by the actual number of flared end sections installed complete in place.

Subsection 603.12, delete the 2nd to the last paragraph and replace with the following:

Payment will be made under:

Pay Item	Pay Unit
15 Inch SDR 35 PVC Pipe (Complete In Place)	Linear Foot
6 Inch Cleanout with Concrete Collar	Each
15 Inch ADS Flared End Section (Complete In Place)	Each
18 Inch Reinforced Concrete Pipe (Complete In Place)	Linear Foot
24 Inch Reinforced Concrete Pipe (Complete In Place)	Linear Foot
30 Inch Reinforced Concrete Pipe (Complete In Place)	Linear Foot
30 x 19 Inch Reinforced Concrete Pipe Elliptical (Complete In Place)	Linear Foot
18 x 12 Foot Concrete Box Culvert (Precast)	Linear Foot

Payment for pipelines, cleanouts, and flared end sections shall include but is not limited to all excavation, disposal of excess material offsite, shoring and bracing, bedding and backfill material (including filter material and geotextile), furnishing and installing pipe cleanouts and end sections, cleaning existing pipe, lining of pipe, grout, backfill and compaction. Payment shall be made at the applicable contract unit price for the respective bid items and shall be full compensation for all labor, equipment, materials, loading, transportation, unloading, installation, excavation, bedding, backfill and compaction, formwork, reinforcing steel, concrete/grout, curing, protection of existing facilities, gaskets, joint materials, and all other appurtenant items to complete the work.

All bends and fittings shall be considered incidental and included in the cost of the pipeline.

END OF SECTION REVISION

REVISION OF SECTION 604 – MANHOLES AND INLETS

Section 604 of the Standard Specifications is hereby revised for this project as follows:

Subsection 604.01 shall include the following:

This work shall consist of furnishing and installing inlets and manholes at the locations and grades as indicated on the plans.

Subsection 604.06 shall include the following:

Measurement for the inlets and manholes will be for each unit (complete) that is installed per the plans, manufacturer's recommendations and accepted by the Engineer.

Subsection 604.07 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Inlet Type C (5 Foot)	Each
Inlet Type R L10 (10 Foot)	Each
4' Diameter Manhole (10 Foot)	Each
5' Diameter Manhole (5 Foot)	Each
6' Diameter Manhole (10 Foot)	Each

Payment shall include but is not limited to all excavation, disposal of excess material offsite, shoring and bracing, bedding and backfill material, furnishing and installing of the manhole including necessary pipe connections, placement of backfill and compaction. Payment shall be full compensation for all labor, equipment, materials (e.g. manhole sections, pipe, gaskets, joint materials, ring and cover, concrete grade rings, etc.), loading, transportation, unloading, installation, and all other appurtenant items necessary to complete the work.

END OF SECTION REVISION

REVISION OF SECTION 606 – PRECAST CONCRETE BARRIER (TEMPORARY)

Section 606 of the Standard Specifications is hereby revised for this project as follows:

Subsection 606.01 shall include the following:

This work shall consist of the furnishing, installing, moving, maintaining, and removing of the temporary Precast Type 7 Concrete Barrier on the bridge deck for traffic control during the replacement of the box culvert.

Subsection 606.05 shall include the following:

Measurement for the temporary Precast Type 7 Concrete Barrier will be measured by the linear foot and in accordance with CDOT Specification Section 630 and shall be the maximum number approved for payment.

Subsection 606.06 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Precast Type 7 Concrete Barrier (Temporary)	Linear Foot

All work and materials necessary and incidental to the temporary barrier ends will not be measured and paid for separately but shall be included in the work.

Moving will include devices removed from the project and later returned to use.

END OF SECTION REVISION

REVISION OF SECTION 607 – FENCES

Section 607 of the Standard Specifications is hereby revised for this project as follows:

Subsection 607.01 shall include the following:

This work shall consist of furnishing and installing replacement fence with "in kind" or similar to the existing fence along the west side of 65th Avenue for the Saint Michael's Reservoir Estate, LLC property and along the east side of 65th Avenue for the Rocky Mountain Crossroads Tract 1 property as directed by the City of Evans Engineer.

The Contractor shall coordinate with the property owners prior to demolishing any fences to address livestock needs and containment. Temporary fencing may be needed depending on the needs/timing of the fence removal/installation. All removal and installation of fencing shall be coordinated with the property owner.

Subsection 607.04 shall include the following:

The fence will be measured per linear foot of fence installed per manufacturer's recommendations and accepted by the Engineer. The gates, end posts and line posts required for the fence shall not be paid for separately but included in the per linear foot cost of the fence.

Subsection 607.05 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Fence Combination Wire with Metal Posts	Linear Foot
Fence (Special)	Linear Foot
Fence (Temporary)	Linear Foot

Payment shall include but is not limited to all excavation, disposal of excess material offsite, bracing, backfill and/or concrete material, furnishing and installing fence, placement of backfill and compaction, end posts, and line post. Payment shall be full compensation for all labor, equipment, loading, transportation, unloading, installation, and all other items necessary to complete the work.

END OF SECTION REVISION

REVISION OF SECTION 608 - SIDEWALKS AND BIKEWAYS

Section 608 of the Standard Specifications is hereby revised for this project as follows:

Subsection 608.02 shall include the following:

All Concrete for sidewalks and curb ramps shall meet all the requirements of City of Evans construction specifications and a Class D concrete in Section 601 of the Standard Specifications. Fiber mesh is required and shall be applied at a rate of 1.5 pounds per cubic yard.

Detectable warnings on curb ramps shall be in Neenah Detectable Warning Plates as shown in the construction details plans or as directed by the City of Evans Engineer.

Subsection 608.03 shall include the following:

Concrete curb ramps shall be constructed in accordance with the horizontal layout shown on the plans and in accordance with CDOT Standard Plan No. M-608-1. Subgrade under sidewalks and curb ramps shall be moisture and density treated in accordance with Revision of Section 306, "Reconditioning."

Concrete Channel as shown and detailed in plans will be constructed to connect the existing flared end section with a new Type C inlet at the northeast corner of the intersection of 37th Street and 65th Avenue.

Subsection 608.05 shall include the following:

Concrete Channel shall be measured by lump sum cost to complete a channel that will connect the existing flared end section to the inlet as shown on plans. This will include but not limited to the excavation, bedding material, backfill material, forms, rebar, barrier curb around the inlet and the monolithic curbing along the sides of the concrete channel.

Concrete Sidewalk shall be measured on a per square yard basis for the actual number of square yards of sidewalk constructed at 6 inches thick per City of Evans standards.

Concrete Curb Ramps shall be measured on a per square yard basis for the actual number of square yards of concrete curb ramp constructed. The area of concrete ramp in the pay item shall include the transition flares, detectable warnings, and pedestrian curbs if required. The pay limits shall be from the back of the ramp to the back of the curb and gutter. Payment for the curb and gutter shall be included in the respective curb and gutter bid item.

Subsection 608.06 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Concrete Channel (Connect Ex FES with Type C Inlet)	Lump Sum
Concrete Sidewalk (6 Inch)	Square Yard
Concrete Curb Ramp	Square Yard

This price shall be full compensation for all labor, materials and equipment necessary to complete the respective items as well as proof rolling that is required for the subgrade.

END OF SECTION REVISION

REVISION OF SECTION 609 - CURB AND GUTTER

Section 609 of the Standard Specifications is hereby revised for this project as follows:

Subsection 609.02 shall include the following:

Concrete for curb and gutter poured monolithically with adjacent concrete pavement as shown in the plans shall be identical to that used for the specified adjacent concrete pavement. The flowline slopes shall match the grades as shown on the roadway profiles and the gutter cross slopes shall match the construction details.

Concrete for curb and gutter not poured monolithically with adjacent concrete pavement shall meet all the requirements of a Class D concrete in Section 601 of the Standard Specifications.

Subsection 609.03 shall include the following:

Subgrade under curb and gutter shall be moisture and density treated in accordance with Revision of Section 306, “Reconditioning”.

Subsection 609.07 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Curb and Gutter Type 2 (Section I-B)	Linear Foot
Curb and Gutter Type 2 (Section II-B)	Linear Foot
Curb and Gutter Type 2 (Section II-B) (Special)	Linear Foot

END OF SECTION REVISION

REVISION OF SECTION 610 - MEDIAN COVER MATERIAL

Section 610 of the Standard Specifications is hereby revised for this project as follows:

Subsection 610.02 shall include the following:

Median pavement shall be patterned and textured with a Windsor cobble pattern and sun baked clay color hand mixed on site and directed by the City of Evans Project Engineer.

Mockups shall be provided for proposed alternate patterns or colors.

Colored/patterned concrete shall meet the requirements of Class D concrete in Section 601 of the Standard Specifications. Collision

Subsections 610.04 and 610.05 shall include the following:

Measurement and payment for patterned concrete shall be per square foot of work that is completed and accepted. This shall include all labor, materials, equipment and incidentals necessary to complete the work. No separate payment will be made for joint sealer or expansion joint material.

Payment will be made under:

Pay Item	Pay Unit
Median Cover Material (Patterned Concrete)	Square Foot

END OF SECTION REVISION

REVISION OF SECTION 614 – TRAFFIC CONTROL DEVICES

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall be deleted and replaced with the following:

This work shall be done in accordance with the following, and in case of discrepancy the order of precedence shall be as follows:

1. City of Evans Construction Details and Specifications
2. Project Special Provisions
3. Project Standard Specifications
4. CDOT Standard Specifications for Road and Bridge Construction 2011
5. The latest revision of the Manual on Uniform Traffic Control Devices for Streets and Highways published by the FHWA and adopted by CDOT

Subsections 614.13 and 614.14 shall include the following:

Measurement and payment for Sign Panel shall be the measured in square foot of sign panel installed and complete in place. This sign panel shall include all labor, materials, sign posts, hardware, concrete, equipment and incidentals necessary to install the sign panels as shown on the plans.

Payment will be made under:

Pay Item	Pay Unit
Sign Panel (Class I)	Square Feet

END OF SECTION REVISION

REVISION OF SECTION 625 - CONSTRUCTION SURVEYING

Section 625 of the Standard Specifications is hereby revised for this project as follows:

Subsection 625.03 shall include the following:

The Contractor shall retain a Land Surveyor registered in the State of Colorado to furnish all lines and grades and locate all proposed improvements for the work based on the contours and horizontal and vertical control information shown on the drawings.

The accuracy of horizontal and vertical control for the project as shown in the plans shall be verified and documented by the Contractor prior to construction.

The Contractor shall relocate and establish new project control points as required to construct the proposed improvements, if control points are within the construction limits. New control points shall be installed in accordance with the CDOT Survey manual, and shall be completed prior to removal of existing control points.

Subsection 625.11 shall include the following:

The Contractor shall maintain on the project a current set of "As Constructed" plans. Upon completion of the work, the "As Constructed" plans shall be turned over to the Engineer.

These "As Constructed" plans shall show the actual location and dimensions of the work items. All modifications shall be shown on the "As Constructed" plans.

"As Constructed" plans shall be sealed by a Colorado Registered Professional Engineer (PE) or Professional Land Surveyor (PLS).

Subsection 625.12 shall include the following:

Construction surveying of permanent BMPs will not be measured.

Subsection 625.13 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Construction Surveying	Lump Sum

Payment for “As Constructed” plans will not be made separately, but shall be included in the contract unit price bid for construction surveying. All work and materials required to perform the permanent BMP survey and furnish electronic files shall be included in the original unit price bid for surveying.

END OF SECTION REVISION

REVISION OF SECTION 627 - PAVEMENT MARKING

Section 627 of the Standard Specifications is hereby revised for this project as follows:

Subsection 627.01 shall include the following:

The Contractor will furnish and install all permanent pavement markings for the project as shown on the plans or as directed by the City of Evans Engineer. The Contractor is required to coordinate with the City of Evans Engineer prior to completion of work. The Contractor is responsible for furnishing, installing, and removing as necessary all temporary pavement markings during construction.

Subsection 627.12 shall include the following:

Each application of temporary pavement marking will not be measured and paid for separately, but shall be included in the cost of Construction Traffic Control, Lump Sum.

Control points and Contractor pavement marking plans will not be measured and paid for separately but shall be included in the work.

Epoxy Pavement Marking shall be measured by the number of gallons of paint applied per the plans, manufacturer's recommendations and accepted by the Engineer.

Performed Thermoplastic Pavement Marking (Word-Symbol) and (Xwalk – Stop Line) shall be measured by the number of square feet installed per the plans, manufacturer's recommendations and accepted by the Engineer.

Subsection 627.13 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Epoxy Pavement Marking	Gallon
Preformed Thermoplastic Pavement Marking (Word-Symbol)	Square Foot
Preformed Thermoplastic Pavement Marking (Xwalk – Stop Line)	Square Foot

END OF SECTION REVISION

REVISION OF SECTION 630 - CONSTRUCTION TRAFFIC CONTROL

Section 630 of the Standard Specifications is hereby revised for this project as follows:

Subsection 630.01 shall include the following:

This work shall consist of furnishing, installing, maintaining and removing temporary construction traffic control devices including but not limited to: signs, advance warning arrow panels, portable message signs, barricades, channeling devices and delineators as required by the latest version of the City of Evans Construction Specifications, CDOT Specifications and the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD).

The Contractor shall provide four portable message signs to be used for the construction and as directed by the Engineer. The number and location of the portable message signs shall be in accordance with the approved traffic control plan. The message shall be approved by the Engineer.

The Contractor shall comply with the requirements of CDOT Specification Section 630. The Contractor shall not perform any construction work in the public right-of-way prior to receiving approval of the Traffic Control Plan (Method of Handling Traffic) from the City of Evans and CDOT as applicable.

The Contractor will appoint a Traffic Control Supervisor (TCS) to this project. The TCS 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 work site 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 nonpayment for the work performed at the locations in question.

Sidewalks will be closed for construction in the work areas. The Contractor shall schedule work to minimize closure time. The Contractor shall coordinate any closures with property owners.

General Construction Traffic and Phasing for 65th Avenue shall include:

- For the first 100 days of the project the Contractor shall allow one south bound lane open from Orchard Park Drive to 37th Street with appropriate detours.
- From 101 days to 109 days the Contractor shall allow one lane of traffic in each direction.
- On day 110 all lanes shall be available to traffic.

In Subsection 630.15 add the following:

Flagging will be measured by the hour. Only actual hours of flagging performed and approved by the Engineer will be measured for payment. This is defined as the time a flagger is performing flagging duties as authorized in the approved traffic control plan. Set up of lane closures, maintenance of devices, extra flaggers to provide breaks, and show up time are not actual flagging and will not be measured for payment.

Contractor shall meet all requirements in Section 630 of the Standard Specifications. Measurement for Traffic Control Management, Traffic Control Inspection, and flagging shall be in accordance with the Standard Specifications beginning with paragraph 5 of subsection 630.15.

Construction traffic control devices, including Barricades, Construction Traffic Signs, Drum Channelizing Devices, Vertical Panels, and Traffic Cones will be measured separately. In addition, for protection of traffic on the bridge during the box culvert replacement temporary Precast Type 7 Concrete Barrier will be used in accordance with CDOT Specification Section 606. Traffic control items and devices will be paid per CDOT Specification Section 630 (per maximum device count).

Preparation of traffic control plans and methods of handling traffic, installation of devices, moving devices, outreach to the public, or any other required function for effective construction traffic control shall be incidental to the work.

Traffic may be shifted within the limits of the pavement as necessary for construction with adequate traffic control devices – if striping removal or temporary striping placement is needed, it will be incidental to the work. For final lift paving and striping operation, the contractor shall coordinate with City of Evans and CDOT to determine the appropriate method of handling traffic. The Contractor shall coordinate with the City on any necessary re-timing of signals during construction.

Portable Message Sign shall be paid for by the actual number of portable message sign panels used prior to and throughout the duration of the project construction.

In Subsection 630.16, delete the 1st, 2nd, and 4th paragraphs and replace with the following:

The Contractor shall provide all traffic control devices as required upon developing his Method for Handling Traffic (MHT) for each phase of the work. Depending on how the Contractor chooses to phase the work, additional devices may be required to comply with the approved MHT and MUTCD. Traffic control items and devices will be paid per CDOT Specification Section 630 (per maximum device count).

The City will work with the Contractor to schedule Uniformed Traffic Control as needed for the project. If Uniformed Traffic Control is necessary or required by the City of Evans, it will be paid for by the Contractor. It is the responsibility of the Contractor to notify the City 72 hours prior to needing Uniformed Traffic Control.

Payment for Traffic Control Management, Traffic Control Inspection, Uniformed Traffic Control and Flagging shall be as specified below and in the bid schedule

Payment will be made under:

Pay Item	Pay Unit
Flagging	Hour
Uniformed Traffic Control	Hour
Traffic Control Inspection	Day
Traffic Control Management	Day
Barricade (Type 3 M-A) (Temporary)	Each
Construction Traffic Sign (Panel Size A)	Each
Construction Traffic Sign (Panel Size B)	Each
Vertical Panel	Each
Portable Message Sign Panel	Each
Advance Warning Flashing or Sequencing Arrow Panel (C Type)	Each
Drum Channelizing Device	Each
Traffic Cone	Each

END OF SECTION REVISION

FORCE ACCOUNT ITEMS

DESCRIPTION

This special provision contains the Department's estimate for force account items included in the Contract. The estimated amounts marked with an asterisk will be added to the total bid to determine the amount of the performance and payment bonds. Force Account work shall be performed as directed by the Engineer.

