

CONTRACT FOR CONSTRUCTION

THIS CONTRACT FOR CONSTRUCTION (“Contract”) is made and entered into as of the date stated on the City’s signature page below (the **“Effective Date”**) by and between the **CITY AND COUNTY OF DENVER**, a municipal corporation of the State of Colorado acting on behalf of its Department of Aviation (the **“City”**), and **IHC SCOTT, INC.**, a Michigan corporation and authorized to do business in the State of Colorado (**“Contractor”**) (collectively the **“Parties”**).

WITNESSETH

WHEREAS, the City, for at least three (3) consecutive days, advertised that proposals would be received for furnishing all labor, tools, supplies, equipment, materials and everything necessary and required for the construction and installation of the work under Invitation for Bid No. 202265100-00, Economy Parking Lot Pavement Rehabilitation – Phase 1 at Denver International Airport (**“DEN”**); and

WHEREAS, a proposal in response to said advertisement have been received by the Chief Executive Officer of DEN (the **“CEO”**), who has recommended that a contract for the work be made and entered into with Contractor, which was the lowest, responsive, qualified bidder; and

WHEREAS, Contractor is qualified, willing, and able to perform the work in accordance with its proposal and the Contract Documents defined below;

NOW, THEREFORE, for and in consideration of the compensation to be paid by the City to Contractor and the other terms and conditions of this Contract, the Parties agree as follows:

1. CONTRACT DOCUMENTS:

It is agreed by the Parties that the instruments, drawings, and documents described below and whether attached to and bound with this Contract or not (the **“Contract Documents”**), are incorporated into the Contract by this reference, and are as fully a part of this Contract as if they were set out here verbatim and in full:

- Contract
- Notice to Proceed
- Form of Final Receipt
- Building Information Modeling (**“BIM”**) if applicable
- Change Directives
- Change Orders
- Exhibit A Federal Appendices
- Exhibit B Equal Employment Opportunity Provisions
- Exhibit C Insurance Requirements
- Exhibit D Prevailing Wage Schedules

- Exhibit E Special Conditions
- Exhibit F Standard Specifications for Construction General Contract Conditions (2011 Edition) (the “**Yellow Book**”) (“**General Conditions**”) (Table of Contents attached as Exhibit F)
- Exhibit G Performance Bond
- Exhibit H Payment Bond
- Exhibit I Technical Specifications
- Exhibit J Contract Drawings

In the event of an irreconcilable conflict between a provision of Section 1 through 31 of this Contract document and any other provisions of the Contract Documents such that it is impossible to give effect to both, the order of precedence to determine which document shall control to resolve such conflict is as follows, in descending order:

1. Exhibit A Federal Appendices
2. Contract
3. Change Directives
4. Change Orders
5. Exhibit B Equal Employment Opportunity Provisions
6. Exhibit E Special Conditions
7. Exhibit F Standard Specifications for Construction General Contract Conditions (2011 Edition) (Table of Contents attached as Exhibit F)
8. Exhibit C Insurance Requirements
9. Exhibit D Prevailing Wage Schedules
10. Exhibit I Technical Specifications
11. Exhibit J Contract Drawings
12. Exhibit G Performance Bond
13. Exhibit H Payment Bond
14. Notice to Proceed
15. Form of Final Receipt
16. BIM if applicable

The remaining order of precedence is established in General Conditions Title 4.

2. SCOPE OF WORK:

Contractor shall furnish all labor and tools, supplies, equipment, superintendence, materials, and everything necessary for and required to do, perform, and complete all of the work described, drawn, set forth, shown, and included in the Contract Documents (the “**Work**”).

3. TERM OF CONTRACT:

The Senior Vice President of Aviation – Airport Infrastructure Management (the “**SVP-AIM**”) will issue a written notice to proceed to Contractor (the “**Notice to Proceed**”), and

Contractor shall begin performing the Work required under this Contract within ten (10) days of such Notice to Proceed (the “**Commencement Date**”). Contractor shall fully complete the Work in its entirety within two hundred thirty-three (233) consecutive calendar days from the date of the Notice to Proceed (“**Contract Time**”). Contractor is not authorized to commence work prior to its receipt of the Notice to Proceed; provided, however, that Contractor may request payment for the performance of the Work completed prior to its receipt of the Notice to Proceed, which the City may pay in accordance with the terms of this Contract and at the sole discretion of the SVP-AIM.

4. TERMS OF PAYMENT:

The City agrees to pay Contractor for the performance and completion of all of the Work as required by the Contract Documents, and Contractor agrees to accept as its full and only compensation therefor, a total amount of Eleven Million One Hundred Fifty-Five Thousand Three Hundred Thirty-One Dollars and Thirty-Two Cents (\$11,155,331.32) (the “**Maximum Contract Amount**”). In no event will the City’s liability exceed the Maximum Contract Amount, as adjusted by duly authorized Change Orders in accordance with this Contract. The Parties specifically agree that any performance by Contractor hereunder shall not subject the City to any cost, charge, or fee not specified above.

5. VERIFIED STATEMENT OF CLAIMS:

Colorado Revised Statutes § 38-26-107 (“**C.R.S.**”) requires that, in the event any person or company files a verified statement of amounts due and unpaid in connection with a claim for labor and materials supplied on this project, the City shall withhold from payments to Contractor sufficient funds to insure the payment of any such claims. Should the City be made a party to any lawsuit to enforce such unpaid claims or any lawsuit arising out of or relating to such withheld funds, Contractor agrees to pay to the City its costs and a reasonable attorney’s fee incurred in any such lawsuit. Because the City Attorney Staff does not bill the City for legal services on an hourly basis, Contractor agrees a reasonable fee shall be computed at the rate of two hundred dollars and no cents (\$200.00) per hour of City Attorney time.

6. DISPUTES:

All disputes arising under or related to this Contract shall be resolved by administrative hearing under the procedures described in *Exhibit F*, as modified by *Exhibit E*, if any, and the Denver Revised Municipal Code § 5-17 (“**D.R.M.C.**”) and all related rules and procedures, including but not limited to DEN Rule 250. The determination resulting from said administrative hearing shall be final, subject only to the right to appeal the determination under Colorado Rule of Civil Procedure, Rule 106.

7. DEFENSE AND INDEMNIFICATION:

A. To the fullest extent permitted by law, Contractor hereby agrees to defend, indemnify, reimburse and hold harmless City, its appointed and elected officials, agents and employees for, from and against all liabilities, claims, judgments, suits or demands for damages to

persons or property arising out of, resulting from, or related to the work performed under this Contract that are due to the negligence or fault of the Contractor or the Contractor's agents, representatives, subcontractors, or suppliers ("**Claims**"). This indemnity shall be interpreted in the broadest possible manner consistent with the applicable law to indemnify the City.

B. Contractor's duty to defend and indemnify City shall arise at the time written notice of the Claim is first provided to City regardless of whether suit has been filed and even if Contractor is not named as a Defendant.

C. Contractor will defend any and all Claims which may be brought or threatened against City and will pay on behalf of City any expenses incurred by reason of such Claims including, but not limited to, court costs and attorney fees incurred in defending and investigating such Claims or seeking to enforce this indemnity obligation, including but not limited to time expended by the City Attorney Staff, whose costs shall be computed at the rate specified in Section 5. Such payments on behalf of City shall be in addition to any other legal remedies available to City and shall not be considered City's exclusive remedy.

D. Insurance coverage requirements specified in this Contract shall in no way lessen or limit the liability of the Contractor under the terms of this indemnification obligation. The Contractor shall obtain, at its own expense, any additional insurance that it deems necessary for the City's protection.

E. This defense and indemnification obligation shall survive the expiration or termination of this Contract.

8. WAIVER OF C.R.S. § 13-20-801, et seq.:

Notwithstanding any other provision of this Contract, Contractor specifically waives all of the provisions of C.R.S. §§ 13-20-801 *et seq.* as they may relate to Contractor's performance under this Contract.

9. LIQUIDATED DAMAGES:

If Contractor fails to achieve Substantial Completion of the Work within the Contract Time or fails to substantially complete the Work described in the Scope of Work within the time set forth in the Special Conditions, the City will suffer substantial damages, which damages would be difficult to accurately determine. The Parties hereto have considered the possible elements of damages and have agreed that the amount of liquidated damages for Contractor's failure to substantially complete the work within the Contract Time or to substantially complete the work described in Milestone Areas within the time set forth in the Special Conditions shall be as provided in the Special Conditions. If Contractor shall fail to pay such liquidated damages promptly upon demand therefor, the Surety on its Performance Bond and Payment Bond shall pay such damages. Also, the City may withhold all, or any part of, such liquidated damages from any payment due to Contractor. Additional provisions relating to liquidated damages are set forth in the Construction Contract General Conditions and Special Conditions.

10. INSURANCE REQUIREMENTS:

A. Contractor shall obtain and keep in force all of the minimum insurance coverage forms and amounts set forth in *Exhibit C* (“**Insurance Requirements**”) during the entire Term of this Agreement, including any extensions of the Agreement or other extended period stipulations stated in *Exhibit C*. All certificates of insurance must be received and accepted by the City before any airport access or work commences.

B. Contractor shall ensure and document that all subcontractors performing services or providing goods hereunder procure and maintain insurance coverage that is appropriate to the primary business risks for their respective scopes of performance. At minimum, such insurance must conform to all applicable requirements of DEN Rules and Regulations Part 230 and all other applicable laws and regulations.

C. The City in no way warrants or represents the minimum limits contained herein are sufficient to protect Contractor from liabilities arising out of the performance of the terms and conditions of this Contract by Contractor, its agents, representatives, employees, or subcontractors. Contractor shall assess its own risks and maintain higher limits and/or broader coverage as it deems appropriate and/or prudent. Contractor is not relieved of any liability or other obligations assumed or undertaken pursuant to this Contract by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

D. In no event shall the City be liable for any of the following: (i) business interruption or other consequential damages sustained by Contractor; (ii) damage, theft, or destruction of Contractor's inventory, or property of any kind; or (iii) damage, theft, or destruction of an automobile, whether or not insured.

E. The Parties understand and agree that the City, its elected and appointed officials, employees, agents and volunteers are relying on, and do not waive or intend to waive by any provisions of this Contract, the monetary limitations and any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, C.R.S. §§ 24-10-101, *et seq.*, or otherwise available to the City, its elected and appointed officials, employees, agents and volunteers.

11. CONTRACT BINDING:

It is agreed that this Contract shall be binding on and inure to the benefit of the Parties hereto, their heirs, executors, administrators, assigns, and successors.

12. SEVERABILITY:

If any part, portion, or provision of this Contract shall be found or declared null, void, or unenforceable for any reason whatsoever by any court of competent jurisdiction or any governmental agency having authority thereover, only such part, portion, or provision shall be affected thereby and all other parts, portions, and provisions of this Contract shall remain in full force and effect.

13. ASSIGNMENT:

Contractor shall not assign, pledge or transfer its duties, obligations, and rights under this Contract, in whole or in part, without first obtaining the written consent of the CEO or their authorized representative. Any attempt by Contractor to assign or transfer its rights hereunder without such prior written consent shall, at the option of the CEO or their authorized representative, automatically terminate this Contract and all rights of Contractor hereunder.

14. APPROPRIATIONS:

Payment will be in accordance with the provisions of the Contract Documents, including Title 9 of the General Conditions, and will be made solely and exclusively from funds appropriated or otherwise lawfully made available for the purposes of this Contract from the Airport System Funds. The City has no obligation to make payments from any other fund or source or to make additional appropriations or allocations to such fund to satisfy such costs or other obligations.

15. APPROVALS:

In the event this Contract calls for the payment by the City of Five Million Dollars and no cents (\$5,000,000.00) or more, approval by the Denver City Council, acting by Resolution in accordance with Section 3.2.6 of the Charter of the City and County of Denver, is and shall be an express condition precedent to the lawful and binding execution and performance of this Contract.

16. JOINT VENTURE:

If Contractor is a Joint Venture, the partners to the Joint Venture shall be jointly and severally liable to the City for the performance of all duties and obligations of Contractor which are set forth in the Contract.

17. NO DISCRIMINATION IN EMPLOYMENT:

In connection with the performance of work under the Agreement, the Contractor may not refuse to hire, discharge, promote, demote, or discriminate in matters of compensation against any person otherwise qualified, solely because of race, color, religion, national origin, ethnicity, citizenship, immigration status, gender, age, sexual orientation, gender identity, gender expression, marital status, source of income, military status, protective hairstyle, or disability. The Contractor shall insert the foregoing provision in all subcontracts.

18. COORDINATION OF SERVICES:

Contractor agrees to perform its work under this Contract in accordance with the operational requirements of DEN, and all work and movement of personnel or equipment on areas included within the DEN site shall be subject to the regulations and restrictions established by the City or its authorized agents.

19. COMPLIANCE WITH ALL LAWS AND REGULATIONS:

A. Contractor and its subcontractor(s) shall perform all work under this Contract in compliance with all existing and future applicable laws, rules, regulations, and codes of the United States and the State of Colorado and with the City Charter, ordinances, Executive Orders, and rules and regulations of the City.

B. Contractor shall perform all work in compliance with Executive Order 123 regarding Sustainability as may be directed by the City, including the requirement that all new City buildings and major renovations will be certified to the applicable LEED Gold Certification, with the goal of achieving LEED Platinum where economically feasible. Contractor also shall comply with all applicable DEN design and construction standards, including the DEN Design Standards Manuals, which are incorporated herein by reference. Current versions can be found at: <https://business.flydenver.com/bizops/bizRequirements.asp>.

20. PREVAILING WAGE REQUIREMENTS:

A. Contractor shall comply with, and agrees to be bound by, all requirements, conditions and determinations of the City regarding the Payment of Prevailing Wages Ordinance, D.R.M.C. §§20-76 through 20-79, including, but not limited to, the requirement that every covered worker working on a City-owned or leased building or on City-owned land shall be paid no less than the prevailing wages and fringe benefits in effect on the date the bid or request for proposal was advertised.

Date bid or proposal issuance was advertised: November 15, 2022.