Minor Contract Revisions:
This item covers instances where the Project Engineer identifies work that needs to be performed and a specific pay item is not included in the Contract. This consists of minor changes to the contract that would not necessitate a formal Change Order.

BASIS OF PAYMENT

Payment will be made in accordance with subsection 109.04. Payment will constitute full compensation for all work necessary to complete the item.

Force account work valued at $5,000 or less, that must be performed by a licensed journeyman in order to comply with federal, state, or local codes, may be paid for after receipt of an itemized statement endorsed by the Contractor.

Force Account Item	Unit	Amount
F/A Minor Contract Revisions	F.A.	$100,000
F/A On-The-Job Trainee	F.A.	$1,000
F/A Erosion Control	F.A.	$3,000

TRAFFIC CONTROL PLAN – GENERAL

The key elements of the Contractor's method of handling traffic (MHT) are outlined in subsection 630.10(a).

The components of the TCP for this project are included in the following:

(1) Subsection 104.04 and Section 630 of the specifications
(2) Standard Plan S-630-1, Traffic Controls for Highway Construction and Standard Plan S-630-2 and all revisions thereto
(3) Striping and Signing Plans
(4) City of Evans Construction Specifications and the CDOT Region 4 Lane Closure Strategy or the approved Citywide Variance to the Lane Closure Strategy
(5) Manual of Uniform Traffic Control Devices (U.S. Department of Transportation), or applicable statutory requirements of authority having jurisdiction.

Below is a link to CDOT's Region 4 Lane Closure Strategy.

http://www.coloradodot.info/library/traffic/traffic-manuals-guidelines/lane-close-work-zone-safety/lane- closure-strategies/R4_Lane_Closure_Report.pdf/view

Unless otherwise approved by the Engineer, the Contractor's equipment shall follow normal and legal traffic movements. The Contractor's ingress and egress of the work area shall be accomplished with as little disruption to traffic as possible. Traffic control devices shall be removed by picking up the devices in a reverse sequence to that used for installation. This may require moving backwards through the work zone. When located behind barrier or at other locations shown on approved traffic control plans, equipment may operate in a direction opposite to adjacent traffic.

No separate payment will be made for removal of existing pavement markings necessary for temporary lanes shifts or other conditions proposed in the Contractor's Method of Handling Traffic. All pavement markings, interim and permanent, shall be installed in accordance with Section 627, the approved plans and the Manual on Uniform Traffic Control Devices. Removal of existing pavement markings for temporary lane shifts, if required, shall be considered incidental. Blacking out existing pavement markings will not be allowed.

CDOT may have entered into operating agreements with one or more law enforcement organizations for cooperative activities. Under such agreements, at the sole discretion of CDOT, law enforcement personnel may enter the work zone for enforcement purposes and may participate in the Contractor's traffic control activities. The responsibility under the Contract for all traffic control resides with the Contractor and any such participation by law enforcement personnel in Contractor traffic control activities will be referenced in either the Special Provisions or General Notes of the plans depending on whether the Contractor is to contract with Colorado State Patrol for uniformed traffic control. Nothing in this Contract is intended to create an entitlement, on the part of the Contractor, to the services or participation of the law enforcement organization.

Special Traffic Control Plan requirements for this project are as follows:

During the construction of this project, traffic shall use the present traveled roadway or areas of new roadway construction, unless identified on the plans or approved by the Engineer.

The Contractor shall not have construction equipment or materials in the lanes open to traffic at any time, unless approved by the Engineer.

WORK HOURS

The Contractor is limited to working from 7 AM to 5 PM, Monday through Friday. If the Contractor chooses to work outside the normal business day/hours, then there will be a deduction from the final pay estimate to cover additional inspection costs. For one inspector working overtime on a job, the estimated cost to the City is $65.00/hr. Should

any outside consultants be used for testing or inspections, their hourly rates will be charged to the Contractor and overtime will be included, if charged by the consultant. The amount deducted from the project will be the actual amount incurred by the City.

No work shall be permitted on weekends or holidays without written permission from the Project Manager. If the Contractor wants to work on the weekend they will need to submit a request to the Project Manager 24 hours prior to the request date.

Hours of operation for construction of the signal and “changeover” of the signal from the span wire to the mast arm shall be restricted to the weekends, as to not interfere with access on a school day for the nearby school (and no down time for pedestrian signal operations). The signal design is such that it can be built outside of the existing strain poles and span wire which should help the contractor.

Work performed and material placed that interferes with traffic during the times and in the locations that the roadway is specified to remain open will not be paid for unless the work is directed by the Engineer to be done during those times.

At least one week prior to starting construction, the Contractor shall notify the City’s Engineer of the date the Contractor intends to start construction.

The Contractor shall provide a Traffic Control Supervisor (TCS) with at least one year experience, as accepted by the Engineer, as the Traffic Control Supervisor. A copy of the certification of the Traffic Control Supervisor shall be provided to the Engineer at least two days prior to the project preconstruction conference.

All lane closures shall be subject to the approval of the Engineer. A MHT shall be approved by the Engineer prior to any request for a lane closure. Request for each lane closure shall be made at least twenty-four hours in advance of the time the lane closure is to be implemented. Lane closures will not be allowed to remain unless being utilized continuously for the intended purpose for which they were set up.

The Contractor shall remove and reset all existing signs prior to performing any work that affects those signs. All signs damaged due to Contractor operations shall be replaced in kind or repaired by the Contractor at no cost to the project. An inventory of all existing signs shall be made with the Engineer prior to beginning work.

All costs incidental to the foregoing requirements shall be included in the original contract prices for the project.

UTILITIES

Known utilities within the limits of this project are:

Xcel Energy, Terry Stencil (970) 395-1207, Greeley, CO (Electric Distribution)
Xcel Energy, Lisa Miller (303) 571-3549 (Facility Coordinator)
Zayo, John McMahon (720) 427-3067 (Contractor for Zayo)
PVREA, Cliff Spirek, (970) 282-6415, Windsor, CO
Century Link, Carson Ortega (970) 392-4837, Greeley, CO (Communication)
Century Links, Lucas Montano (970) 392-4806, Greeley, CO (Line Breaks)
Atmos Energy, Jerry Adams, (970) 304-2075, Greeley, CO (Gas Distribution)
Comcast, Bill Blair, (720) 490-3891 or Dennis Greenwalt (970) 484-7166 Loveland, CO (cable TV)
CDOT Utility, Tim Bilobran, (970) 350-2163
Greeley Loveland Irrigation Canal (GLIC), Ron Brinkman, (970) 352-0495
City of Evans, Dawn Anderson, (970) 475-1160

The Contractor shall coordinate with the Project Engineer and any appropriate utility company to facilitate the installation, placement and relocation of all utilities impacted on this project.

The work described in these plans and specifications requires coordination between the Contractor and the utility companies in accordance with subsection 105.11 in conducting their respective operations as necessary to complete the utility work with minimum delay to the project.

Also, in accordance with the plans and specifications, and as directed by the Engineer, the Contractor shall keep each utility owner advised of any work being done to its facility, so that each utility owner can coordinate its inspections for final acceptance of the work with the Engineer.

The Contractor shall coordinate the work with the owners of the utilities impacted by the work. Coordination with utility owners includes, but is not limited to, staking construction features, providing and periodically updating an accurate construction schedule which includes all utility work elements, providing written notification of upcoming required utility work elements as the construction schedule indicates, allowing the expected number of working days for utilities to complete necessary relocation work, conducting necessary utility coordination meetings, applying for and obtaining power or communication services in the City's name and all other necessary accommodations as directed by the Project Engineer. Surveying and/or staking of utility relocations to be performed by the owner shall be the responsibility of the utility owner.

Prior to excavating or performing any earthwork operations, the Contractor shall positively locate all potential conflicts with existing underground utilities and proposed construction, as determined by the Contractor according to proposed methods and schedule of construction. The Contractor shall modify construction plans to avoid existing underground facilities as needed, and as approved by the Engineer.

Please note that UNCC marks only its member's facilities – Other facilities, such as ditches and drainage pipes and CDOT's fiber optic system may exist, and it is the Contractor's responsibility to investigate, locate and avoid such facilities.

The Contractor shall provide traffic control for any utility work expected to be coordinated with construction, as directed by the Project Engineer.

GENERAL:

The Contractor shall comply with Article 1.5 of Title 9, CRS ("Excavation Requirements") when excavation or

grading is planned in the area of underground utility facilities. The Contractor shall notify all affected utilities at least two (2) business days, not including the day of notification, prior to commencing such operations. The Contractor shall contact the Utility Notification Center of Colorado (UNCC) at (8-1-1) or 1-800-922-1987 to have locations of UNCC registered lines marked by member companies. 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.

The location of utility facilities as shown on the plan and profile sheets, and herein described, were obtained from the best available information. The Contractor shall coordinate with the utility companies regarding protection and/or relocating the utilities to accommodate the proposed improvements. This work shall be figured in to the Contractor's schedule to complete the work within the specified construction duration. All costs incidental to the foregoing requirements will not be paid for separately but shall be included in the work.

ARTICLE 4

GEOTECHNICAL REPORT

SUBSURFACE EXPLORATION REPORT
65th AVENUE ROADWAY IMPROVEMENTS
WEST 29TH STREET SOUTH TO 37TH STREET
CITY OF GREELEY, WELD COUNTY, COLORADO
EEC PROJECT NO. 1152080

Prepared for:

Interwest Consulting Group
1218 West Ash – Suite C
Windsor, Colorado 80550

Attn: Mr. Mike Oberlander, P.E. (moberlander@Interwestgrp.com)

Prepared by:

Earth Engineering Consultants, LLC
4396 Greenfield Drive
Windsor, Colorado 80550

EARTH ENGINEERING CONSULTANTS, LLC

September 10, 2015

Interwest Consulting Group
1218 West Ash – Suite C
Windsor, Colorado 80550

Attn: Mr. Mike Oberlander, P.E. (moberlander@Interwestgrp.com)

Re: Subsurface Exploration Report
65th Avenue Roadway Improvements
West 29th Street South to 37th Street
City of Greeley, Weld County, Colorado
EEC Project No. 1152080

Mr. Oberlander:

Enclosed, herewith, are results of the geotechnical subsurface exploration and pavement design evaluation completed by Earth Engineering Consultants, LLC personnel for the referenced project. This study was completed in general accordance with our proposal dated December 19, 2014, and generally conforms to Colorado Department of Transportation (CDOT) and/or Metropolitan Government Pavement Engineering Council (MGPEC) Pavement Design Criteria.

This report provides the pavement design thicknesses for the proposed widening and improvements along 65th Avenue for a stretch of approximately 0.75-miles beginning near west 29th Street and continuing south toward 37th Street, and for the concrete box culvert (CBC) structure replacement along the roadway alignment at the Ashcroft Draw. For this phase of our subsurface exploration, a total of seventeen (17) soil borings, fifteen (15) pavement related borings identified as borings B-1, B-2, and B-5 through B-17, and two (2) pavement/foundation related borings, identified as borings B-3 and B-4, were drilled on August 14, 2015, at selected locations within the extent of the proposed roadway improvements. The pavement related borings were drilled to approximate depths of 10 to 15-feet below existing site grades, and the pavement/foundation related borings, (i.e., the Ashcroft Draw crossing structure), were drilled to approximate depths of 25 to 30-feet below site grades.

4396 GREENFIELD DRIVE
WINDSOR, COLORADO 80550
(970) 545-3908 FAX (970) 663-0282

The existing pavement wearing surface along this portion of 65th Avenue generally consisted of approximately 4-1/2 to 14-inches of an existing asphaltic concrete pavement (ACP) material. The ACP wearing surface materials were underlain by a layer of existing aggregate base course (ABC) ranging from approximately 0 to 24-inches in thickness. Silty sand and/or clayey sand with gravel, fine to course granular subsoils were encountered beneath the pavement and underlying ABC and extended to the depths explored or to the bedrock formation below.

Groundwater was observed in one of the pavement related borings (i.e., B-1) and both of the pavement/foundation related borings (i.e., B-3 and B-4) at approximate depths of 8 to 13-feet below existing site grades during the drilling operation. Groundwater was not recorded to maximum depths of exploration in the remaining borings. All of the borings were backfilled upon completion of the drilling exploration; therefore, stabilized groundwater measurements were not obtained.

We believe the widening/improvement portions for 65th Avenue could be supported on the in-place aggregate base course and/or subgrade materials, or on newly placed and compacted fill material. The proposed widening sections and improvements could be constructed as a composite hot mix asphalt HMA/ABC pavement section placed over an approved/prepared subgrade section consisting of either on-site materials or imported fill material in general compliance with Colorado Department of Transportation (CDOT) and MGPEC pavement design criteria. In general, the existing subgrade materials encountered during the subsurface exploration underlying the in-place ABC materials revealed R-Values of 26 and 47 for two (2) composite samples collected. Results of field borings, laboratory tests on the subgrade soils and recommendations for pavement sections are provided with this report.

Based on the subsurface conditions encountered in the pavement/foundation related borings at the Ashcroft Draw crossing location, we recommend the new concrete box culvert structure be supported on a conventional spread footing or mat type foundation system bearing on approved native granular subsoils, ground modified native subsoils, or on a zone of engineered structural fill material. Consideration could also be given to the use of a deep foundation system such as drilled piers, recommendations can be provided upon request.

Care will be needed to evaluate the anticipated bearing materials for any foundation system, to verify that foundations are supported on approved soils. Footings, or mat foundations, where utilized, should be placed on similar like materials to minimize the potential for differential movement. We anticipate culvert slabs, pavements and exterior miscellaneous flatwork, such as trails, sidewalks, and curb and gutters, could be supported on newly placed and compacted fill soils or on ground modified native soils.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we can be of further service to you in any other way, please do not hesitate to contact us.

Very truly yours,
Earth Engineering Consultants, LLC

Jacob J. Silverman
DLA

Jacob J. Silverman, E.I.T.
Project Engineer

Reviewed by:

COLORADO LICENSED
DAVID A. RICHER
27712
9-10-15
PROFESSIONAL ENGINEER

David A. Richer, P.E.
Senior Geotechnical Engineer

cc: Loris and Associates – Mr. Dan Beltzer, P.E. (dbeltzer@lorisandassociates.com)

SUBSURFACE EXPLORATION REPORT
65th AVENUE ROADWAY IMPROVEMENTS
WEST 29TH STREET SOUTH TO 37TH STREET
CITY OF GREELEY, WELD COUNTY, COLORADO
EEC PROJECT NO. 1152080

September 10, 2015

INTRODUCTION

The subsurface exploration for the proposed roadway reconstruction of 65th Avenue beginning near the intersection with West 29th Street and continuing south approximately 0.75-miles to 37th Street in Greeley, Weld County, Colorado has been completed. For this phase of our subsurface exploration, a total of seventeen (17) soil borings were drilled on August 14, 2015, at selected locations within the extent of the proposed roadway improvements. Fifteen (15) of the borings were drilled to approximate depths of 10 to 15-feet below existing site grades within the existing roadway alignment and the remaining (2) deeper (i.e., borings B-3 and B-4) roadway/foundation related borings, (i.e., the box culvert replacement structure at the Ashcroft Draw crossing), were drilled to approximate depths of 25 to 35-feet below site grades. Individual boring logs and a diagram indicating the approximate boring locations are provided with this report.

The project, as we understand, will consist of the reconstruction of approximately 0.75-mile of 65th Avenue and the replacement of the existing Ashcroft Draw crossing structure with a new concrete box culvert structure. 65th Avenue is currently a narrow 2-lane arterial roadway with occasional additional center left turn and right turn lanes. The ultimate roadway design will generally consist of four (4) 11 or 12-foot driving lanes, occasional additional center left turning and right turning lanes, two (2) 5-foot bike lanes, curb and gutter along the outer boundaries, and an 6 or 8-foot attached/detached sidewalks on each side. Also included as part of this project, will be the replacement of the Ashcroft Draw crossing structure with a new concrete box culvert structure.

The purpose of this report is to describe the subsurface conditions encountered in the test borings, analysis and evaluate the test data and provide recommendations for subgrade support and pavement sections for the proposed roadway improvements, as well as foundation design criteria for the box culvert structure.

EXPLORATION AND TESTING PROCEDURES

The boring locations were established in the field by EEC personnel by pacing and estimating angles from identifiable site features. The roadway/pavement related borings were spaced approximately 500-lineal feet (LF) per lane of roadway, (i.e., one boring every 500-LF in the northbound and southbound lanes, and/or 1 boring, staggered every 250-LF per roadway) along the planned roadway widening/improvements. For the proposed culvert structure at the Ashcroft Draw crossing, two (2) borings were drilled on opposite corners, (i.e., the northwest and southeast corners of the existing Ashcroft Draw crossing structure). The approximate boring locations are indicated on the attached boring location diagram. The locations of the borings should be considered accurate only to the degree implied by the methods used to make the field measurements.

The test borings were completed using a truck mounted CME-75 drill rig equipped with a hydraulic head employed in drilling and sampling operations. The boreholes were advanced by using 4-inch nominal diameter continuous flight augers. Samples of the subsurface materials encountered were obtained using split-barrel and California barrel sampling procedures in general accordance with ASTM Specifications, D-1586 and D-3550, respectively.

In the split-barrel and California barrel sampling procedures, standard sampling spoons are driven into the ground by means of a 140-pound hammer falling a distance of 30 inches. The number of blows required to advance the samplers is recorded and is used to estimate the in-situ relative density of cohesionless soils and, to a lesser degree of accuracy, the consistency of cohesive soils and hardness of weathered bedrock. In the California barrel sampling procedure, relatively undisturbed samples are obtained in removable brass liners. All samples obtained in the field were sealed and returned to the laboratory for further examination, classification, and testing.

Laboratory moisture content tests were completed on each of the recovered samples. Atterberg limits and washed sieve analysis tests were completed on selected samples to evaluate the percentage and plasticity of fines in the subgrades. Swell/consolidation tests were performed on representative samples to evaluate the soil's tendency to change volume with variation in moisture content and load. Soluble sulfate tests were completed on selected samples to evaluate

the quantity of soluble sulfates in the subgrades. Composite samples were obtained from borings for laboratory Hveem Stabilometer/R-Value (ASTM Specification D2844) testing analyses to determine the in-situ subgrade strength characteristics. Results of the outlined tests are indicated on the attached boring logs and summary sheets.

As a part of the testing program, all samples were examined in the laboratory and classified in general accordance with the attached General Notes and the Unified Soil Classification System, based on the soil's texture and plasticity. The estimated group symbol for the Unified Soil Classification System is indicated on the boring logs and a brief description of that classification system is included with this report. Classification of the bedrock was based on visual and tactual observation of disturbed samples and auger cuttings. Coring and/or petrographic analysis may reveal other rock types.

SUBSURFACE CONDITIONS

The existing pavement section, as illustrated on the enclosed site photographs, appears to be distressed and exhibits longitudinal, transverse, and isolated alligator cracks throughout. Signs of "pot-holes" and/or rutting were observed at various locations which allows for the underlying subsoils to become impacted by significant surface water infiltration. Based on the field results, isolated areas also appear to exhibit relatively thin pavement sections for the anticipated traffic loading conditions, (please refer to the boring logs in the Appendix of this report for approximate measurements of existing pavement thicknesses).

An EEC representative was on-site during drilling to evaluate the subsurface materials encountered and direct the drilling activities. Field logs prepared by EEC site personnel were based on visual and tactual observation of disturbed samples and auger cuttings. Final boring logs included with this report may include modifications to those field logs based on the results of laboratory testing and engineering evaluation. Based on the results of field borings and laboratory testing, subsurface conditions can be generalized as follows.

The existing pavement wearing surface along this portion of 65th Avenue generally consisted of approximately 4-1/2 to 14-inches of an existing asphaltic concrete pavement (ACP) material, (the thicker section of ACP was encountered along the south bound lane at boring B-16, while the remaining pavement borings, alternating between lanes, the ACP was typically 4.5 to 8-

inches thick). For reporting purposes, we are identifying the wearing surface as ACP versus hot mix asphalt (HMA) due to the varying layers of possible HMA overlays or chip seals which have been performed along 65th Avenue over the years. The ACP wearing surface materials were generally underlain by a layer of existing aggregate base course (ABC) between 0 to 24-inches thick. Silty sand and/or clayey sand, fine to course granular subsoils were encountered beneath the pavement and underlying ABC sections and extended to the depths explored, and/or to the bedrock formation below. Claystone/siltstone/sandstone bedrock was encountered in borings B-1, B-3, B-4, and B-11 through B-17 at approximate depths of 5 to 16-feet below site grades and extended to the depths explored, approximately 10 to 30-feet below existing site grades. The bedrock consisted of moderately hard to hard sandstone/siltstone/claystone. The bedrock materials were weathered nearer surface; however, became less weathered and more competent with depth. Occasional well-cemented sandstone bedrock lenses may be encountered with increased depths. To penetrate the well-cemented sandstone lenses, specialized equipment may be required.

The stratification boundaries indicated on the boring logs represent the approximate locations of changes in soil and bedrock types; in-situ, the transition of materials may be gradual and indistinct. In addition, the soil borings show conditions at the test borings locations; variations in subsurface conditions can occur at relatively short distances from the boring locations.

GROUNDWATER CONDITIONS

Groundwater was observed in one (1) pavement and both structural related test borings (i.e. borings B-1, B-3 and B-4) at approximate depths of 8 to 13-feet below existing site grades during the drilling operation; groundwater was not recorded to maximum depths of exploration in the other borings. All of the borings were backfilled with soil and approximately 6-inches of cold-patch asphalt upon completion of the drilling exploration; therefore, stabilized groundwater measurements were not obtained.

Fluctuations in groundwater levels can occur over time depending on variations in hydrologic conditions, volume/flow of water in the Ashcroft Draw crossing, and other conditions not apparent at the time of this report. Monitoring in cased borings, sealed from the influence of surface infiltration, would be required to more accurately evaluate groundwater levels and fluctuations in the groundwater levels over time.

Zones of perched and/or trapped groundwater may occur at times in the subsurface soils overlying bedrock, on top of the bedrock surface or within permeable fractures in the bedrock materials. The observations provided in this report represent groundwater conditions at the time of the field exploration, and may not be indicative of other times, or at other locations.

ANALYSIS AND RECOMMENDATIONS

Evaluation of Existing Pavement Structure

As illustrated on the enclosed site photographs, several areas of the ACP materials across the site exhibited longitudinal, transverse and/or alligator cracking. The existing pavement section for the site, as previously presented, varied from approximately 4-1/2 to 14 inches of ACP underlain by approximately 0 to 24 inches of aggregate base course (ABC). These varying thicknesses across the site would correlate to overall structural numbers, (assuming a reduced pavement strength coefficient of 0.30 for the existing ACP and 0.10 for the existing ABC), ranging from about 1.50 to 4.20, or an average of about 2.82. As further discussed in this report, we have estimated a structural number for the reconstruction of 3.89 assuming an 18-kip equivalent daily load application (EDLA) value of 215 (The EDLA value used for the section of 65th Avenue from US Highway 34 to West 29th Street), and generally consistent with a 4-lane arterial roadway. Therefore the existing 65th Avenue pavement conditions indicate the existing pavement sections, in general, are deficient for the anticipated current and/or future traffic conditions.

For slightly cohesive to fine grained subgrade soils, it is typically suggested to place a zone of aggregate base course (ABC) between the hot mix asphalt (HMA) section and the underlying subgrade to reduce the potential for trapped moisture. The ABC section acts as a capillary break mechanism, a load distribution, and a leveling course. For the rehabilitation/reconstruction of the on-site pavement area we would recommend the use of a composite HMA/ABC section over a stable subgrade section with possible edge drains to intercept surface water runoff.

Swell – Consolidation Test Results

Swell/consolidation testing is performed to evaluate the swell or collapse potential of soil or bedrock to assist in determining/evaluating foundation, floor slab and/or pavement design

criteria. In the swell/consolidation test, samples obtained directly from the California barrel sampler are placed in a laboratory apparatus and inundated with water under a pre-established load. The swell-index is the resulting amount of swell or collapse under the initial loading condition expressed as a percent of the sample's initial thickness. After the initial monitoring period, additional incremental loads are applied to evaluate swell pressure and/or consolidation response.

For this assessment, we conducted nine (9) swell-consolidation tests at various intervals/depths throughout the site. The swell index values for the samples analyzed for pavement design criteria, (i.e., soil samples tested at the 150 psf-inundation pressure), revealed low to no swell potential characteristics ranging from approximately (+/-) 0.0 to (+) 1.5%. The swell index values for the samples analyzed for foundation design criteria, (i.e., soil samples evaluated at either 500 or 1,000 psf-inundation pressure), revealed no swell potential characteristics ranging from (-) 0.3 % to (-) 0.1%. The (-) test results indicate the tendency to consolidate upon inundation with water, while the (+) test results indicate the swell potential characteristics. The higher swell-index result was of a sandy lean clay / clayey sand sample obtained from boring B-5 at an approximate depth of 2-feet below existing site grades and inundation/pre-loaded at 150 psf. A summary of the laboratory swell-consolidation test results is presented on the table below.

Table I – Laboratory Swell-Consolidation Test Results

Boring No.	Depth ft.	Material Type	Swell Consolidation Test Results			
			Moisture Content, %	Dry Density, PCF	Inundation Pressure, psf	Swell Index, %
B-1	2	Silty Sand	10.3	108.5	150	(+) 0.0
B-4	9	Silty Sand	14.0	104.1	500	(-) 0.1
B-4	19	Sandstone Bedrock	19.7	106.8	1000	(-) 0.3
B-5	2	Sandy Lean Clay	12.0	120.8	150	(+) 1.5
B-7	2	Silty Sand	7.8	117.5	150	(+) 0.0
B-9	2	Silty Sand	5.6	112.3	150	(+) 0.4
B-11	2	Silty/Clayey Sand	8.8	127.7	150	(+) 0.3
B-13	2	Silty/Clayey Sand	11.6	118.5	150	(+) 0.5
B-17	2	Silty Sand	6.9	116.1	150	(+) 0.0

The swell index values for the pavement related soil samples tested at the 150-psf inundation pressure generally revealed non to low swell characteristics on the order of (+/-) 0.0 to (+) 1.5%, which is less than the standard 2 percent guideline for requiring a swell mitigation plan.

Colorado Association of Geotechnical Engineers (CAGE) uses the following information presented below in Table II, to provide uniformity in terminology between geotechnical engineers to provide a relative correlation of performance risk to measured swell. "The representative percent swell values are not necessarily measured values; rather, they are a judgment of the swell of the soil and/or bedrock profile likely to influence slab performance." Geotechnical engineers use this information to also evaluate the swell potential risks for foundation performance based on the risk categories.

Table II - Recommended Representative Swell Potential Descriptions and Corresponding Slab Performance Risk Categories

Slab Performance Risk Category	Representative Percent Swell (500 psf Surcharge)	Representative Percent Swell (1000 psf Surcharge)
Low	0 to < 3	0 < 2
Moderate	3 to < 5	2 to < 4
High	5 to < 8	4 to < 6
Very High	> 8	> 6

Based on the laboratory test results, the samples analyzed for this project were within the low range.

General Considerations

The site appears suitable for the proposed development/construction based on the subsurface conditions; however certain precautions will be required in the design and construction addressing the groundwater conditions in conjunction with the Ashcroft Draw crossing box culvert replacement structure as well as demolition of the existing concrete structure.

Based on our understanding of the proposed Ashcroft Draw crossing structure, temporary dewatering may be necessary. Groundwater in the general vicinity of the proposed concrete box culvert (CBC) structure was encountered at approximate depths of 16-feet below site grades.

It is anticipated that excavations for the proposed roadway improvements and the culvert structures can be accomplished with conventional earthmoving equipment. Shoring mechanisms may be necessary to protect the existing terrain/adjacent slopes in conjunction with the CBC structure during excavation and construction stages. Depending upon the depth of foundation construction for the CBC structure, a shoring plan may be necessary to protect the adjacent sidewall slopes. The project design team should use the subsurface information provided herein (i.e., subsurface information from borings B-3 and B-4), to properly design a mechanism for shoring protection. EEC is available to provide supplemental design criteria or details such as but not limited to sheet piles, secant piles or piers, soldier piers, or a tie-back/bracing concept.

Demolition of the existing Ashcroft Draw crossing structure should include complete removal of all concrete/foundation systems within the proposed construction area. This should include removal of any loose backfill found adjacent to existing foundations. All materials derived from the demolition of the existing culvert/structure and associated pavements should be removed and wasted from the site, unless approved for alternative use. Consideration could be given to pulverizing the pavement materials and foundation concrete into 3-inch minus material and devoid of reinforcement, into structural fill material. Additional recommendations for reuse of the existing concrete and pavement materials can be provided upon request. After demolition of the existing structure, a thorough site evaluation should be performed to evaluate and determine the consistency/integrity of the subsoils in the area.

Roadway Subgrade Preparation

All existing vegetation and/or topsoil and any existing pavement should be removed from the proposed pavement reconstruction areas. Existing gravel base materials could remain in-place; however, should be thoroughly blended with the underlying subgrade soils to reduce potential for establishing a layer in the pavement subgrades which would pond water. After stripping and completing all cuts and prior to placement of any fill, road base or pavements, we recommend the in-place soils be scarified to a minimum depth of 9 inches, adjusted in moisture content to within ±2% of standard Proctor optimum moisture content for essentially cohesive soils and to ±3% for essentially granular soils, and compacted to at least 95% of the material's standard Proctor maximum dry density as determined in accordance with ASTM Specification D698.

Fill soils required to develop the pavement subgrades should consist of approved, low volume change materials which are free from organic matter and debris. Soils similar to the near surface silty/clayey sand soils could be used in the pavement subgrades. We recommend those fill soils be placed in loose lifts not to exceed 9 inches thick, adjusted in moisture content as recommended for the scarified materials and compacted to at least 95% of standard Proctor maximum dry density.

The silty/clayey sand subgrade soils may show strength loss and instability when wetted. Stabilization of those subgrades could be necessary at the time of construction to develop a stable platform for subsequent paving. Stabilization could be predesigned into the subgrades and stabilized subgrades considered a part of the pavement section. We would be pleased to provide additional information concerning stabilization of the pavement subgrades, if desired.

After preparation of the pavement subgrades, care should be taken to avoid disturbing the prepared subgrades. Subgrade soils which are loosened or disturbed by the construction activities or soils which become dry and desiccated or wet and softened should be removed and replaced or reworked in-placed prior to construction of the overlying pavement section.

Positive drainage should be developed away from the pavement edges to avoid wetting of the pavement subgrades. Subgrades becoming wetted subsequent to construction can result in loss of subgrade support and unacceptable pavement performance.

Site Preparation – CBC Structure

All existing vegetation and/or topsoil should be removed from improvement and/or fill areas in conjunction with the proposed CBC structure. Demolition of the existing CBC structure should include complete removal of all concrete within the proposed construction area. This should include removal of any loose backfill found adjacent to any existing feature. All materials derived from the demolition of any existing feature/structure should be removed from the site and not be allowed for use in any on-site fills without approval. Consideration could be given to pulverizing the concrete debris into 3-inch minus material and incorporating into the on-site soils as a mechanism to enhance the structural integrity of the subgrade materials. Additional recommendations can be provided upon request for implementation of this concept. Any fill

material and any softer "silted-in" material associated with the existing CBC structure, when demolition, removal and/or construction procedures occur should also be removed from the improvement or fill areas.

Based on our understanding of the proposed development, we anticipate about 1 to 5-feet of cut and fill may be necessary to achieve final design grades along the new roadway alignment and possibly within the proposed CBC structure area. After stripping and completing all cuts and prior to placement of any fill or site improvements, we recommend the exposed soils be scarified to a minimum depth of 9-inches, adjusted in moisture content to within ±2% of standard Proctor optimum moisture content for essentially cohesive soils and to ±3% for essentially granular soils, and compacted to at least 95% of the material's standard Proctor maximum dry density as determined in accordance with ASTM Specification D-698. For stabilization purposes, if necessary, consideration could be given to placement of a granular material, such as a 3-inch minus recycled concrete or equivalent, embedded into the underlying subsoils, prior to placement of additional fill material or operating heavy earth-moving equipment. Removal and replacement of a defined depth of the softer soils could also be considered. Supplemental recommendations can be provided upon request based on conditions encountered at the time of construction.

Fill soils required for developing the proposed structural related subgrades, after the initial zone has been prepared or stabilized where necessary, should consist of approved, low-volume-change materials, which are free from organic matter and debris. It is our opinion the on-site subsoils could be used as general site fill material, provided adequate moisture treatment and compaction procedures are followed. To reduce the amount of potential movement, we suggest engineered fill materials be placed and compacted in the general vicinity of slab support and the backfill zone, and consist of essentially granular soils equivalent to a CDOT Class 5, 6, or 7 ABC material, either natural or recycled concrete could be considered.

The fill and backfill soils should be placed in loose lifts not to exceed 9 inches thick, adjusted in moisture content to within ±2% of standard Proctor optimum moisture content for essentially cohesive soils and to ±3% for essentially granular soils, and compacted to at least 95% (for backfill portions) and 98%, (beneath all foundations), of standard Proctor maximum dry density per ASTM Specification D-698.

In areas where excavations will extend below existing groundwater table, placement of cleaner granular fill material may be desirable. Compaction of materials containing appreciable fines may not be possible. Those materials should be placed in lifts and compacted to at least 70% relative density, where applicable.

Areas of deeper fills may experience settlement from underlying native soils and within the placed fill materials. Settlement on the order of 1 to 1 ½ percent of the fill depth could be estimated. The rate of settlement will be dependent on the type of fill material placed, percent of placement density, and construction methods. Granular soils will consolidate essentially immediately upon placement of overlying loads. Cohesive soils will consolidate at a slower rate.

After placement of the fill materials, care should be taken to avoid excessive wetting or drying of those materials. Bearing materials which are loosened or disturbed by the construction activities or materials which become dry and desiccated or wet and softened should be removed and replaced or reworked in place prior to construction of the overlying improvements.

Spread Footing Foundation System – Ashcroft Draw Crossing CBC

We anticipate the Ashcroft Draw crossing structure will consist of a lightly loaded concrete box culvert, 4-side pre-cast structure. This structure we assume loads less than 2 klf, which could be supported by the use of spread footings or a mat foundation system bearing upon approved native granular subsoils, ground modified native subsoils, or on engineered structural fill material.

Footings bearing on approved native essentially granular subsoils, ground modified native subsoils or engineered structural fill material could be designed for a maximum net allowable bearing pressure of 2,000 psf. The net bearing pressure refers to the pressure at foundation bearing level in excess of the minimum surrounding overburden pressure. Total load should include full dead and live loads.