B. Prevailing wage and fringe rates will adjust on the yearly anniversary of the actual date of bid or proposal issuance, if applicable, or the date of the written encumbrance if no bid/proposal issuance date is applicable. Unless expressly provided for in this Contract, Contractor will receive no additional compensation for increases in prevailing wages or fringe rates.

C. Contractor shall provide the Auditor of the City and County of Denver with a list of all subcontractors providing any services under the Contract.

D. Contractor shall provide the Auditor with electronically-certified payroll records for all covered workers employed under the Contract in a manner specified by the Auditor.

E. Contractor shall prominently post at the work site the current prevailing wage and fringe rates. The posting must inform workers that any complaints regarding the payment of prevailing wages or fringe benefits may be submitted to the Denver Auditor by calling 720-913-5000 or emailing auditor@denvergov.org.

F. If Contractor fails to pay workers as required by the Prevailing Wage Ordinance, Contractor will not be paid until documentation of payment satisfactory to the Auditor has been provided. The Auditor may enforce the Prevailing Wage Ordinance in a manner provided by law, including the Prevailing Wage Ordinance. The City also may, by written notice, suspend or

terminate work if Contractor fails to pay required wages and fringe rates.

21. CITY PROMPT PAYMENT:

A. The City will make monthly progress payments to the Contractor for all services performed under this Contract based upon the Contractor's monthly invoices or shall make payments as otherwise provided in this Contract. The City's Prompt Payment Ordinance, D.R.M.C. §§ 20-107 to 20-118, applies to invoicing and payment under this Contract.

B. Final Payment to the Contractor shall not be made until after the Project is accepted, and all certificates of completion, record drawings and reproducible copies, and other deliverables are delivered to the City, and the Contract is otherwise fully performed by the Contractor. The City may, at the discretion of the SVP, withhold reasonable amounts from billing and the entirety of the final payment until all such requirements are performed to the satisfaction of the SVP.

C. Prompt Pay of MWBE Subcontractors. For contracts of one million dollars (\$1,000,000.00) and over to which D.R.M.C. § 28-72 applies, the Contractor is required to comply with the Prompt Payment provisions under D.R.M.C. § 28-72, with regard to payments by the Contractor to MWBE subcontractors. If D.R.M.C. § 28-72 applies, Contractor shall make payment by no later than thirty-five (35) days from receipt by the Contractor of the subcontractor's invoice.

22. OWNERSHIP AND DELIVERABLES:

Upon payment to Contractor, all records, data, deliverables, and any other work product prepared by Contractor or any custom development work performed by Contractor for the purpose of performing this Contract on or before the day of the payment, whether a periodic or final payment, shall become the sole property of the City. Upon request by the City, or based on any schedule agreed to by Contractor and the City, Contractor shall provide the City with copies of the data/files that have been uploaded to any database maintained by or on behalf of Contractor or otherwise saved or maintained by Contractor as part of the services provided to the City under this Contract. All such data/files shall be provided to the City electronically in a format agreed to by the Parties. Contractor also agrees to allow the City to review any of the procedures Contractor uses in performing any work or other obligations under this Contract, and to make available for inspection any and all notes, documents, materials, and devices used in the preparation for or performance of any of the scope of work, for up to six (6) years after termination of this Contract. Upon written request from the City, Contractor shall deliver any information requested pursuant to this Section within ten (10) business days in the event a schedule or otherwise agreed-upon timeframe does not exist.

23. COLORADO OPEN RECORDS ACT:

A. Contractor acknowledges that the City is subject to the provisions of the Colorado Open Records Act ("CORA"), C.R.S. §§ 24-72-201 *et seq.*, and Contractor agrees that it will fully cooperate with the City in the event of a request or lawsuit arising under such act for the disclosure of any materials or information which Contractor asserts is confidential or otherwise exempt from

disclosure. Any other provision of this Contract notwithstanding, all materials, records, and information provided by Contractor to the City shall be considered confidential by the City only to the extent provided in CORA, and Contractor agrees that any disclosure of information by the City consistent with the provisions of CORA shall result in no liability of the City.

B. In the event of a request to the City for disclosure of such information, time and circumstances permitting, the City will make a good faith effort to advise Contractor of such request in order to give Contractor the opportunity to object to the disclosure of any material Contractor may consider confidential, proprietary, or otherwise exempt from disclosure. In the event Contractor objects to disclosure, the City, in its sole and absolute discretion, may file an application to the Denver District Court for a determination of whether disclosure is required or exempted. In the event a lawsuit to compel disclosure is filed, the City may tender all such material to the court for judicial determination of the issue of disclosure. In both situations, Contractor agrees it will either waive any claim of privilege or confidentiality or intervene in such legal process to protect materials Contractor does not wish disclosed. Contractor agrees to defend, indemnify, and hold harmless the City, its officers, agents, and employees from any claim, damages, expense, loss, or costs arising out of Contractor's objection to disclosure, including prompt reimbursement to the City of all reasonable attorney's fees, costs, and damages the City may incur directly or may be ordered to pay by such court, including but not limited to time expended by the City Attorney Staff, whose costs shall be computed at the rate specified in Section 5.

24. EXAMINATION OF RECORDS AND AUDITS:

A. Any authorized agent of the City, including the City Auditor or his or her representative, has the right to access, and the right to examine, copy and retain copies, at City's election in paper or electronic form, any pertinent books, documents, papers and records related to Contractor's performance pursuant to this Contract, provision of any goods or services to the City, and any other transactions related to this Contract. Contractor shall cooperate with City representatives and City representatives shall be granted access to the foregoing documents and information during reasonable business hours and until the latter of six (6) years after the final payment under the Contract or expiration of the applicable statute of limitations. When conducting an audit of this Contract, the City Auditor shall be subject to government auditing standards issued by the United States Government Accountability Office by the Comptroller General of the United States, including with respect to disclosure of information acquired during the course of an audit. No examination of records and audits pursuant to this paragraph shall require Contractor to make disclosures in violation of state or federal privacy laws. Contractor shall at all times comply with D.R.M.C. § 20-276.

B. Additionally, Contractor agrees until the expiration of six (6) years after the final payment under this Contract, any duly authorized representative of the City, including the CEO or their representative, shall have the right to examine any pertinent books, documents, papers and records of Contractor related to Contractor's performance of this Contract, including communications or correspondence related to Contractor's performance, without regard to whether the work was paid for in whole or in part with federal funds or was otherwise related to a federal

grant program.

C. In the event the City receives federal funds to be used toward the services performed under this Contract, the Federal Aviation Administration (“**FAA**”), the Comptroller General of the United States and any other duly authorized representatives shall have access to any books, documents, papers and records of Contractor which are directly pertinent to a specific grant program for the purpose of making audit, examination, excerpts and transcriptions. Contractor further agrees that such records will contain information concerning the hours and specific services performed along with the applicable federal project number.

25. MINIMUM WAGE REQUIREMENTS:

To the extent required by law, Contractor shall comply with and agrees to be bound by all requirements, conditions, and City determinations regarding the City’s Minimum Wage Ordinance, D.R.M.C. §§ 20-82 through 20-84, including, but not limited to, the requirement that every covered worker shall be paid no less than the City Minimum Wage in accordance with the City’s Minimum Wage Ordinance. By executing this Contract, Contractor expressly acknowledges that Contractor is aware of the requirements of the City’s Minimum Wage Ordinance and that any failure by Contractor, or any other individual or entity acting subject to this Contract, to strictly comply with the foregoing D.R.M.C. Sections shall result in the penalties and other remedies authorized therein.

26. COMPLIANCE WITH MINORITY/WOMEN BUSINESS ENTERPRISE REQUIREMENTS:

A. This Contract is subject to D.R.M.C. Article III, Divisions 1 and 3 of Chapter 28, designated as §§ 28-31 to 28-40 and 28-51 to 28-90 (the “**MWBE Ordinance**”) and any Rules or Regulations promulgated pursuant thereto. The Contract goal for MWBE participation established for this Contract by the Division of Small Business Opportunity (“**DSBO**”) is nineteen and six one-hundredth percent (19.06%).

B. Under D.R.M.C. § 28-68, Contractor has an ongoing, affirmative obligation to maintain for the duration of this Contract, at a minimum, compliance with its originally achieved level of MWBE participation upon which this Contract was awarded, unless the City initiates a material alteration to the scope of work affecting MWBEs performing on this Contract through change order, contract amendment, force account, or as otherwise described in D.R.M.C. § 28-70. The Contractor acknowledges that:

(i) Contractor must establish and maintain records and submit regular reports, as directed by DSBO, which will allow the City to assess progress in complying with the MWBE EDI Plan and achieving the MWBE participation goal.

(ii) If change orders or any other contract modifications are issued under the Contract, Contractor shall have a continuing obligation to immediately inform DSBO in writing of any agreed upon increase or decrease in the scope of work of such contract, upon any of the bases discussed in D.R.M.C. § 28-70, regardless of whether such increase or

decrease in scope of work has been reduced to writing at the time of notification.

(iii) If change orders or other amendments or modifications are issued under the contract that include an increase in the scope of work of this Contract, whether by amendment, change order, force account or otherwise, which increases the dollar value of the contract, whether or not such change is within the scope of work designated for performance by an MWBE at the time of contract award, such change orders or contract modification shall be immediately submitted to DSBO for notification purposes.

(iv) Those amendments, change orders, force accounts or other contract modifications that involve a changed scope of work that cannot be performed by existing project subcontractors are subject to the original contract goal. Contractor shall satisfy the goal with respect to such changed scope of work by new MWBEs in accordance with D.R.M.C. § 28-70. Contractor must also satisfy the requirements under D.R.M.C. §§ 28-60 and 28-73 with regard to changes in scope or participation. Contractor shall supply to the DSBO Director all required documentation described in D.R.M.C. §§ 28-60, 28-70, and 28-73, with respect to the modified dollar value or work under the Contract.

(v) For contracts of one million dollars (\$1,000,000.00) and over, Contractor is required to comply with D.R.M.C. § 28-72, as applicable, regarding prompt payment to MWBEs. Payment to MWBE subcontractors shall be made by no later than thirty-five (35) days after receipt of an MWBE subcontractor invoice.

(vi) Failure to comply with these provisions may subject Contractor to sanctions set forth in D.R.M.C. § 28-76 of the MWBE Ordinance.

(vii) Should any questions arise regarding specific circumstances, Contractor should consult the MWBE Ordinance or may contact the Project's designated DSBO representative at (720) 913-1999.

27. SENSITIVE SECURITY INFORMATION:

Contractor acknowledges that, in the course of performing its work under this Contract, Contractor may be given access to Sensitive Security Information (“SSI”), as material is described in the Code of Federal Regulations, 49 C.F.R. Part 1520. Contractor specifically agrees to comply with all requirements of the applicable federal regulations, including but not limited to, 49 C.F.R. Parts 15 and 1520. Contractor understands any questions it may have regarding its obligations with respect to SSI must be referred to DEN’s Security Office.

28. DEN SECURITY:

A. Contractor, its officers, authorized officials, employees, agents, subcontractors, and those under its control, shall comply with safety, operational, or security measures required of Contractor or the City by the FAA or Transportation Security Administration (“TSA”). If Contractor, its officers, authorized officials, employees, agents, subcontractors or those under its control, fail or refuse to comply with said measures and such non-compliance results in a monetary penalty being assessed against the City, then, in addition to any other remedies available to the City, Contractor shall fully reimburse the City any fines or penalties levied against the City, and

any attorney fees or related costs paid by the City as a result of any such violation. Contractor must pay this amount within fifteen (15) days from the date of the invoice or written notice. Any fines and fees assessed by the FAA or TSA against the City due to the actions of Contractor and/or its agents will be deducted directly from the invoice for that billing period.

B. Contractor is responsible for compliance with Airport Security regulations and 49 C.F.R. Parts 1542 (Airport Security) and 14 C.R.F. Parts 139 (Airport Certification and Operations). Any and all violations pertaining to Parts 1542 and 139 resulting in a fine will be passed on to and borne by Contractor. The fee/fine will be deducted from the invoice at time of billing.

29. FEDERAL RIGHTS:

A. This Contract is subject and subordinate to the terms, reservations, restrictions and conditions of any existing or future contracts between the City and the United States, the execution of which has been or may be required as a condition precedent to the transfer of federal rights or property to the City for airport purposes, and the expenditure of federal funds for the extension, expansion or development of the Airport System.

(i) General Civil Rights: Contractor agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal Assistance. This provision binds Contractor and subcontractors from the bid solicitation period through the completion of the Contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

(ii) Federal Fair Labor Standards Act: This Contract incorporates by reference the provisions of 29 C.F.R. Part 201, the Federal Fair Labor Standards Act (“FLSA”), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers. Contractor agrees to incorporate by reference the provisions of FLSA in all contracts and subcontracts resulting from this Contract. Contractor has full responsibility to monitor compliance to the referenced regulation. Contractor must address any claims or disputes arising from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

(iii) Occupational Safety and Health Act: This Contract incorporates by reference the requirements of 29 C.F.R. Part 1910 with the same force and effect as if given in full text. Contractor must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. Contractor retains full responsibility to monitor its compliance and any subcontractor’s compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 C.F.R. Part 1910). Contractor must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

(iv) Contractor covenants it will include the provisions of this section in every

subcontract, including procurements of materials and leases of equipment, unless exempt by the Federal Acts, Regulations and directives issued pursuant thereto. Contractor covenants it will take action with respect to any subcontract or procurement as the City or the FAA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, Contractor may request the City to enter into any litigation to protect the interests of the City. In addition, Contractor may request the United States to enter into the litigation to protect the interests of the United States.

30. CITY EXECUTION OF CONTRACT:

This Contract is expressly subject to, and shall become effective upon, the execution of all signatories of the City and, if required, the approval of Denver City Council. This Contract may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same.

31. ELECTRONIC SIGNATURES AND ELECTRONIC RECORDS:

The Contract, and any other documents requiring a signature hereunder, may be signed electronically by the City and/or Contractor in the manner specified by the City. The Parties agree not to deny the legal effect or enforceability of the Contract solely because it is in electronic form or because an electronic record was used in its formation. The Parties agree not to object to the admissibility of the Contract in the form of an electronic record, or a paper copy of an electronic document, or a paper copy of a document bearing an electronic signature, on the ground that it is an electronic record or electronic signature or that it is not in its original form or is not an original.

[SIGNATURE PAGES FOLLOW]

Contract Control Number: PLANE-202265100-00
Contractor Name: IHC SCOTT, INC.

IN WITNESS WHEREOF, the parties have set their hands and affixed their seals at Denver, Colorado as of:

SEAL

CITY AND COUNTY OF DENVER:

ATTEST:

By:

APPROVED AS TO FORM:

REGISTERED AND COUNTERSIGNED:

Attorney for the City and County of Denver

By:

By:

By:

Contract Control Number:
Contractor Name:

PLANE-202265100-00
IHC SCOTT, INC.

By: DocuSigned by:
Cory Allington
26BE704DE62E4D9... _____

Name: Cory Allington
(please print)

Title: Vice President
(please print)

ATTEST: [if required]

By: _____

Name: _____
(please print)

Title: _____
(please print)

Exhibit A

EXHIBIT A

Federal Title VI Assurances

Exhibit A

COMPLIANCE WITH NONDISCRIMINATION REQUIREMENTS:

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter collectively referred to as the “Contractor”), agrees as follows:

1. **Compliance with Regulations:** The Contractor (hereinafter includes Contractor and all subcontractors) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.
3. **Solicitations for Subcontracts, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the Contractor’s obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a Contractor’s noncompliance with the non-discrimination provisions of this contract, the sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
 - a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
 - b. Cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant

Exhibit A

thereto. The Contractor will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

TITLE VI LIST OF PERTINENT NONDISCRIMINATION ACTS AND AUTHORITIES

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “Contractor”) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 USC § 2000d et seq., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination in Federally-assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973 (29 USC § 794 et seq.), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended (42 USC § 6101 et seq.) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (49 USC § 471, Section 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (PL 100-209) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 USC §§ 12131 – 12189) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration’s Nondiscrimination statute (49 USC § 47123)

Exhibit A

(prohibits discrimination on the basis of race, color, national origin, and sex);

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 USC 1681 et seq).

EXHIBIT B

**CITY AND COUNTY OF DENVER
RULES AND REGULATIONS AND BID
CONDITIONS OF THE
MANAGER OF PUBLIC WORKS**

**PERTAINING TO EQUAL EMPLOYMENT OPPORTUNITY
IN THE CITY AND COUNTY OF DENVER**

APPROVED FOR LEGALITY:

APPROVED AND ADOPTED:

/s/ _____
Attorney for the City and
County of Denver

/s/ _____
Manager of Public Works

Adopted and Published Pursuant to Article 111, Division 2 of Chapter 28
the Revised Municipal Code
of the City and County of Denver

These Rules and Regulations cancel and supersede any and all previous issued Rules and
Regulations on the subject

RULES AND REGULATIONS
REGARDING
EQUAL EMPLOYMENT OPPORTUNITY

Promulgated and adopted by the Manager of Public Works pursuant to and by authority of Article III, Division 2, Chapter 28 of the Revised Municipal Code of the City and County of Denver, and for the purpose of insuring that contractors, subcontractors and suppliers soliciting and receiving compensation for contract work from or through the City and County of Denver provide equal opportunity in employment without regard to race, color, creed, sex, national origin, age, religion, marital status, political opinion or affiliation or mental or physical handicap and meet certain requirements for the hiring, training, promotion and treatment during employment of members of ethnic groups subjected to differential treatment, including persons of African descent (Black), Spanish-surnamed (Hispanic), Asian-American and American Indian groups.

RULE I
DEFINITIONS

- A. "City" means the City and County of Denver.
- B. "Manager" shall mean the Manager of Public Works for the City and County of Denver.
- C. "Contract" means a contract entered into with the City and County of Denver, financed in whole or in part by local resources or funds of the City and County of Denver, for the construction of any public building or prosecution or completion of any public work.
- D. "Contractor" means the original party to a contract with the City and County of Denver, also referred to as the "general" or "prime" contractor.
- E. "Director" means the Director of the Mayor's Office of Contract Compliance.
- F. "Subcontractor" means any person, company, association, partnership, corporation, or other entity which assumes by subordinate agreement some or all of the obligations of the general or prime contractor.
- G. The Phrase "Bidding Specifications" as used in Article 111, Division 2 of Chapter 28 of the Revised Municipal Code shall include BID CONDITION, INVITATION TO BID AND NOTICE OF PROPOSAL.
- H. "Affirmative Action Program" means a set of specific and result-oriented procedures or steps to which a contractor commits himself to apply every good faith effort to employ members of ethnic minority groups, to include persons of African descent (Black), Spanish surnamed (Hispanic), Asian-American, American Indians, and persons with mental or physical handicap.
- I. "Mayor's Office of Contract Compliance" means the City agency established pursuant to Article III, Division 1 of Chapter 28 of the Denver Revised Municipal Code.

RULE II
NOTICE OF HEARING

When results of conciliation efforts are unsatisfactory to the Manager and he is informed in accordance with Article III, Division 2 of Chapter 28 of the Revised Municipal Code that a contractor or subcontractor has apparently failed to meet affirmative action and equal employment opportunity requirements after a reasonable period of notice to correct deficiencies, the Manager will, prior to imposition of any sanctions, afford the general contractor a hearing in order to determine whether the contractor or his subcontractors have failed to comply with the affirmative action and equal employment opportunity requirements of Article III, Division 2 of Chapter 28 of the Revised Municipal Code or of the contract. Written notice of such hearing shall be delivered personally or sent by certified mail return receipt requested, to the contractor and to any subcontractor involved at least ten days prior to the date scheduled for the hearing.

RULE III
HEARING

- A. Contractors will appear at hearings and may be represented by counsel, and may present testimony orally and other evidence.
- B. Hearings shall be conducted by one or more hearing examiners designated as such by the Manager.
- C. The Director of the Mayor's Office of Contract Compliance may participate in hearings as a witness.
- D. Hearings shall be held at the place specified in the notice of hearing.
- E. All oral testimony shall be given under oath or affirmation and a record of such proceedings shall be made.
- F. All hearings shall be open to the public.
- G. The hearing officer shall make recommendations to the Manager who shall make a final decision.

REGULATIONS

REGULATION NO. 1. ORDINANCE: The Rules and Regulations of the Manager shall be inserted in the bidding specifications for every contract for which bidding is required.

REGULATION NO. 2. EXEMPTIONS: Each contract and subcontract, regardless of dollar amount, shall be subject to affirmative action requirements unless specifically exempted in writing individually by the Manager. Exemptions apply only to "affirmative action" in equal employment opportunity, and are not to be construed as condonation in any manner of "discrimination" or "discriminatory practices" in employment because of race, color, creed sex age national origin, religion, marital status, political opinion or mental or physical handicap.

REGULATION NO. 3. DIRECTOR OF CONTRACT COMPLIANCE: The Director of the Mayor's Office of Contract Compliance shall perform the duties assigned to such official by Article III, Division 2 of Chapter 28 of the Revised Municipal Code and by the Manager. (1) The Director of the Mayor's Office of Contract Compliance or designated representatives shall inform bidders and contractors of affirmative action procedures, programs, and goals in accordance with the ordinance at pre-bid and pre-construction conference; (2) make regular on-site inspections; (3) supply contractors and subcontractors with report forms to be completed by them when requested, and furnished to the Director of the Mayor's Office of Contract Compliance; and (4) review payroll records, employment records and practices of general contractors and their subcontractors and suppliers during the performance of any contract. The Director of the Mayor's Office of Contract Compliance shall promptly report apparent affirmative action deficiencies to the Manager.

REGULATION NO. 4. GOALS AND TIMETABLES: In general, goals and timetables should take into account anticipated vacancies and the availability of skills in the market place from which employees should be drawn. In addition, where discrimination in employment by a general contractor or any of his subcontractors is indicated, a corrective action program will take into account the need by the general contractor and his subcontractors to correct past discriminatory practices and reach goals of minority manpower utilization on a timely basis through such recruiting and advertising efforts as are necessary and appropriate.

REGULATION NO.5. AWARD OF CONTRACTS: It shall be the responsibility of the Director of the Mayor's Office of Contract Compliance to determine the affirmative action capability of bidders, contractors and subcontractors and to recommend to the Manager the award of contracts to those bidders, contractors and subcontractors and suppliers who demonstrate the ability and willingness to comply with the terms of their contract.

REGULATION NO. 6. PUBLICATION AND DUPLICATION: Copies of these Rules and Regulations as amended by the Manager from time to time, shall as soon as practicable and after Notice being published will be made a part of all City Contracts.

REGULATION NO. 7. NOTICE TO PROCEED: Prior to issuance of Notice to Proceed a sign-off will be required of the Director of the Mayor's Office of Contract Compliance or his designee.

REGULATION NO. 8. CONTRACTS WITH SUBCONTRACTORS: To the greatest extent possible the contractor shall make a good faith effort to contract with minority contractors, subcontractors and suppliers for services and supplies by taking affirmative actions which include but are not limited to the following:

1. Advertise invitations for subcontractor bids in minority community news media.
2. Contact minority contractor organizations for referral of prospective subcontractors.
3. Purchase materials and supplies from minority material suppliers.

REGULATION NO. 9. AGENCY REFERRALS: it shall be no excuse that the union with which the contractor or subcontractor has an agreement providing for referral, exclusive or otherwise, failed to refer minority employees.

REGULATION NO. 10. CLAUSES: The Manager shall include the appropriate clauses in every contract and the contractor shall cause to be inserted in every subcontract the appropriate clauses:

1. **APPENDIX A:** City and County of Denver Equal Opportunity Clause-ALL CONTRACTS funded only with City & County of Denver monies.
2. **APPENDIX B:** Equal Opportunity Clause (11246)-ALL FEDERAL ASSISTED
3. **APPENDIX C:** Section 3-Assurance of Compliance-HUD ASSISTED PROJECTS.
4. **APPENDIX D:** Section 3-Clause-HUD ASSISTED PROJECTS.

All amendments to the appendices shall be included by reference.

REGULATION NO. 11. SHOW CAUSE NOTICES: When the Manager has reasonable cause to believe that a contractor has violated Article III, Division 2 of Chapter 28 of the Revised Municipal Code, he may issue a notice requiring the contractor to show cause, within fifteen days why enforcement procedures, or other appropriate action to insure compliance, should not be instituted.

REGULATION NO. 12. BID CONDITIONS-AFFIRMATIVE ACTION REQUIREMENTS-EQUAL EMPLOYMENT OPPORTUNITY:

1. APPENDIX E:

The Bid Conditions- Affirmative Action Requirements-Equal Employment Opportunity as amended and published by the U.S. Department of Labor, Employment Standards Administration, Office of Federal Contract Compliance, shall be inserted verbatim for bidding specification for every non-exempt contract involving the use of Federal funds.

2. APPENDIX F:

The Bid Conditions- Affirmative Action Requirements-Equal Employment Opportunity as published by the Department of Public Works, City and County of Denver shall be inserted verbatim as bidding specifications for every non-exempt contract using City funds.

APPENDIX A

CITY AND COUNTY OF DENVER EQUAL OPPORTUNITY CLAUSE-ALL CONTRACTS

1. The contractor will not discriminate against any employee or applicant for employment because of race creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap. 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 consideration for employment without regard to race, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap.
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. Each contractor will comply with all provisions of Article III, Division 2, Chapter 28 of the Revised Municipal Code, and the rules, regulations, and relevant orders of the Manager and Director.
5. The contractor will furnish all information and reports required by Article III, Division 2, Chapter 28 of the Revised Municipal Code, and by rules, regulations and orders of the Manager and Director or pursuant thereto, and will permit access to his books, records, and accounts by the Manager, Director or their designee 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 cancelled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further City contracts in accordance with procedures authorized in Article III, Division 2, Chapter 28 of the Revised Municipal Code, or by rules, regulations, or order of the Manager.
7. The contractor will include Regulation 12 Paragraph 2 and the provisions of paragraphs (1) through (6) in every subcontract or purchase order unless, exempted by rules, regulations, or orders of the Manager issued pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code, so that such provisions will be binding upon each subcontractor or suppliers. 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.

The applicant further agrees to be bound by the above equal opportunity clauses with respect to its own employment practices when it participates in City contracts. The contractor agrees to assist and cooperate actively with the Manager and the Director in obtaining compliance of subcontractors and suppliers with the equal opportunity clause and the rules, regulations and relevant orders of the Manager, and will furnish the Manager and the Director such information as they may require for the supervision of compliance, and will otherwise assist the Manager and Director in the discharge of the City's primary responsibility for securing compliance. The contractor further agrees to refrain from entering into any contract or contract modification subject to Article III, Division 2, Chapter 28 of the Revised Municipal Code with a contractor debarred from, or who has not demonstrated eligibility for, City contracts.

The contractor will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the Manager and Director. In addition, the contractor agrees that failure or refusal to comply with these undertakings the Manager may take any or all of the following actions:

- A. Cancellation, termination, or suspension in whole or in part of this contract.
- B. Refrain from extending any further assistance to the applicant under the program with respect to which the failure occurred until satisfactory assurance of future compliance has been received from such applicant.
- C. Refer the case to the City Attorney for appropriate legal proceedings.

SUBCONTRACTS: Each prime contractor or subcontractor shall include the equal opportunity clause in each of its subcontracts.

**APPENDIX F
BID CONDITIONS
AFFIRMATIVE ACTION REQUIREMENTS
EQUAL EMPLOYMENT OPPORTUNITY**

For all Non-Exempt Construction Contracts to be Awarded by
the City and County of Denver, Department of Public Works

NOTICE

EACH BIDDER, CONTRACTOR OR SUBCONTRACTOR (HEREINAFTER THE CONTRACTOR) MUST FULLY COMPLY WITH THE REQUIREMENTS OF THESE BID CONDITIONS AS TO EACH CONSTRUCTION TRADE IT INTENDS TO USE ON THIS CONSTRUCTION CONTRACT, AND ALL OTHER CONSTRUCTION WORK (BOTH CITY AND NON-CITY) IN THE DENVER AREA DURING THE PERFORMANCE OF THIS CONTRACT OR SUBCONTRACT. THE CONTRACTOR COMMITS ITSELF TO THE GOALS FOR MINORITY MANPOWER UTILIZATION, AS APPLICABLE, AND ALL OTHER REQUIREMENTS, TERMS AND CONDITION OF THESE BID CONDITIONS BY SUBMITTING A PROPERLY SIGNED BID.