Lateral Earth Pressures

A portion of the CBC structure and associated wing walls will be constructed below grade and will be subject to lateral earth pressures. Passive lateral earth pressures may help resist the driving forces for retaining wall or other similar site structures.

Active lateral earth pressures could be used for design of structures where some movement of the structure is anticipated, such as retaining walls. The total deflection of structures for design with active earth pressure is estimated to be on the order of one half of one percent of the height of the down slope side of the structure. We recommend at-rest pressures be used for design of structures where rotation of the walls is restrained. Passive pressures and friction between the footing and bearing soils could be used for design of resistance to movement of retaining walls.

Coefficient values for backfill with anticipated types of soils for calculation of active, at rest and passive earth pressures are provided in the table below. The assumed friction angles of the soils should be verified at the time of construction and the design modified or alternate materials used if the selected materials do not match the assumed designed values. Equivalent fluid pressure is equal to the coefficient times the appropriate soil unit weight. Those coefficient values are based on horizontal backfill with backfill soils consisting of essentially granular materials with a friction angle of 35 degrees. For the at-rest and active earth pressures, slopes away from the structure would result in reduced driving forces with slopes up away from the structures resulting in greater forces on the walls. The passive resistance would be reduced with slopes away from the wall. The top 30-inches of soil on the passive resistance side of walls could be used as a surcharge load; however, should not be used as a part of the passive resistance value. Frictional resistance is equal to the tangent of the friction angle times the normal force.

Table III: Lateral Earth Pressures		
Soil Type	**Low Plasticity Overburden**	**Medium Dense Granular**
Wet Unit Weight	120	130
Saturated Unit Weight	135	140
Friction Angle (ϕ) – (assumed)	25°	35°
Active Pressure Coefficient	0.40	0.27
At-rest Pressure Coefficient	0.58	0.43
Passive Pressure Coefficient	2.46	3.70

Surcharge loads or point loads placed in the backfill can also create additional loads on below grade walls. Those situations should be designed on an individual basis.

The outlined values do not include factors of safety nor allowances for hydrostatic loads and are based on assumed friction angles, which should be verified after potential material sources have been identified. Care should be taken to develop appropriate drainage systems behind below grade walls to eliminate potential for hydrostatic loads developing on the walls. Those systems would likely include perimeter drain systems extending to sump areas or free outfall where reverse flow cannot occur into the system. Where necessary, appropriate hydrostatic load values should be used for design.

Pavement Sections

We understand 65th Avenue in this area is classified as minor arterial. Based on a traffic study completed by Fox Tuttle Transportation Group, LLC and dated January 25, 2012, the existing roadway currently carries 10,000 vehicles per day (vpd). The 2035 projected traffic is 40,000 vpd. Assuming 80% of the traffic in the design lane with 50% of the traffic in each direction and a traffic mix containing 5% trucks, a 20-year equivalent single axle load (ESAL) of 1,569,500 is estimated. That ESAL value correlates to an 18 kip equivalent daily load application (EDLA) of 215, which is generally consistent for a 4-lane arterial roadway, which was used in the pavement design calculations.

Hveem stabilometer R-Values of 26 and 47 were determined for the subgrade soils for the upper 4-feet of subgrade between borings B-1 through B-8 and B-9 through B17, respectively. In an effort to be conservative, an R-Value of 26 was used for the pavement design. That stabilometer R-Value corresponds to a resilient modulus (M_r) value of 6010 psi using the CDOT correlation. The resilient modulus value of 6010 psi was used for the pavement design for this project. Pavement section recommendations based on the outlined traffic and subgrade parameters are provided in the table below. Additional alternatives could be considered and we would be pleased to provide further recommendations, at your request.

TABLE IV – PAVEMENT SECTION DESIGN/RECOMMENDATIONS		
Pavement Design Inputs	**65th Avenue – 4-Lane Arterial**	
Equivalent Daily Load Application (EDLA) Value – Default No. Equivalent Single Axle Loads (ESAL) 20 yr. design Reliability Resilient Modulus (M_r) (R=26) PSI Loss	200 1,460,000 90% 6010 2.0	
Calculated Design Structural Number	3.85	
Pavement Recommendations		
HMA Grading S or SX (75) PG 58-28 or 64-22 ABC – CDOT Class 5 or 6 Design Structure Number	6½"@ 0.44 = 2.86 9″ @ 0.11 = 0.99 (3.85)	6″ @ 0.44 = 2.64 11″ @ 0.11 =1.21 (3.85)
PCC (Non-reinforced) – placed on an approved subgrade	8 ″	

Hot mix asphalt (HMA) for use in the pavement should be either S 75 or SX 75 with PG 64-28 modified binder as directed by City of Greeley engineering.

Excavation and Trench Construction

Excavations into the on-site soils will encounter caving soils and possibly groundwater, depending upon the final depth of excavation. The individual contractor(s) should be made responsible for designing and constructing stable, temporary excavations as required to maintain stability of both the excavation sides and bottom. All excavations should be sloped or shored in the interest of safety following local and federal regulations, including current OSHA excavation and trench safety standards.

Water Soluble Sulfates

The water soluble sulfate (SO_4) testing of the on-site overburden materials and bedrock taken during our subsurface exploration at depths of approximately 2 to 9-feet are provided in the table below. Based on the reported sulfate content test results, this report includes a recommendation for the CLASS of cement for use for contact in association with the on-site subsoils.

TABLE V - Water Soluble Sulfate Test Results

Sample Location	Description	Soluble Sulfate Content (mg/kg)	Soluble Sulfate Content (%)
B-2, S-1 at 2’	Silty/Clayey Sand	100	0.01
B-3, S-2 at 9’	Silty/Clayey Sand	160	0.02
B-8, S-1 at 2’	Sandy Lean Clay/Clayey Sand	380	0.04
B-12, S-1 at 2’	Sandy Lean Clay	680	0.07
B-15, S-3 at 9’	Sandstone	50	0.01

Based on the results as presented in Table IV above, ACI 318, Section 4.2 indicates the site overburden soils have a low risk of sulfate attack on Portland cement concrete. Therefore Class 0 and/or Type I/II cement could be used for concrete on and below site grade within the overburden soils and/or bedrock. Foundation concrete should be designed in accordance with the provisions of the ACI Design Manual, Section 318, Chapter 4. These results are being compared to the table below.

TABLE VI - Requirements to Protect Against Damage to Concrete by Sulfate Attack from External Sources of Sulfate

Severity of Sulfate exposure	Water-soluble sulfate (SO4) in dry soil, percent	Water-cement ratio, maximum	Cementitious material Requirements
Class 0	0.00 to 0.10%	0.45	Class 0
Class 1	0.11 to 0.20%	0.45	Class 1
Class 2	0.21 to 2.00%	0.45	Class 2
Class 3	2.01 of greater	0.45	Class 3

GENERAL COMMENTS

The analysis and recommendations presented in this report are based upon the data obtained from the soil borings performed at the indicated locations and from any other information discussed in this report. This report does not reflect any variations, which may occur between borings or across the site. The nature and extent of such variations may not become evident until construction. If variations appear evident, it will be necessary to re-evaluate the recommendations of this report.

It is recommended that the geotechnical engineer be retained to review the plans and specifications so that comments can be made regarding the interpretation and implementation of our geotechnical recommendations in the design and specifications. It is further recommended that the geotechnical engineer be retained for testing and observations during earthwork and foundation construction phases to help determine that the design requirements are fulfilled.

This report has been prepared for the exclusive use of Interwest Consulting Group for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranty, express or implied, is made. In the event that any changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by the geotechnical engineer.

DRILLING AND EXPLORATION

DRILLING & SAMPLING SYMBOLS:

SS: Split Spoon - 13/8" I.D., 2" O.D., unless otherwise noted
ST: Thin-Walled Tube - 2" O.D., unless otherwise noted
R: Ring Barrel Sampler - 2.42" I.D., 3" O.D. unless otherwise noted
PA: Power Auger
HA: Hand Auger
DB: Diamond Bit = 4", N, B
AS: Auger Sample
HS: Hollow Stem Auger
PS: Piston Sample
WS: Wash Sample
FT: Fish Tail Bit
RB: Rock Bit
BS: Bulk Sample
PM: Pressure Meter
WB: Wash Bore

Standard "N" Penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2-inch O.D. split spoon, except where noted.

WATER LEVEL MEASUREMENT SYMBOLS:

WL : Water Level
WCI: Wet Cave in
DCI: Dry Cave in
AB : After Boring
WS : While Sampling
WD : While Drilling
BCR: Before Casing Removal
ACR: After Casting Removal

Water levels indicated on the boring logs are the levels measured in the borings at the time indicated. In pervious soils, the indicated levels may reflect the location of ground water. In low permeability soils, the accurate determination of ground water levels is not possible with only short term observations.

DESCRIPTIVE SOIL CLASSIFICATION

Soil Classification is based on the Unified Soil Classification system and the ASTM Designations D-2488. Coarse Grained Soils have move than 50% of their dry weight retained on a #200 sieve; they are described as: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are described as : clays, if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse grained soils are defined on the basis of their relative in-place density and fine grained soils on the basis of their consistency. Example: Lean clay with sand, trace gravel, stiff (CL); silty sand, trace gravel, medium dense (SM).

CONSISTENCY OF FINE-GRAINED SOILS

Unconfined Compressive Strength, Qu, psf	Consistency
< 500	Very Soft
500 - 1,000	Soft
1,001 - 2,000	Medium
2,001 - 4,000	Stiff
4,001 - 8,000	Very Stiff
8,001 - 16,000	Very Hard

RELATIVE DENSITY OF COARSE-GRAINED SOILS:

N-Blows/ft	Relative Density
0-3	Very Loose
4-9	Loose
10-29	Medium Dense
30-49	Dense
50-80	Very Dense
80 +	Extremely Dense

PHYSICAL PROPERTIES OF BEDROCK

DEGREE OF WEATHERING:

Slight	Slight decomposition of parent material on joints. May be color change.
Moderate	Some decomposition and color change throughout.
High	Rock highly decomposed, may be extremely broken.

HARDNESS AND DEGREE OF CEMENTATION:

Limestone and Dolomite:

Hard	Difficult to scratch with knife.
Moderately	Can be scratched easily with knife.
Hard	Cannot be scratched with fingernail.
Soft	Can be scratched with fingernail.

Shale, Siltstone and Claystone:

Hard	Can be scratched easily with knife, cannot be scratched with fingernail.
Moderately Hard	Can be scratched with fingernail.
Soft	Can be easily dented but not molded with fingers.

Sandstone and Conglomerate:

Well Cemented	Capable of scratching a knife blade.
Cemented	Can be scratched with knife.
Poorly Cemented	Can be broken apart easily with fingers.

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests					Soil Classification: Group Symbol	Soil Classification: Group Name
Coarse - Grained Soils more than 50% retained on No. 200 sieve	Gravels more than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines	Cu≥4 and 1<Cc≤3[E]		GW	Well-graded gravel [F]
			Cu<4 and/or 1>Cc>3[E]		GP	Poorly-graded gravel [F]
		Gravels with Fines more than 12% fines	Fines classify as ML or MH		GM	Silty gravel [G,H]
			Fines Classify as CL or CH		GC	Clayey Gravel [F,G,H]
	Sands 50% or more coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines	Cu≥6 and 1<Cc≤3[E]		SW	Well-graded sand [I]
			Cu<6 and/or 1>Cc>3[E]		SP	Poorly-graded sand [I]
		Sands with Fines more than 12% fines	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils 50% or more passes the No. 200 sieve	Silts and Clays Liquid Limit less than 50	inorganic	PI>7 and plots on or above "A" Line		CL	Lean clay [K,L,M]
			PI<4 or plots below "A" Line		ML	Silt [K,L,M]
		organic	Liquid Limit - oven dried / Liquid Limit - not dried	<0.75	OL	Organic clay [K,L,M,N] / Organic silt [K,L,M,O]
	Silts and Clays Liquid Limit 50 or more	inorganic	PI plots on or above "A" Line		CH	Fat clay [K,L,M]
			PI plots below "A" Line		MH	Elastic Silt [K,L,M]
		organic	Liquid Limit - oven dried / Liquid Limit - not dried	<0.75	OH	Organic clay [K,L,M,P] / Organic silt [K,L,M,O]
Highly organic soils		Primarily organic matter, dark in color, and organic odor			PT	Peat

[A]Based on the material passing the 3-in. (75-mm) sieve

[B]If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C]Gravels with 5 to 12% fines required dual symbols:

GW-GM well graded gravel with silt

GW-GC well-graded gravel with clay

GP-GM poorly-graded gravel with silt

GP-GC poorly-graded gravel with clay

[D]Sands with 5 to 12% fines require dual symbols:

SW-SM well-graded sand with silt

SW-SC well-graded sand with clay

SP-SM poorly graded sand with silt

SP-SC poorly graded sand with clay

$$^{E}Cu=D_{60}/D_{10} \quad Cc=\frac{(D_{30})^2}{D_{10} \times D_{60}}$$

[F]If soil contains ≥15% sand, add "with sand" to

[G]If fines classify as CL-ML, use dual symbol GC-CM, or SC-SM.

[H]If fines are organic, add "with organic fines" to group name

[I]If soil contains >15% gravel, add "with gravel" to group name

[J]If Atterberg limits plots shaded area, soil is a CL-ML, Silty clay

[K]if soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel", whichever is predominant.

[L]If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

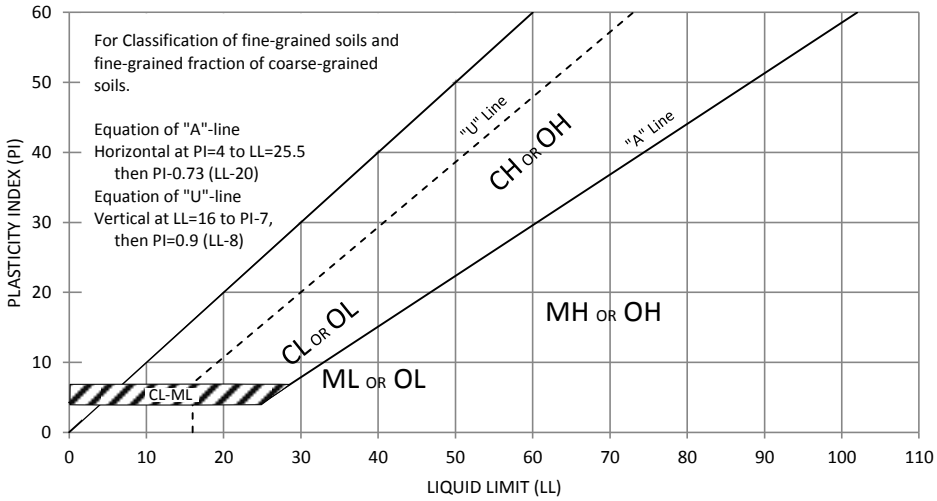
[M]If soil contains ≥30% plus No. 200 predominantly gravel, add "gravelly" to group name.

[N]PI≥4 and plots on or above "A" line.

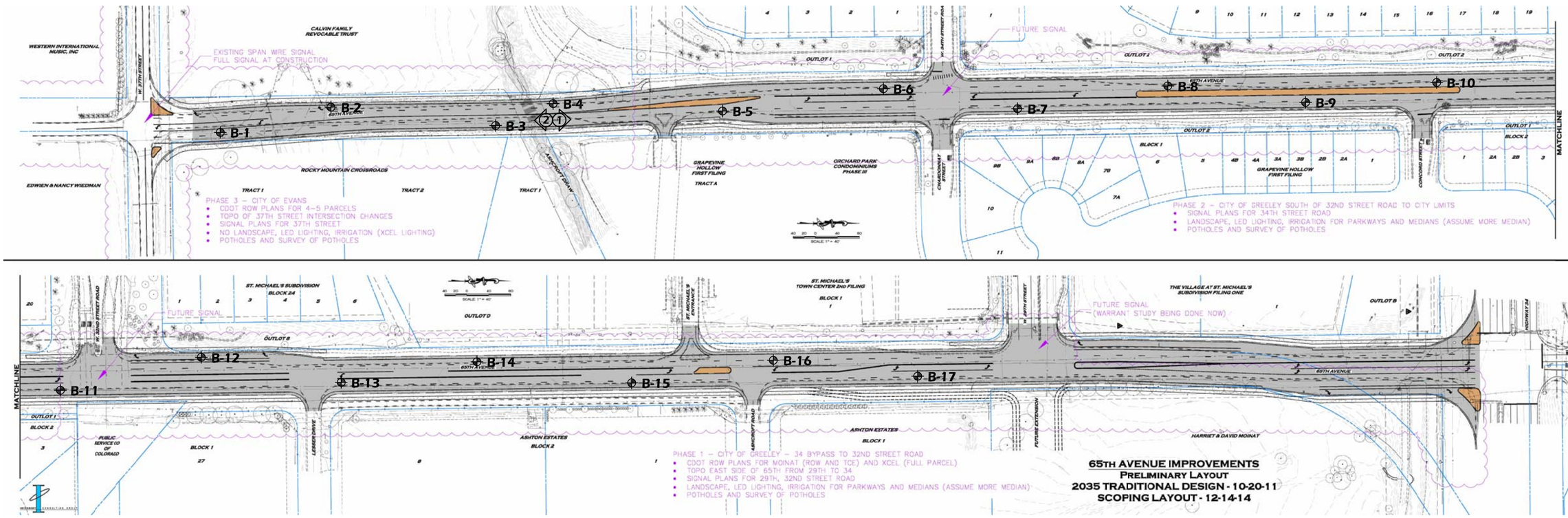
[O]PI≤4 or plots below "A" line.