THE CONTRACTOR SHALL APPOINT A COMPANY EXECUTIVE TO ASSUME THE RESPONSIBILITY FOR THE IMPLEMENTATION OF THE REQUIREMENTS, TERMS AND CONDITIONS OF THESE BID CONDITIONS.

EULOIS CLECKLEY
Manager of Public Works
City and County of Denver

A. REQUIREMENTS --AN AFFIRM ATIVE ACTION PLAN:

Contractors shall be subject to the provisions and requirements of these bid conditions including the goals and timetables for minority' and female utilization, and specific affirmative action steps set forth by the Office of Contract Compliance. The contractor's commitment to the goals for minority, and female utilization as required constitutes a commitment that it will make every good faith effort to meet such goals.

1. GOALS AND TIMETABLES:

The goals and timetables for minority¹ and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade are as follows:

**GOALS FOR MINORITY PARTICIPATION
FOR EACH TRADE**

From January 1, 1982
to 21.7% - 23.5%
Until Further Notice

**GOALS FOR FEMALE PARTICIPATION
FOR EACH TRADE**

From January 1, 1982
to 6.9%
Until Further Notice

The goals for minority and female utilization above are expressed in terms of hours of training and employment as a proportion of the total number of hours to be worked by the contractor's aggregate workforce, which includes all supervisory personnel, in each trade, on all projects for the City and County of Denver during the performance of its contract (i.e., The period beginning with the first day of work on the City and County of Denver funded construction contract and ending with the last day of work).

The hours of minority and female employment and training must be substantially uniform throughout the length of the contract in each trade and minorities and females must be employed evenly on each of a contractor's projects. Therefore, the transfer of minority or female employees from contractor to contractor or from project to project for the purpose of meeting the contractor's goals shall be a violation of these Bid Conditions.

If the contractor counts the nonworking hours of apprentices they must be employed by the contractor during the training period; the contractor must have made a commitment to employ apprentices at the completion of their training subject to the availability of employment opportunities; and the apprentices must be trained pursuant to training programs approved by the Bureau of Apprenticeship and Training.

¹ "Minority" is defined as including, Blacks, Spanish Surname Americans, Asian-Americans, and American Indians, and includes both men and Minority women.

2. **SPECIFIC AFFIRMATIVE ACTION STEPS:**

No contractor shall be found to be in noncompliance solely on account of its failure to meet its goals, but will be given an opportunity to demonstrate that the contractor has instituted all the specific affirmative action steps specified and has made every good faith effort to make these steps work toward the attainment of its goals within the timetables, all to the purpose of expanding minority and female utilization in its aggregate workforce. A contractor, who fails to comply with its obligation under the Equal Opportunity Clause of its contract and fails to achieve its commitments to the goals for minority and female utilization has the burden of proving that it has engaged in an Affirmative Action Program directed at increasing minority and female utilization and that such efforts were at least as extensive and as specific as the following:

- a. The contractor should have notified minority and female organizations when employment opportunities were available and should have maintained records of the organization's response.
- b. The contractor should have maintained a file of the names and addresses of each minority and female referred to it by any individual or organization and what action was taken with respect to each such referred individual, and if the individual was not employed by the contractor, the reasons. If such individual was sent to the union hiring hall for referral and not referred back by the union or if referred, not employed by the contractor, the file should have documented this and their reasons.
- c. The contractor should have promptly notified the Department of Public Works, and Mayor's Office of Contract Compliance when the union or unions with which the contractor has collective bargaining agreements did not refer to the contractor a minority or female sent by the contractor, or when the contractor has other information that the union referral process has impeded efforts to meet its goals.
- d. The contractor should have disseminated its EEO policy within its organization by including it in any employee handbook or policy manual; by publicizing it in company newspapers and annual reports and by advertising such policy at reasonable intervals in union publications. The EEO policy should be further disseminated by conducting staff meetings to explain and discuss the policy; by posting of the policy; and by review of the policy with minority and female employees.
- e. The contractor should have disseminated its EEO policy externally by informing and discussing it with all recruitment sources; by advertising in news media, specifically including minority and female news media; and by notifying and discussing it with all subcontractors.
- f. The contractor should have made both specific and reasonably recurrent written and oral recruitment efforts. Such efforts should have been directed at minority and female organizations, schools with substantial minority and female enrollment, and minority and female recruitment and training organizations within the contractor's recruitment area.

- g. The contractor should have evidence available for inspection that all tests and other selection techniques used to select from among candidates for hire, transfer, promotion, training, or retention are being used in a manner that does not violate the OFCCP Testing Guidelines in 41 CFR Part 60-3.
- h. The contractor should have made sure that seniority practices and job classifications do not have a discriminatory effect.
- i. The contractor should have made certain that all facilities are not segregated by race.
- j. The contractor should have continually monitored all personnel activities to ensure that its EEO policy was being carried out including the evaluation of minority and female employees for promotional opportunities on a quarterly basis and the encouragement of such employees to seek those opportunities.
- k. The contractor should have solicited bids for subcontracts from available minority and female subcontractors engaged in the trades covered by these Bid conditions, including circulation of minority and female contractor associations.

NOTE: The Director and the Mayor's Office of Contract Compliance will provide technical assistance on questions pertaining to minority and female recruitment sources, minority and female community organizations, and minority and female news media upon receipt of a request for assistance from a contractor.

3. NON-DISCRIMINATION:

In no event may a contractor utilize the goals and affirmative action steps required in such a manner as to cause or result in discrimination against any person on account of race, color, religion, sex, marital status, national origin, age, mental or physical handicap, political opinion or affiliation.

4. COMPLIANCE AND ENFORCEMENT:

In all cases, the compliance of a contractor will be determined in accordance with its obligations under the terms of these Bid Conditions. All contractors performing or to perform work on projects subject to these Bid Conditions hereby agree to inform their subcontractors in writing of their respective obligations under the terms and requirements of these Bid Conditions, including the provisions relating to goals of minority and female employment and training.

A. Contractors Subject to these Bid Conditions:

In regard to these Bid Conditions, if the contractor meets the goals set forth therein or can demonstrate that it has made every good faith effort to meet these goals, the contractor shall be presumed to be in compliance with Article III, Division 2, Chapter 28 of the Revised Municipal Code, the implementing regulations and its obligations under these Bid Conditions. In the event, no formal sanctions or proceedings leading toward sanctions shall be instituted unless the contracting or administering agency otherwise determines that the contractor is violating the Equal Opportunity Clause.

- 1. Where the Office of Contract Compliance finds that a contractor failed to comply with the requirements of Article 111, Division 2, Chapter 28 of the Revised Municipal

Code or the implementing regulations and the obligations under these Bid Conditions, and so informs the Manager, the Manager shall take such action and impose such sanctions, which include suspension, termination, cancellation, and debarment, as may be appropriate under the Ordinance and its regulations. When the Manager proceeds with such formal action it has the burden of proving that the contractor has not met the goals contained in these Bid Conditions. The contractor's failure to meet its goals shall shift to it the requirement to come forward with evidence to show that it has met the good faith requirements of these Bid Conditions.

2. The pendency of such proceedings shall be taken into consideration by the Department of Public Works in determining whether such contractor can comply with the requirements of Article 111, Division 2, Chapter 28 of the Revised Municipal Code, and is therefore a "responsible prospective contractor".
3. The Mayor's Office of Contract Compliance shall review the contractor's employment practices during the performance of the contract. If the Mayor's Office of Contract Compliance determines that the contractor's Affirmative Action Plan is no longer an acceptable program, the Director shall notify the Manager.

B. **Obligations Applicable to Contractors:**

It shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority or female employees. Discrimination in referral for employment, even if pursuant to provisions of a collective bargaining agreement, is prohibited by the National Labor Relations Act, as amended, Title VI of the Civil Rights Act of 1964, as amended, and Article III, Division 2, Chapter 28 of the Revised Municipal Code. It is the policy of the Department of Public Works that contractors have a responsibility to provide equal employment opportunity, if they wish to participate in City and County of Denver contracts. To the extent they have delegated the responsibility for some of their employment practices to a labor organization and, as a result, are prevented from meeting their obligations pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code, such Contractors cannot be considered to be in compliance with Article III, Division 2, Chapter 28 of the Revised Municipal Code, or its implementing rules and regulations.

C. **General Requirements**

Contractors are responsible for informing their subcontractors in writing regardless of tier, as to their respective obligations. Whenever a contractor subcontracts a portion of work in any trade covered by these Bid Conditions, it shall include these Bid Conditions in such subcontracts and each subcontractor shall be bound by these Bid Conditions to the full extent as if it were the prime contractor. The contractor shall not, however, be held accountable for the failure of its subcontractors to fulfill their obligations under these Bid Conditions. However, the prime contractor shall give notice to the Director of any refusal or failure of any subcontractor to fulfill the obligations under these Bid Conditions. A subcontractor's failure to comply will be treated in the same manner as such failure by a prime contractor.

1. Contractors hereby agree to refrain from entering into any contract or contract modification subject to Article 111, Division 2, Chapter 28 of the Revised Municipal Code with a contractor debarred from, or who is determined not to be a "responsive" bidder for the City and County of Denver contracts pursuant to the Ordinance.
2. The contractor shall carry out such sanctions and penalties for violation of these Bid Conditions and the Equal Opportunity Clause including suspension, termination and cancellation of existing subcontracts and debarment from future contracts as may be ordered by the Manager pursuant to Article 111, Division 2, Chapter 28 of the Revised Municipal Code and its implementing regulations.
3. Nothing herein is intended to relieve any contractor during the term of its contract from compliance with Article III, Division 2, Chapter 28 of the Revised Municipal Code, and the Equal Opportunity Clause of its contract with respect to matters not covered in these Bid Conditions.
4. Contractors must keep such records and file such reports relating to the provisions of these Bid Conditions as shall be required by the Office of Contract Compliance.
5. Requests for exemptions from these Bid Conditions must be made in writing, with justification, to the Manager of Public Works, City and County Building, Room 379, Denver, Colorado 80202, and shall be forwarded through and with the endorsement of the Director.

EXHIBIT C

**CITY AND COUNTY OF DENVER
INSURANCE REQUIREMENTS FOR DEPARTMENT OF AVIATION
OWNER CONTROLLED INSURANCE PROGRAM (OCIP/ROCIP) PROJECT
ROCIP 4**

NOTICE OF CHANGE TO ROCIP: DEN reserves the right to terminate or modify the DEN ROCIP or any portion thereof. Further, dependent on factors including, but not limited to, the official timing and duration of the ROCIP project for which services are provided under this Agreement, DEN may need to transition from one ROCIP program to another and introduce corresponding requirements for contractors. DEN will provide Contractor notice in accordance with the terms and conditions of this Agreement.

1. General Information

City and County of Denver and Denver International Airport (hereinafter referred to collectively as “DEN”) has arranged for certain construction activities at DEN to be insured under an Owner Controlled Insurance Program (OCIP) or a Rolling Owner Controlled Insurance Program (ROCIP) (hereinafter collectively referred to as “ROCIP”). A ROCIP is a single insurance program that insures DEN, the Contractor and subcontractors of any tier, and other designated parties (Enrolled Parties), for work performed at the Project Site. Certain trade contractors and subcontractors are ineligible for this program; see ROCIP Insurance Manual Section 4. Insurance requirements are determined based on the scope of work.

1.2 ROCIP Manuals

Below are links to access the current reference manuals related to DEN ROCIP. These manuals are part of the Contract Documents.

[ROCIP Insurance Manual](#)
[ROCIP Safety Manual](#)
[ROCIP Claims Guide](#)

2. Insurance Requirements for Non-ROCIP Contractors and Subcontractors (Ineligible Parties)

Contractor and subcontractors of any tier shall require all Ineligible Parties, as defined in ROCIP Insurance Manual Section 4 or confirmed as excluded by DEN, to provide and maintain insurance of the type and in limits as set forth in the Contractor Subcontract Agreement and such insurance shall include the minimum defined coverages and be evidenced to DEN as required in this Section 2.

2.1 Certificate Holder

Certificate(s) shall be issued to:	CITY AND COUNTY OF DENVER Denver International Airport 8500 Peña Boulevard, Suite 8810 Denver CO 80249 Attn: Risk Management
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2.2 Acceptable Certificate of Insurance Form and Submission Instructions

Please read these requirements carefully to ensure proper documentation and receipt of your certificate(s) of insurance.

- ACORD FORM (or equivalent) certificate is required.
- SUBMIT via emailed in pdf format to: contractadmininvoices@flydenver.com

- ELECTRONIC CERTIFICATES are required, hard copy documents will not be accepted.
- THIRD PARTY SOFTWARE may be implemented during the term of this Agreement to manage insurance compliance and documents with required use by Vendor of such system.
- REFERENCE on the certificate must include the DEN assigned Contract Number.

2.3 Coverage and Limits

2.3.1 Commercial General Liability

Contractor shall maintain insurance coverage including bodily injury, property damage, personal injury, advertising injury, independent contractors, and products and completed operations in minimum limits of \$1,000,000 each occurrence, \$2,000,000 products and completed operations aggregate; if policy contains a general aggregate, a minimum limit of \$2,000,000 annual aggregate must be maintained.

- 2.3.1.1 Coverage shall include Contractual Liability covering liability assumed under this Agreement (including defense costs assumed under contract) within the scope of coverages provided.
- 2.3.1.2 Coverage shall include Mobile Equipment Liability, if used to perform services under this Agreement.

2.3.2 Business Automobile Liability

Contractor shall maintain a minimum limit of \$1,000,000 combined single limit each occurrence for bodily injury and property damage for all owned, leased, hired and/or non-owned vehicles used in performing services under this Agreement.

- 2.3.2.1 If operating vehicles unescorted airside at DEN, a \$10,000,000 combined single limit each occurrence for bodily injury and property damage is required.
- 2.3.2.2 If Contractor does not have blanket coverage on all owned and operated vehicles and will require unescorted airside driving privileges, then a schedule of insured vehicles (including year, make, model and VIN number) must be submitted with the Certificate of Insurance.
- 2.3.2.3 If transporting waste, hazardous material, or regulated substances, Contractor shall carry a Broadened Pollution Endorsement and an MCS 90 endorsement on its policy.
- 2.3.2.4 If Contractor does not own any fleet vehicles and Contractor's owners, officers, directors, and/or employees use their personal vehicles to perform services under this Agreement, Contractor shall ensure that one or both of the following coverages are maintained as appropriate: (i) Personal Automobile Liability including a Business Use Endorsement by the vehicle owner and (ii) Non-Owned Auto Liability by the Contractor.
- 2.3.2.5 If Contractor will be completing all services to DEN under this Agreement remotely and not be driving to locations under direction of the City to perform services, this requirement is waived.

2.3.3 Workers' Compensation and Employer's Liability Insurance

Contractor shall maintain the coverage as required by statute for each work location and shall maintain Employer's Liability insurance with limits no less than \$1,000,000 per occurrence for each bodily injury claim, \$1,000,000 per occurrence for each bodily injury caused by disease claim, and \$1,000,000 aggregate for all bodily injuries caused by disease claims.

2.3.3.1 Colorado Workers' Compensation Act allows for certain, limited exemptions from Worker's Compensation insurance coverage requirements. It is the sole responsibility of the Contractor to determine their eligibility for providing this coverage, executing all required documentation with the State of Colorado, and obtaining all necessary approvals. Verification document(s) evidencing exemption status must be submitted with the Certificate of Insurance.

2.3.4 Professional Liability (Errors and Omissions) Insurance

Contractor shall maintain a minimum limit of \$1,000,000 each claim and policy aggregate, providing coverage for applicable services outlined in this Agreement. If there are no applicable professional services, this coverage will not be required.

The Contractor shall be responsible for conferring with DEN Risk Management on any subcontractors providing work to the Project to obtain a formal determination if this coverage will be required.

2.3.5 Contractor's Pollution Legal Liability

If required by DEN Risk Management for any specific Excluded Party based on their scope of work, Contractor shall maintain coverage for its work site operations that are conducted on DEN's premises including project management and site supervision duties with a limit no less than \$1,000,000 each occurrence and aggregate resulting from claims arising out of a pollution condition or site environmental condition resulting out of work site operations on DEN's premises.

2.3.5.1 Coverage shall include claims/losses for bodily injury, property damage including loss of use of damaged property, defense costs including costs and expenses incurred in the investigation, defense or settlement of claims, and cleanup cost for pollution conditions resulting from illicit abandonment, the discharge, dispersal, release, escape, migration or seepage of any solid, liquid, gaseous or thermal irritant, contaminant, or pollutant, including soil, silt, sedimentation, smoke, soot, vapors, fumes, acids, alkalis, chemicals, electromagnetic fields, hazardous substances, hazardous materials, waste materials, low level radioactive waste, mixed wastes, on, in, into, or upon land and structures thereupon, the atmosphere, surface water or groundwater on the DEN premises.

2.3.5.2 Work site means a location where covered operations are being performed, including real property rented or leased from DEN for the purpose of conducting Contractor's covered operations.

The Contractor shall be responsible for conferring with DEN Risk Management on any subcontractors providing work to the Project to obtain a formal determination if this coverage will be required.

2.3.6 Cyber Liability

If required by DEN Risk Management for any specific Excluded Party based on their scope of work, Contractor shall maintain a minimum limit of \$1,000,000 per occurrence and \$1,000,000 annual policy aggregate covering claims involving privacy violations, information theft, damage to or destruction of electronic information, intentional and/or unintentional release of private information, alteration of electronic information, extortion, and network security.

The Contractor shall be responsible for conferring with DEN Risk Management on any subcontractors providing work to the Project to obtain a formal determination if this coverage will be required.

2.3.7 Technology Errors and Omissions, Network Security, and Privacy Liability (Cyber):
If required by DEN Risk Management for any specific Excluded Party based on their scope of work, Contractor shall maintain a limit no less than \$1,000,000 each claim and aggregate; \$1,000,000 each claim and aggregate for cyber extortion; and no less than \$250,000 each claim for invoice manipulation and email spoofing.

2.3.7.1 Coverage shall include, but not be limited to, liability arising from theft, dissemination and/or use of personal, private, confidential, information subject to a non-disclosure agreement, including information stored or transmitted, privacy or cyber laws, damage to or destruction of information, intentional and/or unintentional release of private information, alteration of information, extortion and network security, introduction of a computer virus into, or otherwise causing damage to, a customer's or third person's computer, computer system, network or similar computer related property and the data, software, and programs thereon, advertising injury, personal injury (including invasion of privacy) and intellectual property offenses related to internet.

The Contractor shall be responsible for conferring with DEN Risk Management on any subcontractors providing work to the Project to obtain a formal determination if this coverage will be required.

2.3.8 Unmanned Aerial Vehicle (UAV) Liability

If Contractor desires to use drones in any aspect of its work on DEN premises, the following requirements must be met prior to commencing any drone operations:

- 2.3.8.1 Express written permission must be granted by DEN.
- 2.3.8.2 Express written permission must be granted by the Federal Aviation Administration (FAA).
- 2.3.8.3 Drone equipment must be properly registered with the FAA.
- 2.3.8.4 Drone operator(s) must be properly licensed by the FAA.
- 2.3.8.5 Contractor must maintain UAV Liability including flight coverage, personal and advertising injury liability, and hired/non-owned UAV liability for its commercial drone operations with a limit no less than \$1,000,000 combined single limit each occurrence for bodily injury and property damage.

2.3.9 Excess/Umbrella Liability

Combination of primary and excess coverage may be used to achieve minimum required coverage limits. Excess/Umbrella policy(ies) must follow form of the primary policies with which they are related to provide the minimum limits and be verified as such on any submitted Certificate of Insurance.

2.4 Reference to Project and/or Contract

The DEN Project and/or Contract Number and project description shall be noted on the Certificate of Insurance.

2.5 Additional Insured

For all coverages required under this Agreement (excluding Workers' Compensation and Professional Liability, if required), Contractor's insurer(s) shall include the City and County of Denver, its elected and appointed officials, successors, agents, employees and volunteers as Additional Insureds by policy endorsement.

2.6 Waiver of Subrogation

For all coverages required under this Agreement (excluding Professional Liability, if required), Contractor's insurer(s) shall waive subrogation rights against the City and County of Denver, its elected and appointed officials, successors, agents, employees and volunteers by policy endorsement.

If Contractor will be completing all services to the City under this Agreement remotely and not be traveling to locations under direction of the City to perform services, this requirement is waived specific to Workers' Compensation coverage.

2.7 Notice of Material Change, Cancellation or Nonrenewal

Each certificate and related policy shall contain a valid provision requiring notification to the Certificate Holder in the event any of the required policies be canceled or non-renewed or reduction in required coverage before the expiration date thereof.

- 2.7.1 Such notice shall reference the DEN assigned contract number related to this Agreement.
- 2.7.2 Said notice shall be sent thirty (30) days prior to such cancellation, non-renewal or reduction in coverage unless due to non-payment of premiums for which notice shall be sent ten (10) days prior.
- 2.7.3 If such written notice is unavailable from the insurer or afforded as outlined above, Contractor and/or its insurance broker/agent shall provide written notice of cancellation, non-renewal and any reduction in coverage to the Certificate Holder within seven (7) business days of receiving such notice by its insurer(s) and include documentation of the formal notice received from its insurer(s) as verification. Contractor shall replace cancelled or nonrenewed policies with no lapse in coverage and provide an updated Certificate of Insurance to DEN.
- 2.7.4 In the event any general aggregate or other aggregate limits are reduced below the required minimum per occurrence limits, Contractor will procure, at its own expense, coverage at the requirement minimum per occurrence limits. If Contractor cannot replenish coverage within ten (10) calendar days, it must notify the City immediately.

2.8 Cooperation

Contractor agrees to fully cooperate in connection with any investigation or inquiry and accept any formally tendered claim related to this Agreement, whether received from the City or its representative. Contractor's failure to fully cooperate may, as determined in the City's sole discretion, provide cause for default under the Agreement. The City understands acceptance of a tendered claim does not constitute acceptance of liability.

2.9 Additional Provisions

- 2.9.1 Deductibles or any type of retention are the sole responsibility of the Contractor.
- 2.9.2 Defense costs shall be in addition to the limits of liability. If this provision is unavailable that limitation must be evidenced on the Certificate of Insurance.
- 2.9.3 Coverage required may not contain an exclusion related to operations on airport premises.
- 2.9.4 A severability of interests or separation of insureds provision (no insured vs. insured exclusion) is included under any policy requiring Additional Insured status.
- 2.9.5 A provision that coverage is primary and non-contributory with other coverage or self-insurance maintained by DEN, excluding Professional Liability and Workers' Compensation policies, if required.

- 2.9.6 The insurance requirements under this Agreement shall be the greater of (i) the minimum limits and coverage specified hereunder or (ii) the broader coverage and maximum limits of coverage of any insurance policy or proceeds available to the Contractor. It is agreed that the insurance requirements set forth herein shall not in any way act to reduce coverage that is broader or that includes higher limits than the minimums set forth in this Agreement.
- 2.9.7 All policies shall be written on an occurrence form when available and industry norm. If an occurrence form is unavailable and/or the industry norm, claims-made coverage may be accepted by DEN provided the retroactive date is on or before the Agreement Effective Date or the first date when any goods or services were provided to DEN, whichever is earlier, and continuous coverage will be maintained or an extended discovery period of three years beginning at the time work under this Agreement is completed or the Agreement is terminated, whichever is later.
- 2.9.8 Certificates of Insurance must specify the issuing companies, policy numbers and policy periods for each required form of coverage. The certificates for each insurance policy are to be signed by an authorized representative and must be submitted to the City at the time Contractor signed this Agreement.
- 2.9.9 The insurance shall be underwritten by an insurer licensed or authorized to do business in the State of Colorado and rated by A.M. Best Company as A- VIII or better.
- 2.9.10 Certificate of Insurance and Related Endorsements: The City's acceptance of a certificate of insurance or other proof of insurance that does not comply with all insurance requirements shall not act as a waiver of Contractor's breach of this Agreement or of any of the City's rights or remedies under this Agreement. All coverage requirements shall be enforced unless waived or otherwise modified in writing by DEN Risk Management. Contractor is solely responsible for ensuring all formal policy endorsements are issued by their insurers to support the requirements.
- 2.9.11 The City shall have the right to verify, at any time, all coverage, information, or representations, and the insured and its insurance representatives shall promptly and fully cooperate in any such audit the City may elect to undertake including provision of copies of insurance policies upon request. In the case of such audit, the City may be subject to a non-disclosure agreement and/or redactions of policy information unrelated to the required coverage and premium amounts.
- 2.9.12 No material changes, modifications, or interlineations to required insurance coverage shall be allowed without the review and written approval of DEN Risk Management.
- 2.9.13 Contractor shall be responsible for ensuring the City is provided updated Certificate(s) of prior to each policy renewal.
- 2.9.14 Contractor's failure to maintain required insurance shall be the basis for immediate suspension and cause for termination of this Agreement, at the City's sole discretion and without penalty to the City.

2.10 Part 230 and the DEN Airport Rules and Regulations

If the minimum insurance requirements set forth herein differ from the equivalent types of insurance requirements in Part 230 of the DEN Airport Rules and Regulations, the greater and broader insurance requirements shall supersede those lesser requirements, unless expressly excepted in writing by DEN Risk Management.

3. Insurance Requirements for ROCIP Enrolled Contractors and Subcontractors

3.1 Insurance Provided by the DEN ROCIP

DEN retains the right to have this Project insured under a ROCIP. ROCIP coverage shall provide: (i) Commercial General Liability, (ii) Workers' Compensation & Employer's Liability, (iii) Excess Liability, (iv) Contractor's Pollution Liability, and (v) Builder's Risk as outlined herein and as defined by the respective policies for each coverage, for the period from the start of Work through completion and final acceptance by DEN except as otherwise provided herein.

3.2 Enrollment Required

Parties performing labor or services at the Project Site are eligible to enroll in the DEN ROCIP, unless they are Ineligible Parties (as defined in ROCIP Insurance Manual Section 4). Participation is mandatory but not automatic. Parties eligible for enrollment shall follow the procedures and follow the instructions as provided in the DEN ROCIP Insurance Manual to enroll in the program. When the Contractor and subcontractors of any tier are properly enrolled, the DEN ROCIP Administrator will issue a Certificate of Insurance evidencing the coverages afforded to each Enrolled Party under the DEN ROCIP, prior to their commencing Work on the Project Site.

3.3 Exclusion of Contractor/Subcontractor Insurance Costs from Proposal and Bid Prices

Contractor shall exclude from Contractor's cost of work and ensure that each subcontractor of any tier exclude from their cost of work, normal costs for insurance for those coverages provided under the DEN ROCIP. As part of the enrollment process, Contractor and subcontractors shall provide policy declaration rate pages and deductible endorsements on the General Liability, Workers' Compensation, and Excess Liability policies as required in the DEN ROCIP Insurance Manual. The calculation of these costs will be determined by the ROCIP Program Administrator. The costs of DEN ROCIP coverage includes reductions in insurance premiums, all relevant taxes and assessments, markup on insurance premiums, and losses retained through large deductibles, self-insured retentions, or self-funded programs. Change orders shall also exclude the cost of ROCIP coverage.

Pre-employment substance abuse testing costs will be covered by DEN and should be removed from bid prices. Drug testing will be more thoroughly discussed in the ROCIP Safety Manual.