[P]PI plots on or above "A" line.

[Q]PI plots below "A" line.



65TH AVENUE REHABILITATION
GREELEY, COLORADO
EEC PROJECT NO. 1152080
AUGUST 2015



Legend

- B-1 thru B-17: CDOT Related Soil Borings - 1 per 500 LF per Lane &/or 1 per 250 throughout the Alignment, Drilled 10 feet
- B-3 & B-4: Extended to Approximate Depths of 20-30' for Box Culvert Foundation Design
- Site Photos
  (Photos taken in approximate location, in direction of arrow)

EARTH ENGINEERING CONSULTANTS, LLC

PROJECT: PROPOSED BORING LOCATION DIAGRAM
65TH AVENUE TO 37TH STREET
GREELEY, COLORADO
EEC PROJECT NUMBER: 1152080

DATE	8/2015
SCALE	NTS
DRAWN BY	
DESIGNED	
REVIEWED	

REVISIONS	BY	DATE

Sheet 1 of 1

65TH AVENUE ROADWAY IMPROVEMENTS - SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-1**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**8'**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 5.5"											
BASE - 10"		1									
SILTY/CLAYEY SAND (SM-SC)		2									
brown											% @ 150 psf
medium dense	CS	3	13	1500	10.3	111.1	18	2	41.4	<150 psf	None
		4									
brown	SS	5	3	2000	13.4						
loose		6									
		7									
		8									
		9									
CLAYSTONE/SANDSTONE/SILTSTONE	SS	10	7	3000	25.1						
grey / rust, highly weathered; soft											
BOTTOM OF BORING DEPTH 10.5'		11									
		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

Earth Engineering Consultants, LLC

65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-2**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 5"											
BASE - 16"		1									
SILTY/CLAYEY SAND (SM-SC)		2									
brown											
medium dense	CS	3	13	2500	5.4	114.9					
		4									
dark brown	SS	5	3	500	9.0		16	2	33.5		
very loose		6									
		7									
		8									
		9									
brown											
medium dense	SS	10	15	1500	14.5						
BOTTOM OF BORING DEPTH 10.5'		11									
		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

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65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-3**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**12.5'**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 5.5"		1									
BASE - >24"											
SILTY/CLAYEY SAND (SM-SC)		2									
brown											
medium dense		3									
		4									
	CS	**5**	**18**	**1000**	**9.8**	**109.8**					
		6									
		7									
		8									
		9									
loose	SS	**10**	**9**	**1000**	**7.1**						
		11									
		12									
		13									
		14									
no recovery; auger cuttings											
medium dense	CS	**15**	**23**	**--**	**16.7**						
		16									
SANDSTONE / SILTSTONE BEDROCK		17									
brown / rust											
moderately hard to hard		18									
		19									
	SS	**20**	**50/6"**	**1000**	**28.2**						
		21									
		22									
		23									
		24									
CLAYSTONE / SILTSTONE / SANDSTONE											
grey / rust; moderately hard to hard	SS	**25**	**50/11"**	**9000+**	**22.8**						
BOTTOM OF BORING DEPTH 25.5'											

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65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-4**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 2*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**13'**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 5"											
BASE - >24"		1									
SILTY/CLAYEY SAND (SM-SC)		2									
grey / grey											
dense to medium dense	CS	3	**43**	**9000+**	**8.0**	**131.8**					
with traces of gravel		4									
mottled	SS	**5**	**23**	**7500**	**10.0**						
		6									
		7									
		8									
		9									
loose to very loose	CS	**10**	**6**	**1000**	**14.0**	**107.4**	**NL**	**NP**	**36.8**	**<500 psf**	**None**
		11									
		12									
		13									
		14									
*Intermittent soft Lean Clay with Sand (CL) lens	SS	**15**	**3**	**500**	**23.9**		**34**	**18**	**75.6**		
		16									
SANDSTONE / SILTSTONE BEDROCK		17									
brown / rust											
moderately hard to hard		18									
		19									% @ 1000 psf
	CS	**20**	**50/6"**	**2000**	**19.7**	**106.8**	**NL**	**NP**	**25.5**	**<1000 psf**	**None**
		21									
		22									
		23									
		24									
CLAYSTONE / SILTSTONE / SANDSTONE											
grey / rust	SS	**25**	**50/11"**	**9000**	**21.4**						
Continued on Sheet 2 of 2											

65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-4**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 2 OF 2*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**13'**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
Continued from Sheet 1 of 2		26									
CLAYSTONE / SILTSTONE / SANDSTONE		27									
grey / rust											
moderately hard to hard		28									
		29									
*interbedded cemented SANDSTONE lens	CS	**30**	**50/1"**								
BOTTOM OF BORING DEPTH 30.0'		31									
		32									
		33									
		34									
		35									
		36									
		37									
		38									
		39									
		40									
		41									
		42									
		43									
		44									
		45									
		46									
		47									
		48									
		49									
		50									

65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-5**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 8"											
BASE - 5"		1									
SANDY LEAN CLAY / CLAYEY SAND (CL/SC)		2									
brown											% @ 150 psf
very stiff to medium stiff / medium dense to loose	CS	3	18	9000+	12.0	121.8	29	16	56.9	--	1.5%
		4									
	SS	5	7	6500	17.3						
		6									
		7									
		8									
		9									
brown / grey / rust	SS	10	9	3000	19.4						
stiff / loose											
BOTTOM OF BORING DEPTH 10.5'		11									
		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

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65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-6**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 4.5"											
BASE - 9"		1									
SANDY LEAN CLAY / CLAYEY SAND (CL/SC)		2									
brown											
stiff to medium stiff	CS	3	11	9000+	12.8	114.7					
		4									
	SS	5	5	3500	15.6						
		6									
		7									
		8									
		9									
	SS	10	9	4000	19.3						
		11									
		12									
		13									
		14									
	SS	15	11	500	19.8						
BOTTOM OF BORING DEPTH 15.5'		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

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65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-7**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 6"											
BASE - >24"		1									
SILTY SAND (SM)		2									
brown											% @ 150 psf
medium dense to loose	CS	3	**20**	**6500**	**7.8**	**121.4**	**NL**	**NP**	**35.8**	**<150 psf**	**None**
		4									
	SS	**5**	**7**	**8500**	**12.9**						
		6									
		7									
		8									
		9									
SANDY LEAN CLAY / CLAYEY SAND (CL/SC)											
brown / tan	SS	**10**	**11**	**5500**	**15.9**						
stiff / medium dense											
BOTTOM OF BORING DEPTH 10.5'		11									
		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

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65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-8**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 6"		1									
SANDY LEAN CLAY / CLAYEY SAND (CL/SC)		2									
brown											
medium stiff to soft / loose to very loose											
mottled	CS	3	6	3000	14.3	113.4					
		4									
	SS	5	3	5500	15.9						
		6									
		7									
		8									
		9									
stiff / medium dense	SS	10	15	2500	15.9						
BOTTOM OF BORING DEPTH 10.5'		11									
		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

Earth Engineering Consultants, LLC

65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-9**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 7"											
BASE - 12"		1									
SILTY/CLAYEY SAND (SM-SC)		2									
brown											% @ 150 psf
loose to very loose	CS	3	4	1500	5.6	105.8	20	2	26.2	400 psf	0.4%
		4									
	SS	5	2	3000	15.2						
		6									
		7									
		8									
		9									
brown	SS	10	14	3000	14.1						
medium dense											
BOTTOM OF BORING DEPTH 10.5'		11									
		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

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65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-10**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 6"											
BASE - 18"		1									
SILTY/CLAYEY SAND (SM-SC)		2									
brown											
medium dense to loose	CS	3	**16**	**6000**	**7.4**	**123.3**					
		4									
	SS	**5**	**3**	**5000**	**14.1**						
		6									
		7									
		8									
		9									
medium dense	SS	**10**	**15**	**2500**	**15.7**						
BOTTOM OF BORING DEPTH 10.5'		11									
		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-11**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 5"											
BASE - 9"		1									
SILTY/CLAYEY SAND (SM-SC)		2									
dark brown / grey											% @ 150 psf
dense to loose	CS	3	**40**	**9000+**	**8.8**	**129.9**	**21**	**7**	**43.3**	**500 psf**	**0.3%**
		4									
brown	SS	**5**	**4**	**3000**	**18.5**						
mottled, with calcareous deposits		6									
		7									
		8									
		9									
very loose	SS	**10**	**2**	**9000**	**17.9**						
CLAYSTONE, brown / grey / rust, highly weathered		11									
BOTTOM OF BORING DEPTH 10.5'		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

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65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-12**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 5"											
BASE - 9"		1									
SANDY LEAN CLAY (CL)		2									
brown											
stiff to medium stiff	CS	3	**12**	**5000**	**21.2**	**103.1**					
mottled		4									
	SS	**5**	**6**	**6500**	**20.4**						
CLAYSTONE		6									
brown / grey / rust											
highly weathered		7									
soft to moderately hard		8									
		9									
SANDSTONE / CLAYSTONE / SILTSTONE											
brown / grey / rust	SS	**10**	**33**	**8500**	**18.5**						
moderately hard											
BOTTOM OF BORING DEPTH 10.5'		11									
		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

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65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-13**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 6"		1									
SILTY/CLAYEY SAND (SM-SC) brown / rust medium dense to loose		2									% @ 150 psf
	CS	3	20	9000+	11.6	123.7				600 psf	0.5%
		4									
brown / tan / rust	SS	5	7	4000	20.4						
		6									
		7									
CLAYSTONE / SILTSTONE / SANDSTONE brown / grey / rust soft to moderately hard		8									
		9									
	SS	10	35	9000+	19.2						
BOTTOM OF BORING DEPTH 10.5'		11									
		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

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65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-14**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 4.5"											
BASE - 7.5"		1									
CLAYEY SAND (SC)		2									
brown											
medium dense to loose	CS	3	**18**	**5000**	**9.5**	**121.9**					
with traces of gravel		4									
	SS	**5**	**8**	**6500**	**16.1**						
		6									
		7									
CLAYSTONE / SANDSTONE / SILTSTONE		8									
brown / grey / rust											
moderately hard		9									
	SS	**10**	**50**	**500**	**18.0**						
BOTTOM OF BORING DEPTH 10.5'		11									
		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

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65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-15**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE**	**8/14/2015**	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE**	**8/14/2015**	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV**	**N/A**	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 5"		1									
SILTY/CLAYEY SAND (SM-SC)		2									
brown											
dense to loose	CS	3	30	9000+	7.4	129.4					
		4									
	SS	5	8	5500	15.3						
		6									
		7									
		8									
SANDSTONE / SILTSTONE BEDROCK		9									
brown / rust											
soft to moderately hard	SS	10	22	--	12.0						
BOTTOM OF BORING DEPTH 10.5'		11									
		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

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65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-16**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE**	**8/14/2015**	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE**	**8/14/2015**	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV**	**N/A**	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 14"		1									
SILTY/CLAYEY SAND (SM-SC)		2									
brown											
loose to very loose	CS	3	5	3500	7.5	114.1					
		4									
	SS	5	2	5000	7.3						
		6									
		7									
		8									
SANDSTONE / SILTSTONE BEDROCK		9									
brown / rust											
poorly cemented; soft to moderately hard	SS	10	29	--	11.3						
BOTTOM OF BORING DEPTH 10.5'		11									
		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

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65TH AVENUE ROADWAY IMPROVEMENTS, SOUTH TO 37TH STREET

GREELEY, COLORADO

PROJECT NO: 1152080	**LOG OF BORING B-17**	**DATE: AUGUST 2015**	
RIG TYPE: CME55	*SHEET 1 OF 1*	**WATER DEPTH**	
FOREMAN: DG	**START DATE** 8/14/2015	**WHILE DRILLING**	**None**
AUGER TYPE: 4" CFA	**FINISH DATE** 8/14/2015	**AFTER DRILLING**	**N/A**
SPT HAMMER: AUTOMATIC	**SURFACE ELEV** N/A	**24 HOUR**	**N/A**

SOIL DESCRIPTION	TYPE	D (FEET)	N (BLOWS/FT)	QU (PSF)	MC (%)	DD (PCF)	A-LIMITS LL	A-LIMITS PI	-200 (%)	SWELL PRESSURE	SWELL % @ 500 PSF
ASPHALT - 6"		1									
SILTY/CLAYEY SAND (SM-SC)		2									
brown											
loose											% @ 150 psf
	CS	3	6	3000	6.9	113.9	19	1	21.6	<150 psf	None
		4									
	SS	5	2	--	6.5						
brown											
very loose		6									
		7									
		8									
		9									
SANDSTONE / SILTSTONE BEDROCK											
highly weathered, soft to moderately hard	SS	10	15	--	11.9						
BOTTOM OF BORING DEPTH 10.5'		11									
		12									
		13									
		14									
		15									
		16									
		17									
		18									
		19									
		20									
		21									
		22									
		23									
		24									
		25									

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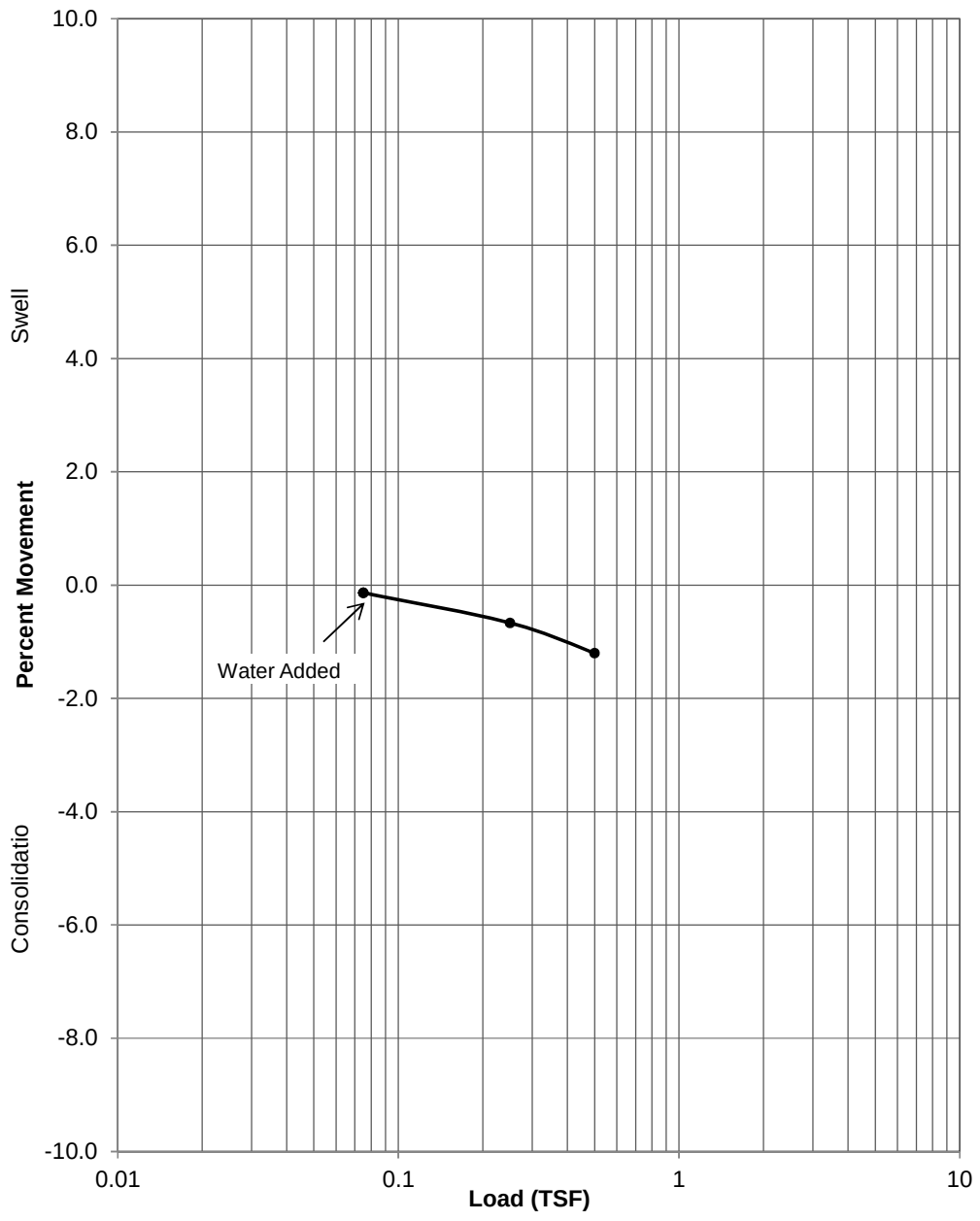
SWELL / CONSOLIDATION TEST RESULTS

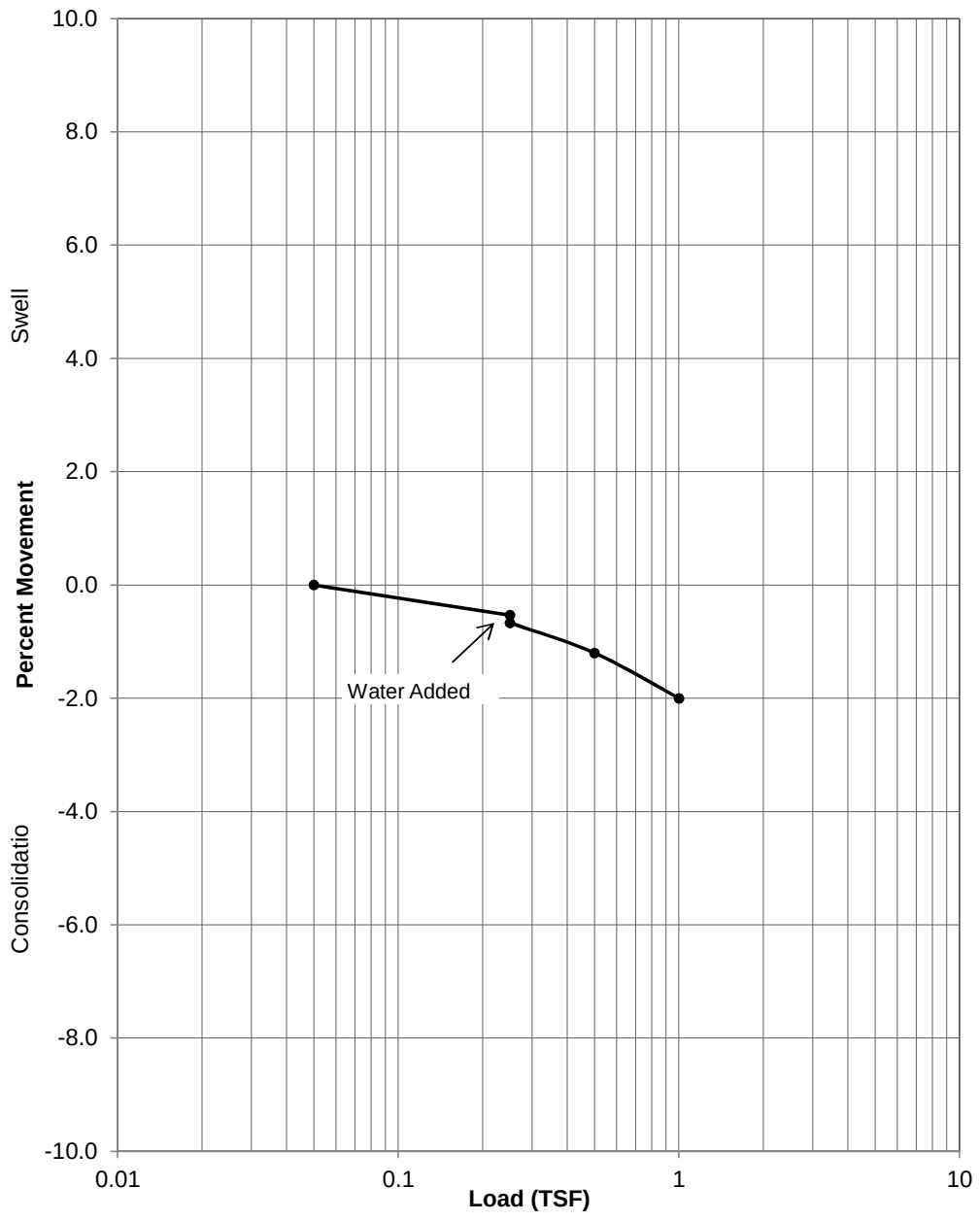
Material Description: Brown Silty Sand (SM)		
Sample Location: Boring 1, Sample 1, Depth 2'		
Liquid Limit: 18	Plasticity Index: 2	% Passing #200: 41.4%
Beginning Moisture: 10.3%	Dry Density: 108.5 pcf	Ending Moisture: 18.5%
Swell Pressure: <150 psf	% Swell @ 150: None	



Project: 65th Avenue Roadway Improvements - South to 37th St
Location: Greeley, Colorado
Project #: 1152080
Date: August 2015

SWELL / CONSOLIDATION TEST RESULTS

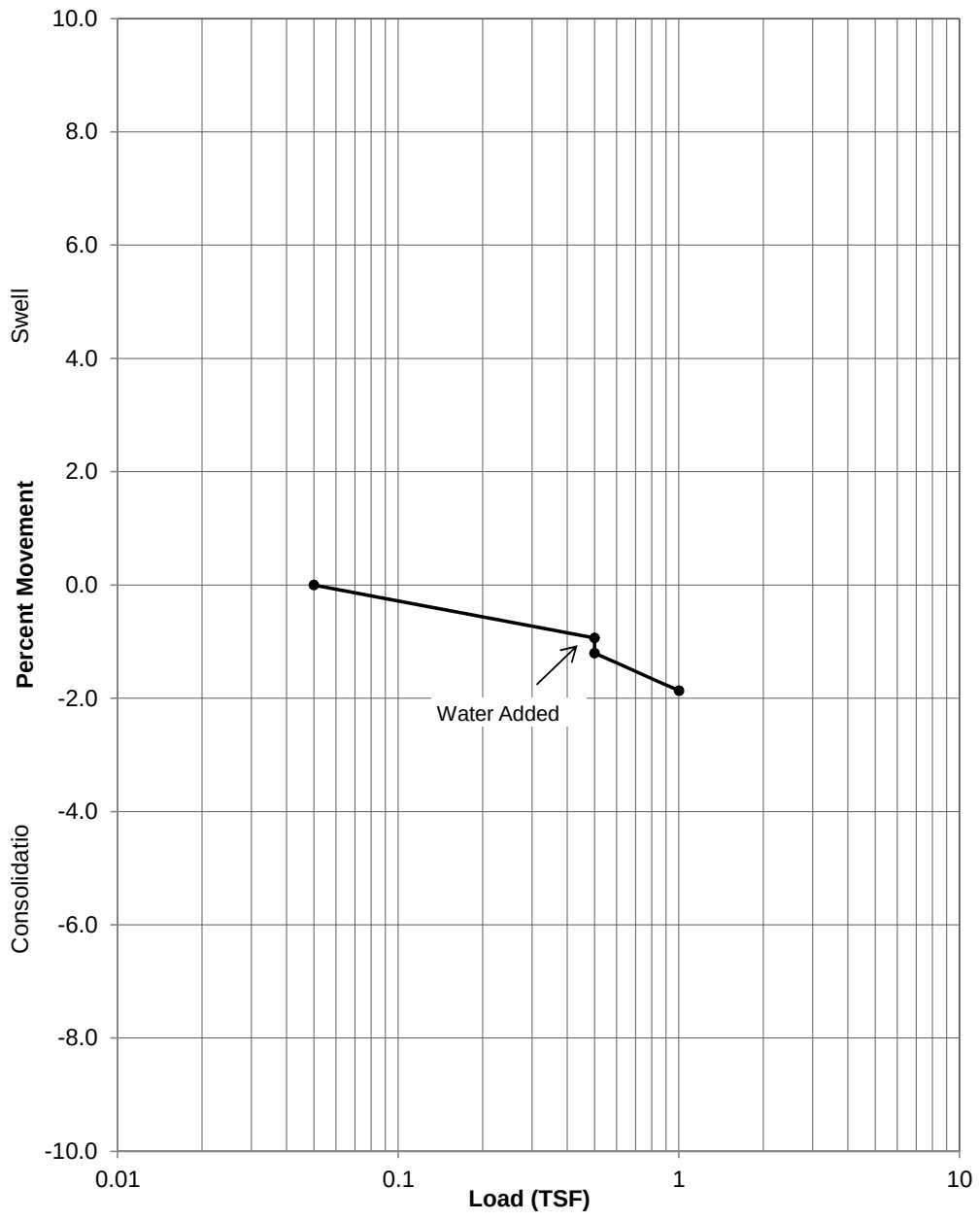
Material Description: Brown Silty Sand (SM)		
Sample Location: Boring 4, Sample 3, Depth 9'		
Liquid Limit: NL	Plasticity Index: NP	% Passing #200: 36.8%
Beginning Moisture: 14.0%	Dry Density: 104.1 pcf	Ending Moisture: 18.4%
Swell Pressure: <500 psf	% Swell @ 500: None	



Project: 65th Avenue Roadway Improvements - South to 37th St
Location: Greeley, Colorado
Project #: 1152080
Date: August 2015

SWELL / CONSOLIDATION TEST RESULTS

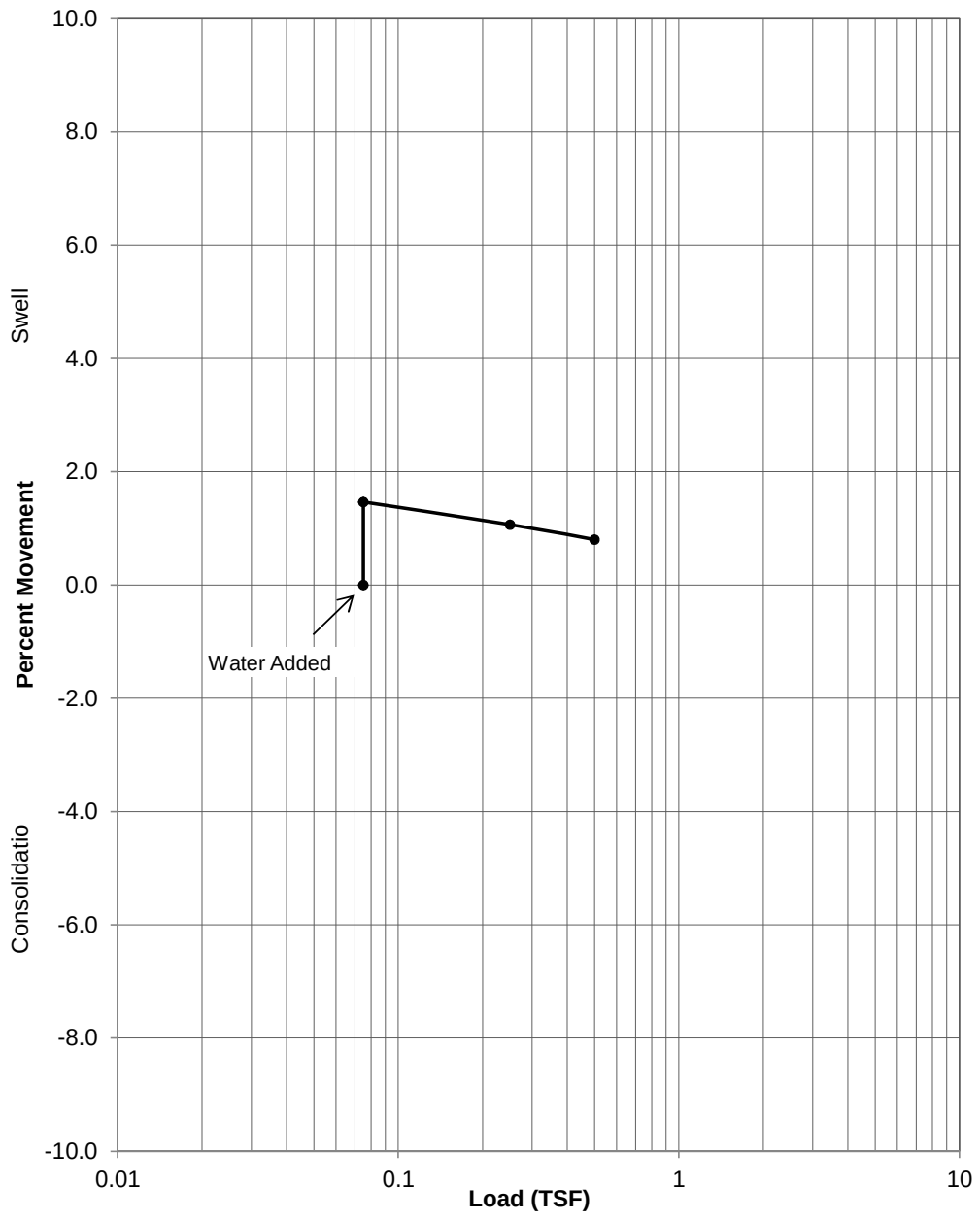
Material Description: Brown, Rust Sandstone		
Sample Location: Boring 4, Sample 5, Depth 19'		
Liquid Limit: NL	Plasticity Index: NP	% Passing #200: 25.5%
Beginning Moisture: 19.7%	Dry Density: 99 pcf	Ending Moisture: 25.6%
Swell Pressure: <1000 psf	% Swell @ 1000: None	



Project: 65th Avenue Roadway Improvements - South to 37th St
Location: Greeley, Colorado
Project #: 1152080
Date: August 2015

SWELL / CONSOLIDATION TEST RESULTS

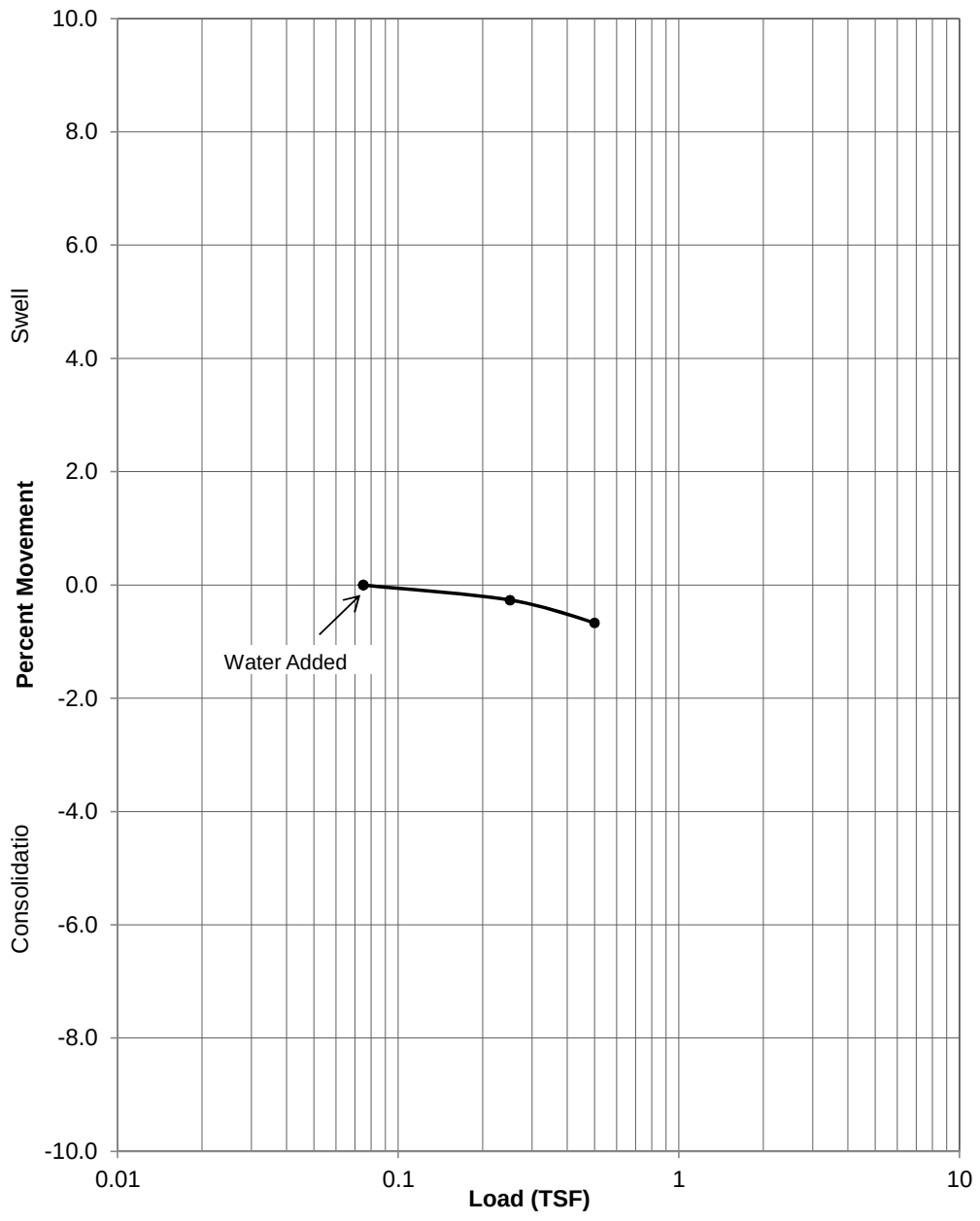
Material Description: Brown Sandy Lean Clay (CL)		
Sample Location: Boring 5, Sample 1, Depth 2'		
Liquid Limit: 29	Plasticity Index: 16	% Passing #200: 56.9%
Beginning Moisture: 12.0%	Dry Density: 120.8 pcf	Ending Moisture: 14.1%
Swell Pressure:	% Swell @ 150: 1.5%	



Project: 65th Avenue Roadway Improvements - South to 37th St
Location: Greeley, Colorado
Project #: 1152080
Date: August 2015