3.4 Insurance Premiums

DEN will pay the insurance premiums for the DEN ROCIP insurance policies. DEN is responsible for all adjustments to the premiums and will be the sole beneficiary of all dividends, retroactive adjustments, return premiums, and any other monies due through audits or otherwise. The Contractor assigns to DEN the right to receive all such adjustments and will require that each subcontractor of any tier assign to DEN all such adjustments. The Contractor and the subcontractors who are Enrolled Parties shall execute such further documentation as may be required by DEN to accomplish this assignment.

3.5 Off Site Operations Coverage Under ROCIP

The DEN ROCIP will provide certain insurance coverage for DEN, Contractor and Enrolled Parties, along with their Eligible Employees performing Work at the Project Site. Off-site operations shall be covered only if designated in writing by DEN and when all operations at such site are identified and solely dedicated to the Project. Contractors and subcontractors are responsible to notify the DEN ROCIP Administrator in writing, to request coverage for specified off-site operations. Coverage is not provided at the off-site location unless confirmed in writing by the DEN ROCIP Administrator.

3.6 DEN ROCIP Insurance Manual

As soon as practicable, the DEN ROCIP Insurance Manual will be sent to each Enrolled Party and will become a part of the Contract and Contractor's Subcontract with its subcontractor and its subcontractors' agreements with any lower-tier subcontractor. The DEN ROCIP Insurance Manual will contain the administrative and claim reporting procedures. Contractor agrees to and will require that its subcontractors of any tier to cooperate with the DEN ROCIP Administrator in providing all required information.

3.7 Conflicts

Descriptions of the DEN ROCIP coverages set forth in ROCIP Insurance Manual Section 4.6 are not intended to be complete or meant to alter or amend any provision of the DEN ROCIP insurance policies. The DEN ROCIP coverages, terms, conditions, and exclusions are set forth in full in their respective policy forms. In the event of a conflict or omission between the coverages provided in the DEN ROCIP insurance policies and the coverages summarized or described in the DEN ROCIP Insurance Manual, this Exhibit or elsewhere in the Contract Documents, the DEN ROCIP insurance policies shall govern. In the event of a conflict between the provisions of this Exhibit and the DEN ROCIP Insurance Manual, that does not involve any conflict with the provisions of the DEN ROCIP insurance policies, the provisions of this Exhibit shall govern.

3.8 ROCIP Insurance Coverage Provided to Enrolled Parties

3.8.1 Insurance Provided by DEN

Unless otherwise provided herein, prior to commencement of the Work, DEN, at its sole option and expense, shall secure and maintain at all times during the performance of this Contract the insurance specified below, insuring DEN, Enrolled Parties and such other persons or interests as DEN may designate with limits not less than those specified below for each coverage.

3.8.1.1 Workers' Compensation & Employer's Liability – On Site Only

DEN shall maintain the coverage as required by statute for the Project Site and shall maintain Employer's Liability insurance with limits no less than \$1,000,000 per occurrence for each bodily injury claim, \$1,000,000 per occurrence for each bodily injury caused by disease claim, and \$1,000,000 aggregate for all bodily injuries caused by disease claims.

3.8.1.2 Commercial General Liability – On Site Only

DEN shall maintain insurance coverage including bodily injury, property damage, personal injury, advertising injury, and products and completed operations in minimum limits as listed below:

Coverage	Limit
Annual General Aggregate (Per Project and Reinstates Annually)	\$4,000,000
Products/Completed Operations Aggregate (Per Project and Statute of Repose)	\$4,000,000
Total Products/Completed Operations Aggregate (Statute of Repose)	\$20,000,000
Personal / Advertising Injury Limit	\$2,000,000
Each Occurrence Limit	\$2,000,000
Fire Damage Legal Liability (any one fire)	\$ 300,000
Medical Payments (any one person)	\$ 10,000

3.8.1.3 Excess Liability Insurance

DEN shall maintain coverage following form with underlying policies of Commercial General Liability and Employer's Liability in minimum limits as listed below:

Coverage	Limit
Annual General Aggregate (Per Project and Reinstates Annually)	\$200,000,000
Products/Completed Operations Aggregate (Per Project)	\$20,000,000
Total Products/Completed Operations Aggregate (Policy Cap)	\$400,000,000
Each Occurrence Limit	\$200,000,000

DEN, in its sole discretion, may elect to provide higher limits, based on Project size. Excess Liability limits are shared by all Insured parties.

3.8.1.4 Contractor's Pollution Liability

DEN shall maintain coverage for bodily injury, property damage, or environmental damage caused by a pollution event resulting from covered operations, including completed operations, at the Project Site with a limit no less than \$10,000,000 each occurrence and aggregate. Coverage includes microbial matter and legionella pneumophila in any structure on land and the atmosphere contained with the structure. Products/Completed Operations coverage may extend for the statute of limitations/repose after final completion of the Project.

3.8.1.5 Builder's Risk Insurance

DEN shall maintain, Builder's Risk (and/or Installation Floater) in the amount of \$200,000,000 per occurrence subject to various sublimits (as defined in the Builders' Risk Policy). Such insurance shall end when the first of the following occurs: 1) DEN's interest in the Work ceases; 2) the policy expires or is cancelled; or 3) the Work is accepted by DEN.

Builder's Risk Insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss of damage including , theft, vandalism, malicious mischief, terrorism, rigging and hoisting for materials and equipment that are part of the Project, collapse, earthquake, flood, windstorm, falsework, testing and startup (as provided by the policy), temporary buildings and debris removal including demolition occasioned by enforcement of any applicable ordinance laws, and shall cover reasonable compensation for services and expenses required as a result of such insured loss.

This Builder's Risk Insurance shall cover portions of the Work stored off site, and also portions of the Work in transit.

DEN and Contractor shall waive all rights against (1) each other and any of their subcontractors of any tier, and all respective agents and employees, and (2) the architect, architect's consultants, separate contractors, if any, and any of their subcontractors of any tier, and all respective agents and employees, for damages caused by fire or other causes of loss to the extent covered by Builder's Risk Insurance obtained pursuant to this Section or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by DEN as fiduciary. DEN or Contractor, as appropriate, shall require of the architect, architect's consultants, separate contractors, and their subcontractors of any tier, and all respective agents and employees, by appropriate agreements, written where

legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

3.8.2 Claim Chargeback

A claim charge-back will be assessed, regardless of fault, for the amount of any loss payable under this program with the exception of Workers' Compensation and Excess Liability, up to a maximum of \$25,000 each loss. General Contractor may elect to pass no more than \$5,000 of this charge, each loss, through to any responsible subcontractor.

3.9 Other Insurance Provided By Enrolled Parties

At their own expense, the Enrolled Parties of all tiers must carry the following minimum coverage and limits and such insurance shall be evidenced to DEN and the DEN ROCIP Administrator as required in this Section 3.9.

3.9.1 Certificate Holder

Certificate(s) shall be issued to: CITY AND COUNTY OF DENVER
Denver International Airport
8500 Peña Boulevard, Suite 8810
Denver CO 80249
Attn: Risk Management

and

CITY AND COUNTY OF DENVER
Department of Aviation
c/o Marsh USA, Inc.
111 SW Columbia, Ste 500
Portland, OR 97201

3.9.2 Acceptable Certificate of Insurance Form and Submission Instructions

Please read these requirements carefully to ensure proper documentation and receipt of your certificate(s) of insurance.

- ACORD FORM (or equivalent) certificate is required.
- SUBMIT via emailed in pdf format to: contractadmininvoices@flydenver.com and DenverAirport.ROCIP@marsh.com
- ELECTRONIC CERTIFICATES are required, hard copy documents will not be accepted.
- THIRD PARTY SOFTWARE may be implemented during the term of this Agreement to manage insurance compliance and documents with required use by Vendor of such system.
- REFERENCE on the certificate must include the DEN assigned Contract Number.

3.9.3 Other Insurance Requirements

Enrolled Contractors shall adhere to the same minimum insurance requirements as stated in Section 2 of this exhibit, with the following exceptions:

- Commercial General Liability coverage requirement is Off Site Only

- Workers' Compensation and Employer's Liability coverage requirement is Off Site Only
- Contractor's Pollution Legal Liability is not required

4. Contractor Warranties and Agreements

4.1 Accuracy of Contractor-provided Information

Contractor warrants that all information submitted to DEN or the DEN ROCIP Administrator is accurate and complete to the best of its knowledge. Contractor will notify DEN or the DEN ROCIP Administrator immediately in writing of any errors discovered during the performance of the Work.

4.2 Contractor Responsible to Review Coverage

Contractor acknowledges that all references to DEN ROCIP policy terms, conditions, and limits of liability in this document, as well as the DEN ROCIP Insurance Manual, are for reference only. Contractor and its subcontractors of any tier are responsible for conducting their own independent review and analysis of the DEN ROCIP insurance policies in formulating any opinion or belief as to the applicability of such coverage in the event of any loss or potential claim. Any type of insurance or increase of limits not described above, which the Contractor requires for its own protection or on account of statute, shall be its own responsibility and at its own expense.

4.3 Audit

Contractor agrees to make its records available for review and to cooperate with DEN, its insurers and insurance brokers, the City Auditor, and representatives of the aforesaid parties in the event of an audit. In the event that a DEN audit of Contractor's records, as permitted in the Contract or other DEN ROCIP documents, reveals a discrepancy in the insurance, payroll, safety, or any other information required to be provided to DEN or the DEN ROCIP Administrator, or reveals inclusion of costs for DEN ROCIP coverage or other coverage beyond what is described above in any payment for the Work, DEN will have the right to deduct from payments due Contractor all such insurance costs as well as all audit costs.

4.4 Insurance Costs Removed

Contractor warrants that the costs for insurance as provided under the DEN ROCIP were not included in Contractor's bid or proposal for the Work, the Contract Price/Contract Sum, and will not be included in any change order or any request for payment for the Work or extra work.

5. Contractor Obligations

5.1 ROCIP Documents Shall be Provided to Subcontractor

Contractor shall furnish each bidding subcontractor, vendor, supplier, material dealer or other party a copy of this Exhibit, the DEN ROCIP Insurance Manual and the DEN ROCIP Safety Manual and shall incorporate the terms of this Exhibit in all contracts and agreements entered into for performance of any portion of the Work.

5.2 Timely Enrollment Required

Contractor shall enroll in the DEN ROCIP within five (5) business days following a request by DEN or the DEN ROCIP Administrator. Contractor shall notify each subcontractor of the process for enrolling in DEN ROCIP and confirm that enrollment is mandatory, but not automatic. Contractor shall assure that subcontractors of any tier shall not commence Work until verification of enrollment is confirmed by the DEN ROCIP Administrator by the issuance of a Certificate of Insurance to each individual Enrolled Party.

5.3 Compliance with Conditions

Contractor shall not violate any condition of the policies of insurance provided by DEN under the terms of this Exhibit, the DEN ROCIP Insurance Manual or the DEN ROCIP Safety Manual. All requirements imposed by the subject policies and to be performed by Contractor shall likewise be imposed on, assumed, and performed by each subcontractor of any tier.

5.4 Claims Cooperation

Contractor shall participate in claim reporting procedures. Contractor agrees to assist and cooperate in every manner possible in connection with the adjustment of all claims arising out of operations within the scope of the Work required by the Contract, and to cooperate with DEN's insurer(s) in all claims and demands which DEN's insurer(s) is called upon to adjust or to defend against. Contractor shall take all necessary action to assure that its subcontractors of any tier comply with any request for assistance and cooperation. This obligation includes, without limitation, providing light or modified duty for injured workers, appearing in mediation, arbitration, or court proceedings and/or participating in settlement meetings, as may be required.

5.5 Monthly Payroll Submission

All Enrolled Parties shall submit monthly payrolls and worker-hour reports to DEN and/or the DEN ROCIP Administrator via the DEN ROCIP Administrator's online reporting system as outlined in the DEN ROCIP Insurance Manual. The online reporting instructions will be provided to all Contractors at time of enrollment. Failure to submit these reports may result in funds being held or delayed from monthly progress payments. Payroll must be submitted online for each month, including zero (0) payroll, if applicable, until completion of the Work under each Contract and Subcontract. For subcontractors of any tier performing Work under multiple Subcontracts, a separate payroll report is required for each Subcontract under which Work is being performed.

5.6 Response to Information Requests

All insurance underwriting, payroll, rating or loss history information requested by DEN or the DEN ROCIP Administrator shall be provided by the Contractor within three (3) business days of request. Contractor agrees (and will require each subcontractor to agree) that DEN, DEN's insurers or its representative may audit the Contractor's records or records of subcontractors of any tier to confirm the accuracy of all insurance information provided including, without limitation, any such information that may have any effect on insurance resulting from changes in the Work. At all times during performance of the Contract and Subcontracts, the Contractor and subcontractors of any tier shall cooperate with DEN, the DEN ROCIP Administrator and DEN's insurers.

5.7 Responsibility for Safety

Notwithstanding the DEN ROCIP, the Contractor shall initiate, maintain, and supervise all safety precautions and programs in connection with the Work. Contractor is solely responsible, at no adjustment to the contract sum payable or contract time, for initiating, maintaining, and supervising all safety precautions and programs relating to the conduct of Work including, without limitation, any safety programs or procedures that are required by any applicable state or federal laws, rules or regulations, or under the terms of the DEN ROCIP Safety Manual.

5.8 Duty of Care

Nothing herein shall relieve the Enrolled Parties of their respective obligations to exercise due care in the performance of their duties in connection with the Work or to complete the Work in strict compliance with this Contract and subsequent subcontracts.

6. Notices and Costs

6.1 Limitations on DEN Provided Coverage and DEN Right to Purchase Other Coverage

DEN assumes no obligations to provide insurance other than that evidenced by the policies referred to in Section 3.8. DEN, however, reserves the right to furnish insurance coverage of various types and limits provided that such coverage shall not be less than that specified in Section 3.8 and the costs of such insurance shall be paid by DEN. Apart from the DEN ROCIP, DEN may at its option purchase additional insurance coverages that insure the Project that may not necessarily insure the Contractor or the subcontractors. Without limitation, examples of such coverage may include pollution liability, excess professional liability, and excess automobile liability insurance.

6.2 Contractors Responsible for Own Equipment

Contractor and subcontractors are solely responsible for loss or damage of all construction tools and other equipment whether owned, leased, rented, borrowed, or used on Work at the Project Site. If an individual Enrolled Party purchases insurance on their tools and equipment, such insurance shall contain a waiver of subrogation in favor of the City and County of Denver, its elected and appointed officials, agents, employees and volunteers and all other Enrolled Parties. If an individual Enrolled Party does not purchase such insurance, that Enrolled Party will hold harmless the City and County of Denver, its elected and appointed officials, agents, employees and volunteers and other Enrolled Parties for loss or damage to its tools and equipment.

6.3 No Release; No Waiver of Immunity

The provision of the DEN ROCIP shall in no way be interpreted as relieving Contractor or subcontractors of any tier of any responsibility or liability under the Contract Documents, the DEN ROCIP insurance policies or applicable laws including, without limitation, Contractor's and subcontractor's responsibilities relative to indemnification and their obligation to exercise due care in the performance of the Work and to complete the Work in strict compliance with the Contract Documents. The parties hereto understand and agree that the City and County of Denver, its elected and appointed officials, agents, employees and volunteers are relying on, and do not waive or intend to waive by any provisions of this agreement, the monetary limitations or any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, §§ 24-10-101 to 120, C.R.S., or otherwise available to DEN, its officers, officials and employees.

6.4 DEN Right to Withhold Payments

In addition to any other rights of withholding that DEN may have under the Contract Documents, DEN has the right to withhold any payments otherwise due to Contractor in the event of a failure by Contractor or any subcontractor to comply with the requirements of this Exhibit, the DEN ROCIP Insurance Manual or the DEN ROCIP Safety Manual. DEN may withhold from any payment owing to Contractor the costs of DEN ROCIP coverages if included in a request for payment. Such withholding by DEN shall not be deemed to be a default under the Contract. DEN shall withhold from Contractor the costs of DEN ROCIP coverages attributable to an increase in an Enrolled Party's total payroll for the Work over the amount reported to DEN and/or the DEN ROCIP Administrator at time of enrollment.

6.5 DEN Remedies

Without limitation upon any of DEN's other rights or remedies, any failure of an Enrolled Party to comply with any provision of this Exhibit, the DEN ROCIP Insurance Manual, or the DEN ROCIP Safety Manual shall be deemed a material breach of the Contract, thereby entitling DEN, at its option, upon notice to Contractor, to (1) suspend performance by Contractor and/or the offending subcontractor, without any adjustment to Contract Sum Payable or Contract Time, until there is full compliance, or (2) terminate this Contract for cause.

6.6 Off Site Storage

Unless otherwise provided in the Contract Documents, the property insurance provided by DEN shall not cover portions of the Work stored off the Site without written approval of DEN. Contractor shall be responsible for reporting such property or work if ownership has been transferred to DEN. If ownership rests with the Contractor, Contractor shall be responsible for obtaining insurance to protect its interests.

6.7 Partial Occupancy

Partial occupancy or use shall not commence until DEN insurer(s) providing Builders Risk and/or Property Insurance have consented to such partial occupancy or use by endorsement or otherwise. DEN and the Contractor shall take reasonable steps to obtain consent of the insurer(s) and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

6.8 DEN Right to Exclude Parties from the DEN ROCIP

DEN reserves the right to exclude any subcontractor from the DEN ROCIP, before or after enrollment by the subcontractor. If DEN elects to exclude a subcontractor from the DEN ROCIP, the Contractor will be responsible for ensuring the insurance coverages outlined in the Contractor's Subcontract Agreement are provided to DEN or the DEN ROCIP Administrator before the subcontractor can begin or resume Work on the Project.

6.9 DEN's Right to Modify or Discontinue DEN ROCIP Coverages

If DEN determines that modification or discontinuation of the DEN ROCIP is in the best interest of DEN, the Contractor and subcontractor will receive sixty (60) days advance written notice to secure and maintain such insurance as is required to provide replacement coverage comparable to that provided under the DEN ROCIP. Provided that the foregoing is not the result of any failure by the Contractor or any subcontractor to comply with the requirements of the Contract Documents, the DEN ROCIP Insurance Manual or DEN ROCIP Safety Manual, the costs of such replacement insurance shall be deemed a cost of Work for which the Contractor shall be entitled to a Contract Adjustment, without any sum added thereto for Allowable Markup. The form, content, limits of liability, cost and the rating of the insurer(s) issuing such replacement coverage shall be subject to DEN's prior written approval.

7. Definitions

Certificate of Insurance:	A document providing evidence of coverage for a particular insurance policy or policies. This will include certificates issued to Enrolled Parties evidencing the coverage afforded under the DEN ROCIP and certificates issued to DEN evidencing additional coverage "Provided by Enrolled Parties"
DEN:	City and County of Denver and Denver International Airport
Contract:	The written agreement between DEN and Contractor describing the Work, contract terms and conditions, or a portion thereof; also includes a written agreement between a Contractor and any subcontractor as well as between subcontractors and their subcontractors of any tier.
Contractor Insurance Cost:	The costs of ROCIP coverage are defined as the amount of Contractor's and eligible Subcontractors' of every tier reduction in insurance costs due to participation in the DEN ROCIP.

Rolling Owner Controlled Insurance Program (ROCIP): A coordinated insurance program providing certain coverage, as defined herein, for DEN, Contractor and Enrolled Subcontractors, along with their Eligible Employees, performing Work at the Project Site.

Eligible Employees: Employees of the Contractor and Enrolled Subcontractors who are not excluded from the ROCIP under the “Excluded Parties” definition.

Enrolled Parties: The Contractor and those subcontractors that have submitted all necessary enrollment information and been accepted into the ROCIP as evidenced by the issuance of a Certificate of Insurance.

Ineligible/Excluded Parties: Parties not covered by the ROCIP because of ineligibility or DEN explicit exclusion. No insurance coverage provided by DEN under the ROCIP shall extend to the activities or products of the following:

- Any person or organization that fabricates or manufactures products, materials or supplies away from a Project Site with no direct onsite installation responsibility

Exception: The ROCIP Insurer may agree to extend General Liability coverage only if the General Contractor has a written contract with the off-site fabricator or manufacturer to provide the pre-fabricated product. To consider extending coverage, the Insurer requires 30 days advance written notice to the ROCIP Administrator with details of the work/product and a copy of the contract between the General Contractor and the off-site fabricator or manufacturer. Approval must be obtained from the Insurer before enrolling in the ROCIP for General Liability coverage only.

- Scaffolding contractors (erecting and dismantling scopes of work only)
- Hazardous materials remediation, removal, or transportation companies and their consultants
- Architects, engineers, surveyors and their consultants
- Truckers, haulers, material dealers, vendors, suppliers, and others who merely transport, pick up, deliver, or carry materials, personnel, parts or equipment or any other items or persons to or from a Project Site including companies providing supplemental services
- Contractors, subcontractors and subconsultants who do not work at a Project Site
- Employees of an Enrolled Party who either (i) do not work on-site or (ii) occasionally visit a Project Site to make deliveries, pick-up supplies or personnel, to perform supervisory or progress inspections, or for any other reason

- Temporary labor employees (individuals working directly for the Contractor and not procured through a third party such as a Professional Employer Organization)

Exception: The ROCIP Insurer typically will accept including employees working for a contractor, or employed by temporary staffing agencies or professional employer organizations, as long as those employer-entities are enrolled as subcontractors to supply supplemental workforce.

Insured: (liability policies)	DEN, Contractor and Enrolled Parties and their Eligible Employees and any other party named in the insurance policies.
Insurers:	Those insurance companies providing the DEN ROCIP coverage. The insurers will be identified on the issued Certificate of Insurance and in the DEN ROCIP Insurance Manual.
Net Bid:	Contractor bids with insurance costs removed because of the obligation of any Enrolled Party to delete insurance costs for coverage provided by the ROCIP from its bid and all change orders. Net bids are subject to verification by the Administrator through the providing of contractors' rate and declaration pages from their Insurance policies.
ROCIP Administrator:	The DEN ROCIP Administrator will be identified in the DEN ROCIP Insurance Manual.
ROCIP Insurance Manual:	A reference document provided to Contractor and subcontractors of all tiers, which summarizes the terms and provisions of the DEN ROCIP and provides information about requirements and compliance.
ROCIP Safety Manual:	A reference document provided to Contractor and subcontractors of all tiers which contains workplace safety requirements of all Enrolled Parties.
Off Site Work:	Work performed away from the Project Site.
Payroll:	For purposes of the ROCIP only, refers to Unburdened Straight Time Payroll per Workers Compensation Class Code.
Policy Owner:	City and County of Denver and Denver International Airport
Project:	The Project as defined in the contract documents and as described in the Declarations of the DEN ROCIP insurance policies.

Project Site: Means those areas designated in writing by DEN in a Contract document for performance of the Work and such additional areas as may be designated in writing by DEN for Contractors' use in performance of the Work. Subject to the ROCIP Insurer(s) written approval, the term "Project Site" shall also include: (1) field office sites, (2) property used for bonded storage of material for the Project approved by DEN, staging areas dedicated to the Project, and (4) areas where activities incidental to the Project are being performed by Contractor or subcontractors covered by the DEN ROCIP Worker's Compensation policy (if included), but excluding any permanent locations of any Enrolled Party.

Items 1 through 4 above must be approved by the ROCIP Insurer and listed on the DEN ROCIP insurance policies.

Subcontract: The written agreement between Contractor and subcontractor, or between subcontractor and a lower tier subcontractor, describing the Work, subcontract terms and conditions, or a portion thereof.

Subcontractor: Includes those persons, firms, joint venture entities, corporations, or other parties that enter into a Subcontract with Contractor to perform Work at the Project Site and any of these subcontractor's lower-tier subcontractors.

Work: Operations, as fully described in the Contract and Subcontract, performed at the Project Site.



TO: All Users of the City and County of Denver Prevailing Wage Schedules
FROM: Ryland Feno, Classification and Compensation Analyst Staff
DATE: February 28, 2022
SUBJECT: Latest Change to Prevailing Wage Schedules

Please be advised prevailing wage rates for some building, heavy, highway, and residential construction trades have not been updated by the United States Department of Labor (DOL) since March 1, 2002. The Career Service Board, in their meeting held on April 21, 2011, approved the use of the attached supplemental wage rates until prevailing wage rates for these classifications of work are again published by the United States Department of Labor in accordance with the Davis-Bacon Act.

The effective date for this publication will be **Friday, February 25, 2022** and applies to the City and County of Denver for **HIGHWAY CONSTRUCTION PROJECTS** in accordance with the Denver Revised Municipal Code, Section 20-76(c).

General Wage Decision No. CO20220009
Superseded General Decision No. CO20210009
Modification No. 1
Publication Date: 02/25/2022
(6 pages)

Unless otherwise specified in this document, apprentices shall be permitted only if they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor (DOL). The employer and the individual apprentice must be registered in a program which has received prior approval by the DOL. Any employer who employs an apprentice and is found to be in violation of this provision shall be required to pay said apprentice the full journeyman scale.

Attachments as listed above.

***Career Service Board approved to adjust all Davis Bacon classifications under \$15.87 to comply with the city's minimum wage. The effective date is January 1, 2022. See page 7 for reference.**

Office of Human Resources
201 W. Colfax Ave. Dept. 412 | Denver, CO 80202
p: 720.913.5751 | f: 720.913.5720
www.denvergov.org/humanresources

Exhibit D

"General Decision Number: CO20220009 02/25/2022

Superseded General Decision Number: CO20210009

State: Colorado

Construction Type: Highway

Counties: Denver and Douglas Counties in Colorado.

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

<p> If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<p> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.</p>
<p> If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<p> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.</p>

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this

Exhibit D

wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Modification Number	Publication Date
0	01/07/2022
1	02/25/2022

CARP9901-008 11/01/2019

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 26.50	10.32

ELEC0068-016 03/01/2011

	Rates	Fringes
TRAFFIC SIGNALIZATION:		
Traffic Signal Installation		
Zone 1.....	\$ 26.42	4.75%+8.68
Zone 2.....	\$ 29.42	4.75%+8.68

TRAFFIC SIGNAL INSTALLER ZONE DEFINITIONS

Zone 1 shall be a 35 mile radius, measured from the following addresses in each of the following cities:
 Colorado Springs - Nevada & Bijou
 Denver - Ellsworth Avenue & Broadway
 Ft. Collins - Prospect & College
 Grand Junction - 12th & North Avenue
 Pueblo - I-25 & Highway 50
 All work outside of these areas shall be paid Zone 2 rates.