SWELL / CONSOLIDATION TEST RESULTS

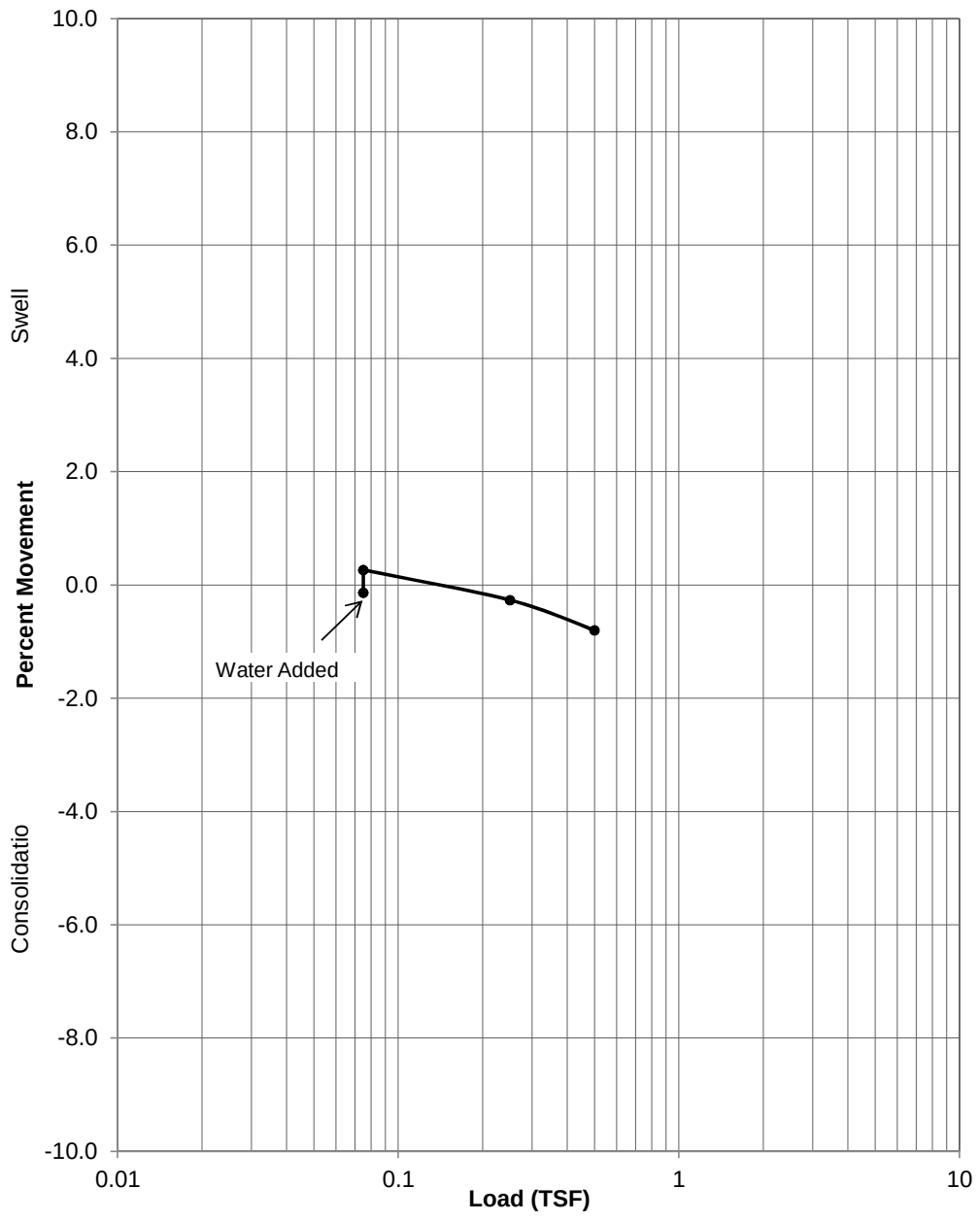
Material Description: Brown Silty Sand (SM)		
Sample Location: Boring 7, Sample 1, Depth 2'		
Liquid Limit: NL	Plasticity Index: NP	% Passing #200: 35.8%
Beginning Moisture: 7.8%	Dry Density: 117.5 pcf	Ending Moisture: 11.8%
Swell Pressure: <150 psf	% Swell @ 150: None	



Project: 65th Avenue Roadway Improvements - South to 37th St
Location: Greeley, Colorado
Project #: 1152080
Date: August 2015

SWELL / CONSOLIDATION TEST RESULTS

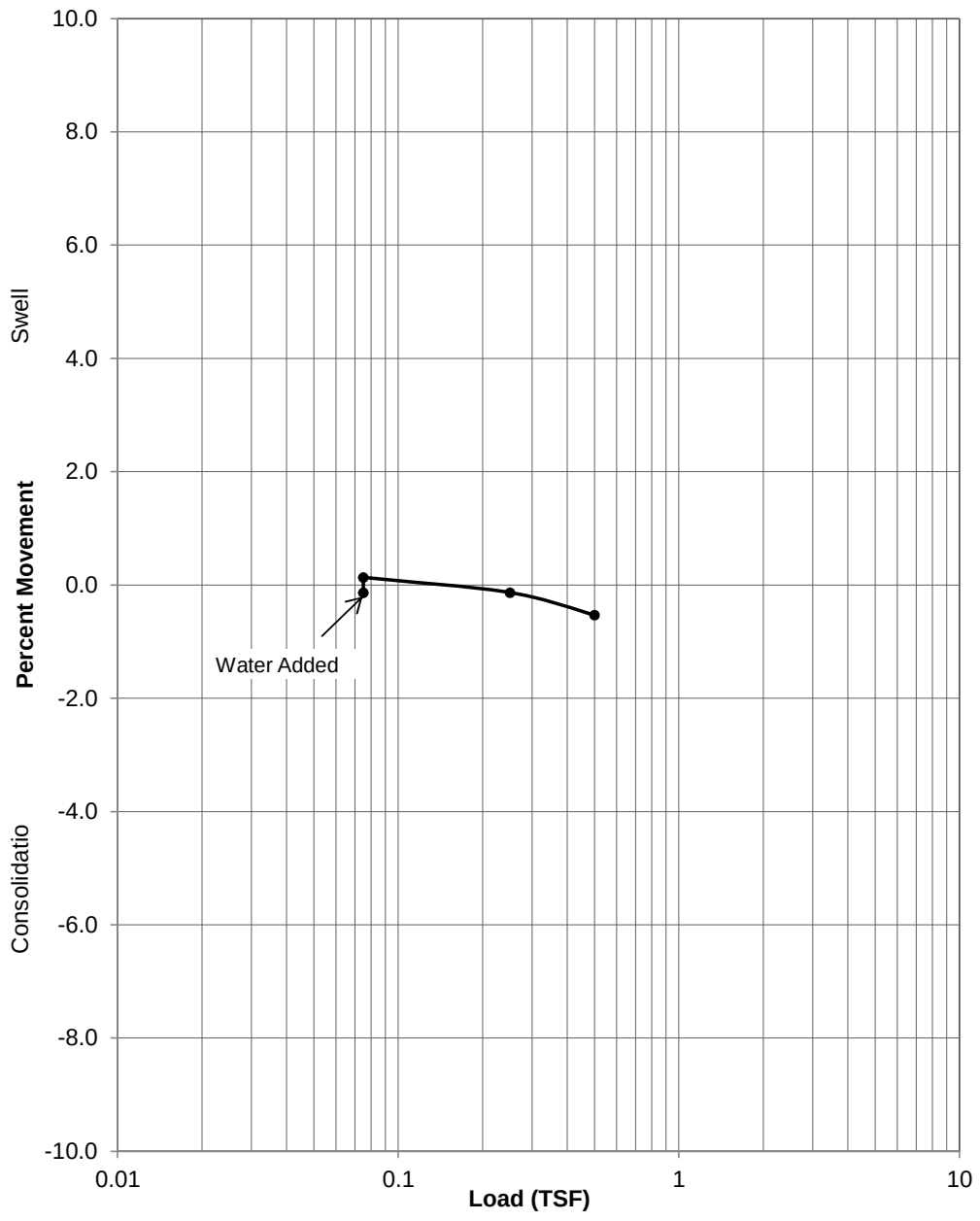
Material Description: Brown Silty Sand (SM)		
Sample Location: Boring 9, Sample 1, Depth 2'		
Liquid Limit: 20	Plasticity Index: 2	% Passing #200: 26.2%
Beginning Moisture: 5.6%	Dry Density: 112.3 pcf	Ending Moisture: 17.3%
Swell Pressure: 400 psf	% Swell @ 150: 0.4%	



Project: 65th Avenue Roadway Improvements - South to 37th St
Location: Greeley, Colorado
Project #: 1152080
Date: August 2015

SWELL / CONSOLIDATION TEST RESULTS

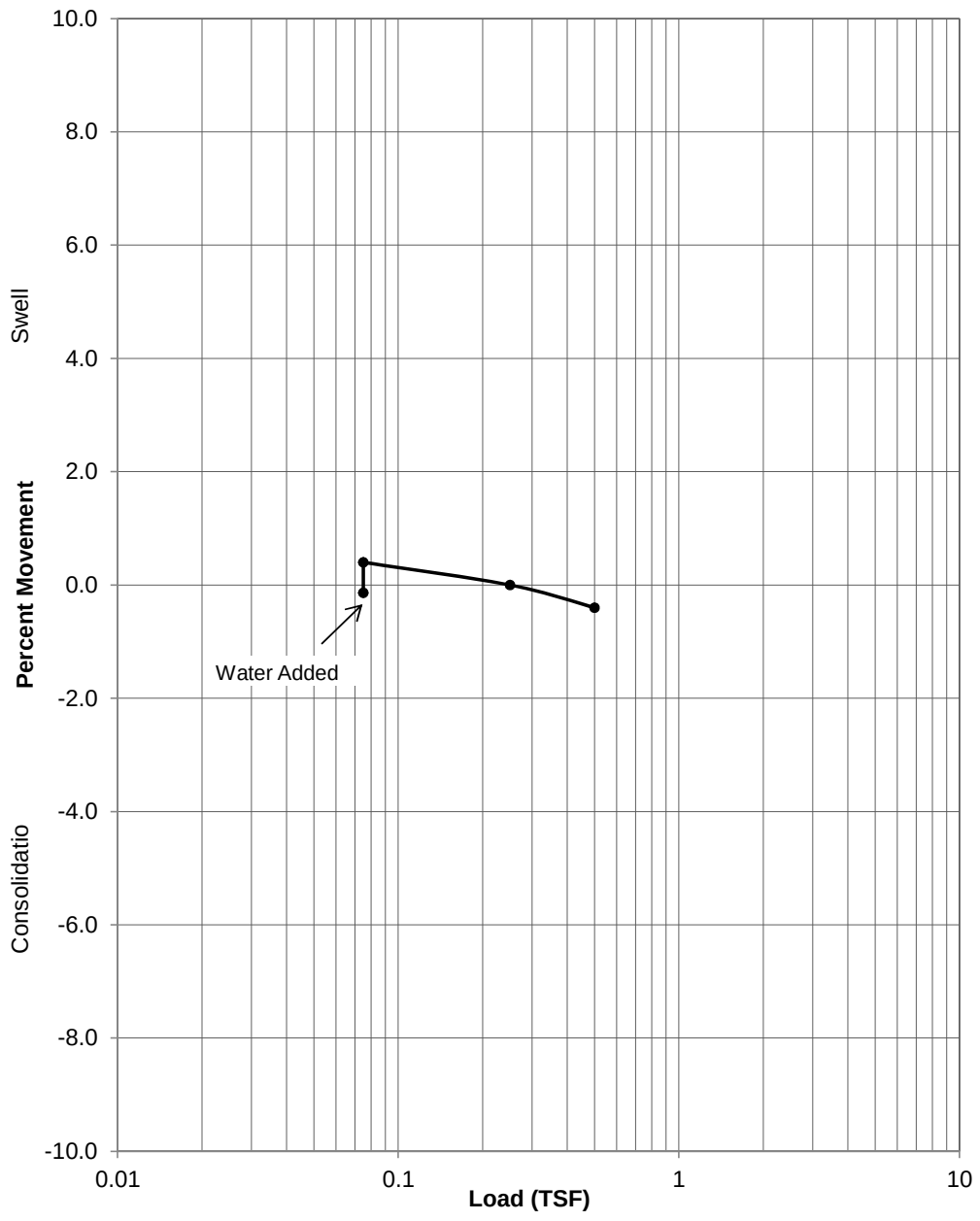
Material Description: Dark Brown, Grey Silty/Clayey Sand (SM-SC)		
Sample Location: Boring 11, Sample 1, Depth 2'		
Liquid Limit: 21	Plasticity Index: 7	% Passing #200: 43.3%
Beginning Moisture: 8.8%	Dry Density: 127.7 pcf	Ending Moisture: 10.4%
Swell Pressure: 500 psf	% Swell @ 150: 0.3%	



Project: 65th Avenue Roadway Improvements - South to 37th St
Location: Greeley, Colorado
Project #: 1152080
Date: August 2015

SWELL / CONSOLIDATION TEST RESULTS

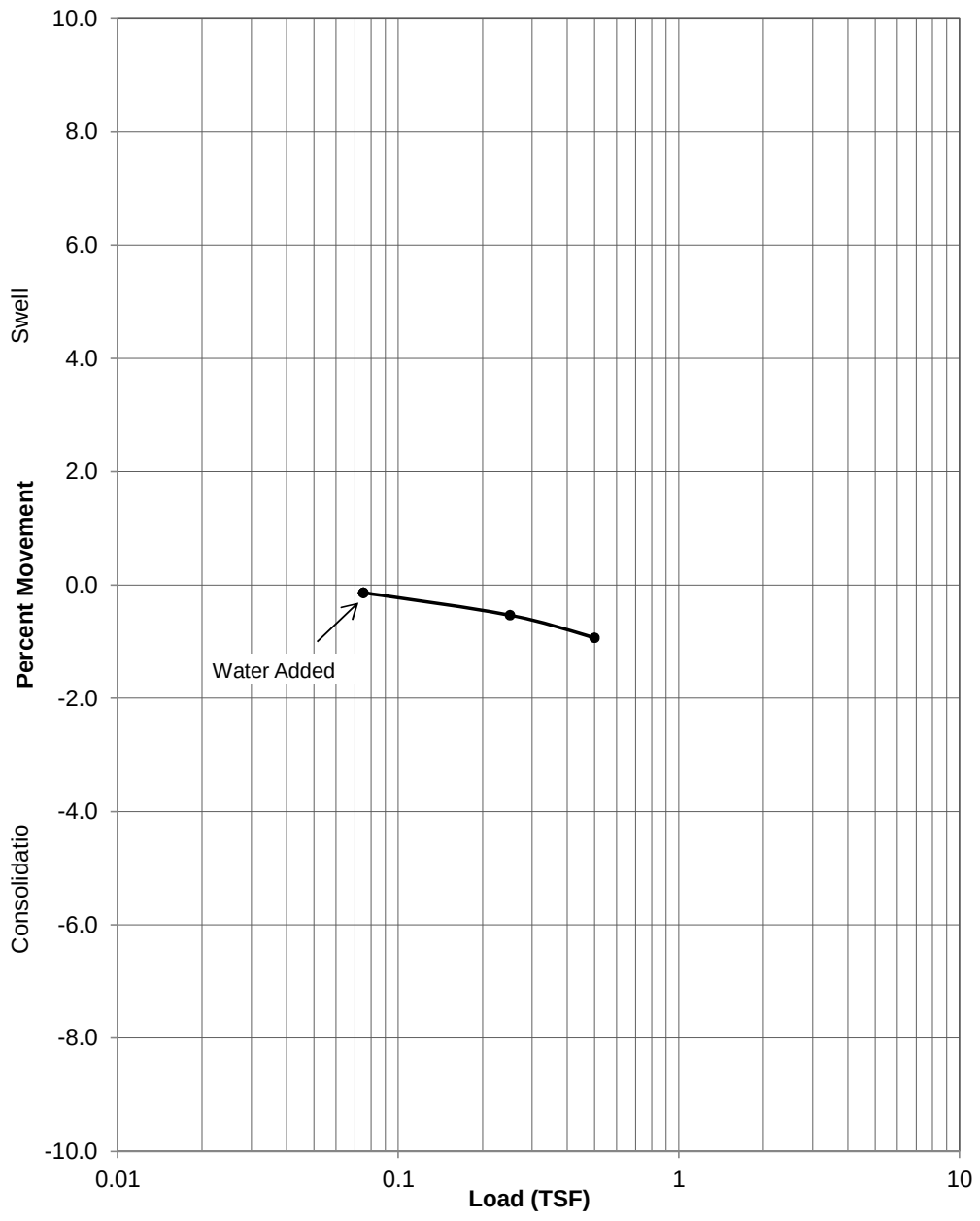
Material Description: Brown, Rust Silty / Clayey Sand (SM-SC)		
Sample Location: Boring 13, Sample 1, Depth 2'		
Liquid Limit: - -	Plasticity Index: - -	% Passing #200: - -
Beginning Moisture: 11.6%	Dry Density: 118.5 pcf	Ending Moisture: 14.3%
Swell Pressure: 600 psf	% Swell @ 150: 0.5%	



Project: 65th Avenue Roadway Improvements - South to 37th St
Location: Greeley, Colorado
Project #: 1152080
Date: August 2015

SWELL / CONSOLIDATION TEST RESULTS

Material Description: Brown Silty Sand (SC)		
Sample Location: Boring 17, Sample 1, Depth 2'		
Liquid Limit: 19	Plasticity Index: 1	% Passing #200: 21.6%
Beginning Moisture: 6.9%	Dry Density: 116.1 pcf	Ending Moisture: 15.0%
Swell Pressure: <150 psf	% Swell @ 150: None	



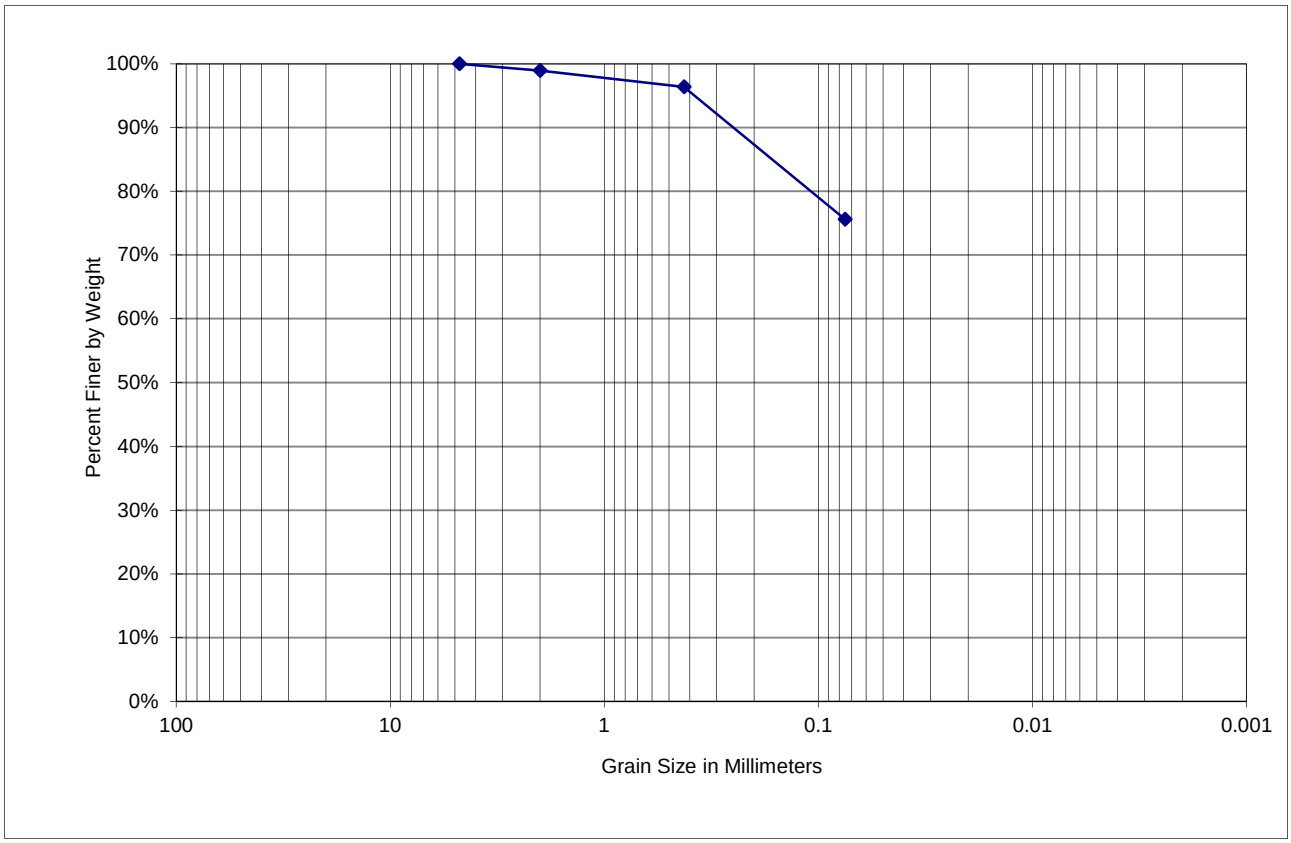
Project: 65th Avenue Roadway Improvements - South to 37th St
Location: Greeley, Colorado
Project #: 1152080
Date: August 2015

Earth Engineering Consultants, LLC

Summary of Laboratory Classification

Sieve Size	Percent Passing
No. 4	100%
No. 10	99%
No. 40	96%
No. 200	75.6%

Atterberg Limits (ASTM D-4318)	
Liquid Limit:	34
Plastic Limit:	16
Plasticity Index:	18



Material Designation: B-4, S-4, 14'
Sample Location: B-4, S-4, 14'
Material Description: Lean Clay with Sand (CL)

Project: 65th Avenue Roadway Improvements - South to 37th Street
Greeley, Colorado
Project No: 1152080
Date August 2015

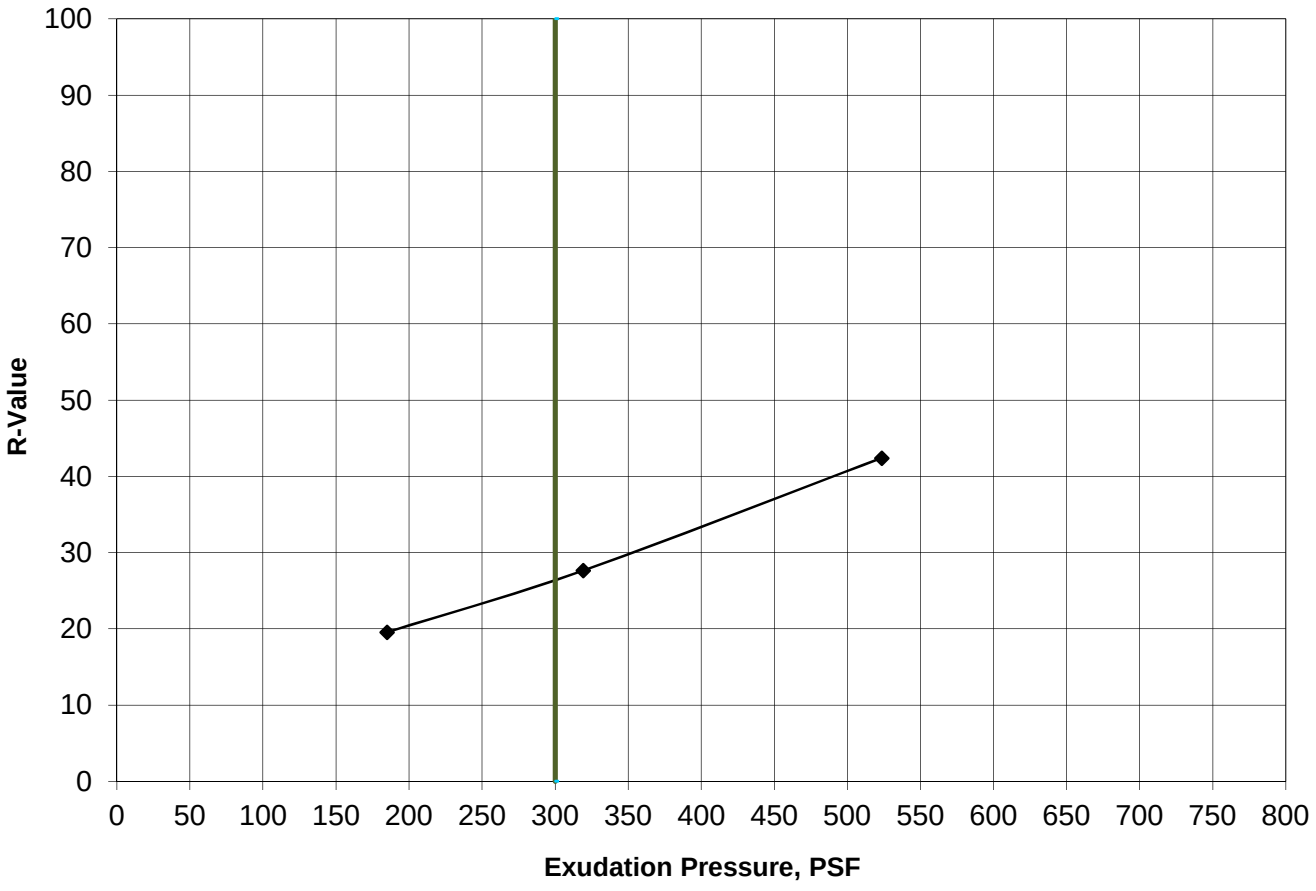
RESISTANCE R-VALUE & EXPANSION PRESSURE OF COMPACTED SOIL - ASTM D2844

PROJECT:	65th Avenue Roadway Improvements	**PROJECT NO.**	1152080
LOCATION:	Greeley, Colorado	**DATE**	Sept. 2015
MATERIAL DESCRIPTION:	Clayey Sand with Trace Gravel (SC), AASHTO A-6		
SAMPLE LOCATION:	Composite Subgrade Sample: B-1 thru B-8, Upper 4-feet of Subgrade		
LIQUID LIMIT: 21	**PLASTICITY INDEX:** 7	**%PASSING #200:**	34.6

R-VALUE LABORATORY TEST RESULTS

TEST SPECIMEN NO.	**1**	2	3
COMPACTION PRESSURE (PSI)	200	250	350
DENSITY (PCF)	127.9	129.3	131.7
MOISTURE CONTENT (%)	8.9	8.6	8.1
EXPANSION PRESSURE (PSI)	0.00	0.00	0.00
HORIZONTAL PRESSURE @ 160 PSI	113	98	72
SAMPLE HEIGHT (INCHES)	2.53	2.45	2.49
EXUDATION PRESSURE (PSI)	184.9	319.2	523.4
UNCORRECTED R-VALUE	19.6	27.6	42.4
CORRECTED R-VALUE	19.6	27.6	42.4

R-VALUE @ 300 PSI EXUDATION PRESSURE = 26	**RESILIENT MODULUS, PSI = 6,010**



RESISTANCE R-VALUE & EXPANSION PRESSURE OF COMPACTED SOIL - ASTM D2844

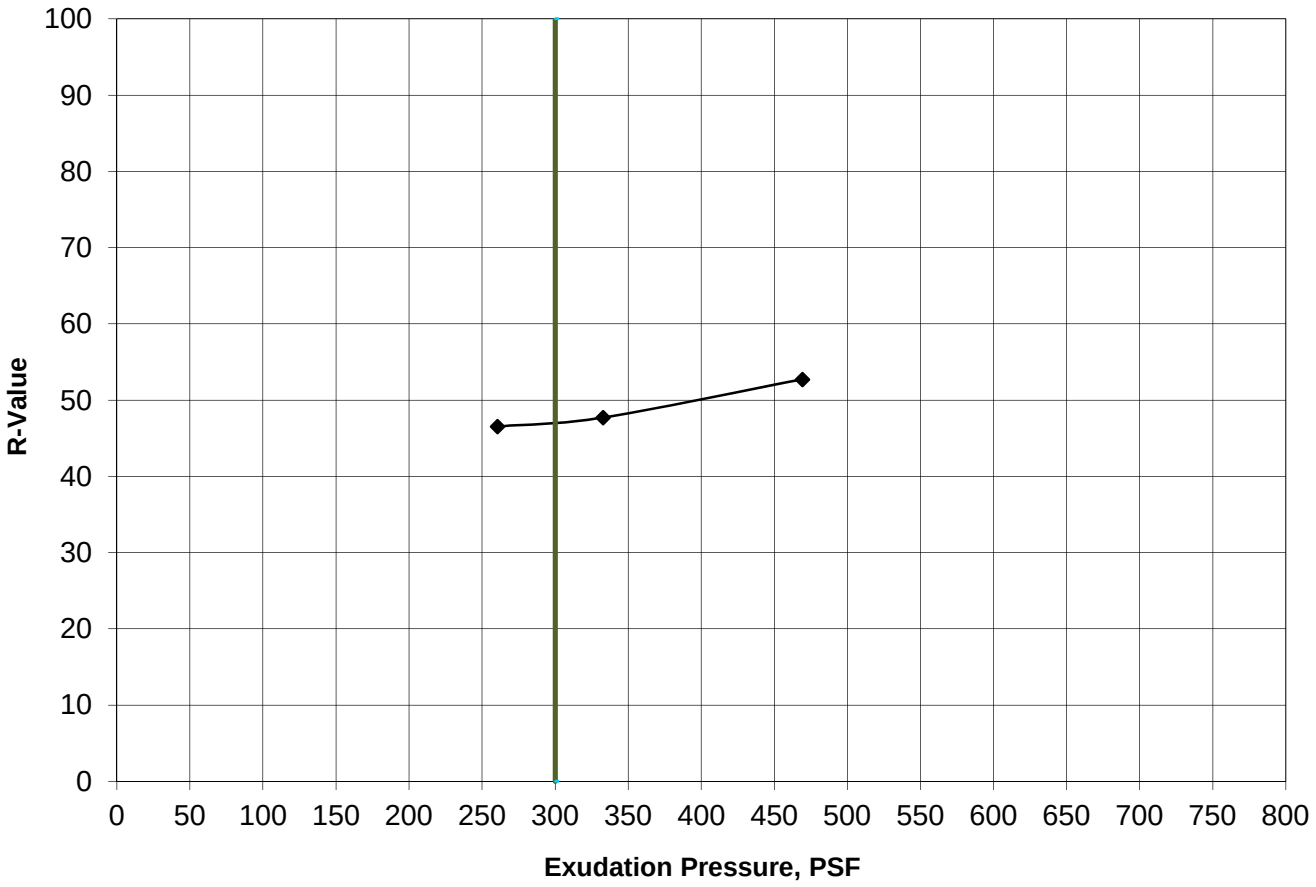
PROJECT:	65th Avenue Roadway Improvements	**PROJECT NO.**	1152080
LOCATION:	Greeley, Colorado	**DATE**	Sept. 2015
MATERIAL DESCRIPTION:	Clayey Sand with Trace Gravel (SC), AASHTO A-6		
SAMPLE LOCATION:	Composite Subgrade Sample: B-9 thru B-17, Upper 4-feet of Subgrade		

LIQUID LIMIT:	21	**PLASTICITY INDEX:**	7	**%PASSING #200:**	35.1

R-VALUE LABORATORY TEST RESULTS

TEST SPECIMEN NO.	**1**	2	3
COMPACTION PRESSURE (PSI)	250	275	350
DENSITY (PCF)	127.3	127.9	129.6
MOISTURE CONTENT (%)	9.1	8.4	7.4
EXPANSION PRESSURE (PSI)	0.00	0.00	0.00
HORIZONTAL PRESSURE @ 160 PSI	66	65	57
SAMPLE HEIGHT (INCHES)	2.50	2.47	2.45
EXUDATION PRESSURE (PSI)	260.4	332.8	469.1
UNCORRECTED R-VALUE	46.5	47.7	52.7
CORRECTED R-VALUE	46.5	47.7	52.7

R-VALUE @ 300 PSI EXUDATION PRESSURE =	**47**	**RESILIENT MODULUS, PSI =**	**11,938**



ARTICLE 5.0

FHWA 1273

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: 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, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

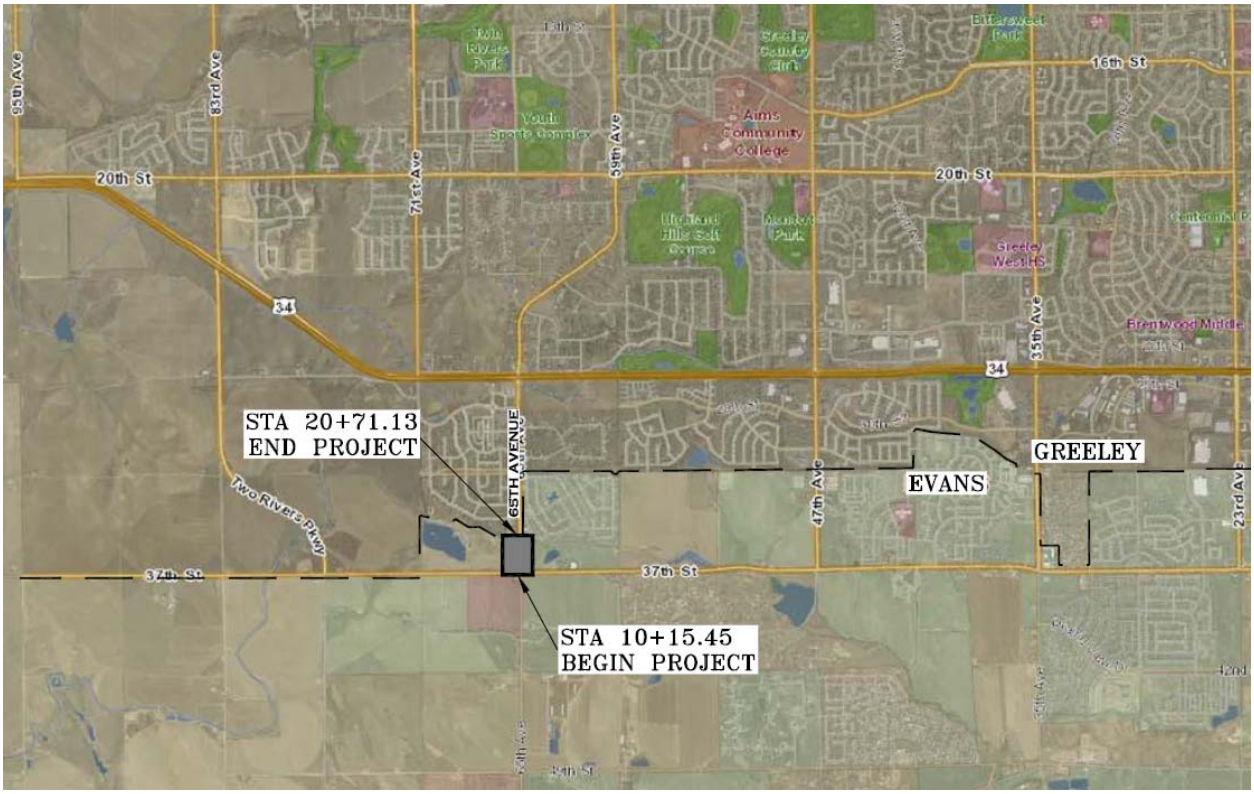
6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

ARTICLE 6.0

PROJECT VICINITY

INDEX

PROJECT VICINITY 6-1



65th Avenue Improvements