ENGI0009-008 05/01/2021

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
(3)-Hydraulic Backhoe		
(Wheel Mounted, under 3/4		
yds), Hydraulic Backhoe		
(Backhoe/Loader		
combination), Drill Rig		
Caisson (smaller than		
Watson 2500 and similar),		
Loader (up to and		

Exhibit D

including 6 cu. yd.).....\$ 31.05	12.35
(3)-Loader (under 6 cu. yd.)	
Denver County.....\$ 31.05	12.35
(3)-Motor Grader (blade-rough)	
Douglas County.....\$ 31.05	12.35
(4)-Crane (50 tons and under), Scraper (single bowl, under 40 cu. yd).....\$ 31.70	12.35
(4)-Loader (over 6 cu. yd)	
Denver County.....\$ 31.20	12.35
(5)-Drill Rig Caisson (Watson 2500 similar or larger), Crane (51-90 tons), Scraper (40 cu.yd and over),.....\$ 31.37	12.35
(5)-Motor Grader (blade-finish)	
Douglas County.....\$ 31.37	12.35
(6)-Crane (91-140 tons).....\$ 33.05	12.35

 * SUCO2011-004 09/15/2011

	Rates	Fringes
CARPENTER (Excludes Form Work)...	\$ 19.27	5.08
CEMENT MASON/CONCRETE FINISHER		
Denver.....	\$ 20.18	5.75
Douglas.....	\$ 18.75	3.00
ELECTRICIAN (Excludes Traffic Signal Installation).....	\$ 35.13	6.83
FENCE ERECTOR (Excludes Link/Cyclone Fence Erection).....	\$ 13.02 **	3.20
GUARDRAIL INSTALLER.....	\$ 12.89 **	3.20
HIGHWAY/PARKING LOT STRIPING:Painter		
Denver.....	\$ 12.62 **	3.21
Douglas.....	\$ 13.89 **	3.21
IRONWORKER, REINFORCING (Excludes Guardrail Installation).....	\$ 16.69	5.45
IRONWORKER, STRUCTURAL (Includes Link/Cyclone Fence Erection, Excludes Guardrail		

Exhibit D

Installation).....	\$ 18.22	6.01
LABORER		
Asphalt Raker.....	\$ 16.29	4.25
Asphalt Shoveler.....	\$ 21.21	4.25
Asphalt Spreader.....	\$ 18.58	4.65
Common or General		
Denver.....	\$ 16.76	6.77
Douglas.....	\$ 16.29	4.25
Concrete Saw (Hand Held)....	\$ 16.29	6.14
Landscape and Irrigation....	\$ 12.26 **	3.16
Mason Tender-		
Cement/Concrete		
Denver.....	\$ 16.96	4.04
Douglas.....	\$ 16.29	4.25
Pipelayer		
Denver.....	\$ 13.55 **	2.41
Douglas.....	\$ 16.30	2.18
Traffic Control (Flagger)....	\$ 9.55 **	3.05
Traffic Control (Sets Up/Moves Barrels, Cones, Install Signs, Arrow Boards and Place Stationary Flags) (Excludes Flaggers).....		
	\$ 12.43 **	3.22
PAINTER (Spray Only).....	\$ 16.99	2.87
POWER EQUIPMENT OPERATOR:		
Asphalt Laydown		
Denver.....	\$ 22.67	8.72
Douglas.....	\$ 23.67	8.47
Asphalt Paver		
Denver.....	\$ 24.97	6.13
Douglas.....	\$ 25.44	3.50
Asphalt Roller		
Denver.....	\$ 23.13	7.55
Douglas.....	\$ 23.63	6.43
Asphalt Spreader.....	\$ 22.67	8.72
Backhoe/Trackhoe		
Douglas.....	\$ 23.82	6.00
Bobcat/Skid Loader.....	\$ 15.37	4.28
Boom.....	\$ 22.67	8.72
Broom/Sweeper		
Denver.....	\$ 22.47	8.72
Douglas.....	\$ 22.96	8.22
Bulldozer.....	\$ 26.90	5.59
Concrete Pump.....	\$ 21.60	5.21
Drill		
Denver.....	\$ 20.48	4.71
Douglas.....	\$ 20.71	2.66
Forklift.....	\$ 15.91	4.68

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Grader/Blade		
Denver.....	\$ 22.67	8.72
Guardrail/Post Driver.....	\$ 16.07	4.41
Loader (Front End)		
Douglas.....	\$ 21.67	8.22
Mechanic		
Denver.....	\$ 22.89	8.72
Douglas.....	\$ 23.88	8.22
Oiler		
Denver.....	\$ 23.73	8.41
Douglas.....	\$ 24.90	7.67
Roller/Compactor (Dirt and Grade Compaction)		
Denver.....	\$ 20.30	5.51
Douglas.....	\$ 22.78	4.86
Rotomill.....	\$ 16.22	4.41
Screed		
Denver.....	\$ 22.67	8.38
Douglas.....	\$ 29.99	1.40
Tractor.....	\$ 13.13 **	2.95

TRAFFIC SIGNALIZATION:

Groundsman		
Denver.....	\$ 17.90	3.41
Douglas.....	\$ 18.67	7.17

TRUCK DRIVER

Distributor		
Denver.....	\$ 17.81	5.82
Douglas.....	\$ 16.98	5.27
Dump Truck		
Denver.....	\$ 15.27	5.27
Douglas.....	\$ 16.39	5.27
Lowboy Truck.....	\$ 17.25	5.27
Mechanic.....	\$ 26.48	3.50
Multi-Purpose Specialty & Hoisting Truck		
Denver.....	\$ 17.49	3.17
Douglas.....	\$ 20.05	2.88
Pickup and Pilot Car		
Denver.....	\$ 14.24 **	3.77
Douglas.....	\$ 16.43	3.68
Semi/Trailer Truck.....	\$ 18.39	4.13
Truck Mounted Attenuator....	\$ 12.43 **	3.22
Water Truck		
Denver.....	\$ 26.27	5.27
Douglas.....	\$ 19.46	2.58

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Exhibit D

**Office of Human Resources
Supplemental Rates
(Specific to the Denver Projects)
Revised 01/01/2022)**

Classification		Base	Fringe
Guard Rail Installer		\$15.87	\$3.20
Highway Parking Lot Striping: Painter		\$15.87	\$3.21
Ironworker (Ornamental)		\$26.05	\$12.00
Laborer	Removal of Asbestos	\$21.03	\$8.55
Laborer (Landscape & Irrigation)		\$15.87	\$3.16
Laborer: Traffic Control (Flagger)		\$15.87	\$3.05
Laborer: Stationary Flags(excludes Flaggers)		\$15.87	\$3.22
Line Construction	Lineman, Gas Fitter/Welder	\$36.88	\$9.55
	Line Eq Operator/Line Truck Crew	\$25.74	\$8.09
Millwright		\$28.00	\$10.00
Pipefitter		\$30.45	\$12.85
Plumber		\$30.19	\$13.55
Power Equipment Operator (Tunnels Above and Below Ground, shafts and raises):	Group 1	\$25.12	\$10.81
	Group 2	\$25.47	\$10.85
	Group 3	\$25.57	\$10.86
	Group 4	\$25.82	\$10.88
	Group 5	\$25.97	\$10.90
	Group 6	\$26.12	\$10.91
	Group 7	\$26.37	\$10.94
Power Equipment Operator	Group 1	\$22.97	\$10.60
	Group 2	\$23.32	\$10.63
	Group 3	\$23.67	\$10.67
	Group 4	\$23.82	\$10.68
	Group 5	\$23.97	\$10.70
	Group 6	\$24.12	\$10.71
	Group 7	\$24.88	\$10.79
Truck Driver	Group 1	\$18.42	\$10.00
	Group 2	\$19.14	\$10.07
	Group 3	\$19.48	\$10.11
	Group 4	\$20.01	\$10.16
	Group 5	\$20.66	\$10.23
	Group 6	\$21.46	\$10.31
Truck Driver: Truck Mounted Attenuator		\$15.87	\$3.22

Go to <http://www.denvergov.org/Auditor> to view the Prevailing Wage Clarification Document for a list of complete classifications used.

Exhibit E - Special Conditions

V. SPECIAL CONDITIONS

SC-1 CONSTRUCTION CONTRACT GENERAL CONDITIONS

The Construction Contract General Conditions which constitute a part of the Contract Documents are set forth in a separately published document, entitled "City and County of Denver, Department of Aviation and Department of Public Works, Standard Specifications for Construction, General Contract Conditions," 2011 Edition, the Table of Contents to which is bound herein (which may be informally referred to as the Yellow Book). The General Conditions book is available for purchase for \$12.00 per copy at the following locations during the business hours stated, Monday through Friday, excluding holidays:

Office of the Cashier
Wellington E. Webb Municipal Office Building, 2nd Floor
201 West Colfax Avenue
Denver, Colorado, USA 80202
7:30 a.m. to 4:30 p.m.

The General Conditions are also available on the City and County of Denver website at:

<https://www.denvergov.org/content/denvergov/en/contract-administration/contractor-resources/general-contract-conditions.html>

SC-2 DRAWINGS AND SPECIFICATIONS TO BE FURNISHED BY THE CITY

The City will provide the following Contract Documents to the Contractor in electronic format at no expense to the Contractor:

1. DIV 01 IFB Specifications dated November 11, 2022
2. DIV 02 IFB Specifications dated November 11, 2022
3. IFB Plan Drawings dated November 11, 2022
4. Final Geotechnical Report dated November 11, 2022

Additional copies of the foregoing documents will be furnished to the Contractor at the Contractor's expense. The Contractor will be responsible for supplying all subcontractors with copies of the Contract Documents at its expense.

If Sensitive Security Information ("SSI") is provided to the Contractor, the Contractor shall be required to comply with Department of Aviation, Standard Policies and Procedures No. 6003, "Contractor Protection of Sensitive Security Information," or its successor, and 49 C.F.R. § 1520, or its successor.

The City will not supply any copies of the General Contract Conditions to the Contractor at City expense.

SC-3 REVISIONS TO G.C. 201

The second sentence of General Condition 201 is amended to read: "The unit responsible for this management and control is the Airport Infrastructure Management Office under the supervision of the Senior Vice President for Maintenance and Airport Infrastructure Management."

SC-4 CITY LINE OF AUTHORITY AND CONTACTS

In accordance with General Condition 214, the City's line of authority for administration of this Contract is:

Chief Executive Officer (CEO). Executive Office, 9th Floor, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249. Any reference to the Manager of Aviation shall also mean Chief Executive Officer, Department of Aviation (CEO).

Exhibit E - Special Conditions

Executive Vice President – Chief Construction and Infrastructure Officer (EVP-CCIO) who reports to the CCIO. Airport Infrastructure Management office, 9th Floor, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249.

Senior Vice President - Airport Infrastructure Management (SVP-AIM) who reports to the COO. Airport Infrastructure Management office, 10th Floor, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249.

Director of Infrastructure and Quality Assurance, reports to the SVP-AIM. The Project Manager reports to the Director of Infrastructure and Quality Assurance. Airport Infrastructure Management Division, 7th Floor, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249.

Project Manager, the City representative who has day to day administrative responsibility of this Contract, and who reports to the SVP-AIM. All notices, requests, pay applications (pursuant to G.C. 902), and other correspondence from the Contractor shall be sent to the assigned Project Manager unless otherwise provided in this Contract. The Project Manager for this Contract is: Alec Kieczorek, Airport Infrastructure Management Office, 7th Floor, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249, phone 303-709-3198.

The CEO may from time to time substitute a different City official as the designated “SVP-AIM” hereunder, and any such change will be effective upon the issuance of written notice to the Contractor which identifies the successor SVP-AIM. The SVP-AIM may from time to time change the assigned Project Manager, and any such change will be effective upon the issuance of written notice to the Contractor which identifies the successor Project Manager.

SC-5 CONTRACTOR PERFORMANCE; SUBCONTRACTING

With respect to General Condition 501, no more than forty percent (40%) of the work may be subcontracted. If it is determined to be in the City’s best interest, this percentage may be modified throughout the course of the project by the SVP-AIM.

SC-6 COOPERATION WITH OTHERS

The Technical Specifications describe the constraints on the physical work site areas. These descriptions are not exhaustive, and the Contractor is required to coordinate its activities and work as may be required to meet FAA or City requirements while performing work on DEN.

Without limiting the foregoing, the following contracts administered by the City involve or may involve work overlapping or adjoining the Work under this Contract and may be prosecuted concurrently with the Work performed under this Contract. There may also be other adjoining or overlapping contracts which are not listed.

<u>Contract Number</u>	<u>Description</u>
202161068	DEN Energy Performance Contracting Implementation Services
TBD	2023 Annual Landside Pavement Rehabilitation

SC-7 PROSECUTION AND COMPLETION OF THE WORK:

The Work to be performed under the Contract is described in the Technical Specifications and Contract Drawings. The Contractor shall complete the Work within 233 consecutive calendar days from Notice to Proceed (NTP).

The Work to be performed under the Contract may be divided into the Milestone Areas which are described in

Exhibit E - Special Conditions

the Technical Specifications or Contract Drawings. The Contractor shall complete the work included within these areas within the number of days set forth by the Project Manager.

	<u>Milestone</u>	<u>Date of Completion (or Days after NTP)</u>
1.	East Phase Complete	183 days after NTP
2.	West Phase Complete	233 days after NTP

SC-8 LIQUIDATED DAMAGES

If the Contractor fails to achieve Substantial Completion of the Work within the Contract Time, the Contractor shall be liable to the City for liquidated damages at the rate of Three Thousand, Five hundred Dollars (\$3,500.00) per day until substantial completion is achieved on the East Phase and Two Thousand, Five Hundred Dollars (\$2,500.00) per day until substantial completion is achieved on the West Phase.

Article IV of the Contract and General Condition 602 covers payment and withholding of liquidated damages.

SC-9 FACILITY SECURITY AND PERSONNEL ACCESS

The Contractor shall conduct all its activities at the Airport in compliance with the Airport security system rules and regulations, which are administered by the Airport Operations Division. The Contractor shall obtain the proper access authorizations for its employees, subcontractors and suppliers (i.e., Badges and Permits), and shall be responsible for such persons' compliance with all the Airport rules and regulations. A copy of the Contractors' section of the Airport Security rules and regulations are available for Contractor review at the Airport Access Services Office, Concourse A East Subcore, 4th Level. Persons regularly entering the construction areas must obtain personnel access badges from the Airport Access Services Office and must display badges, at all times, upon entering the construction, restricted and sterile areas of the airport. Any employee, subcontractor or supplier who violates such rules may be subject to revocation of his access authorization, including authorization for access to the construction site and all other restricted and sterile areas.

The security status of the Airport is subject to change without notice. These contract Special Conditions are applicable to the current security status of the Airport. Should the security status of the Airport change at any time during the term of this Contract, a written notice shall be issued to the Contractor detailing all applicable security modifications from the airport's current security status. The Contractor shall take **immediate steps** to comply with those security modifications as directed in the written notice.

If these security modifications involve any additional project cost, the Contractor shall submit a Contractor Change Request in accordance with the General Conditions for the additional cost. The Contractor Change Request shall outline in specific detail the effects of the security modifications on the Contractor's performance of the Contract, and shall provide a detailed cost breakdown for each item for which the Contractor is requesting reimbursement.

The Contractor shall return to the City, at contract completion or termination, or upon demand by the City, all access keys issued to it by the City to all areas of the Airport. If the Contractor fails to return any such key or keys at contract completion or termination or upon demand by the City, the Contractor shall be liable to the City for all the City's costs, including the City's labor costs for employees, incurred in re-coring doors and any other work which is required to prevent compromise of the Airport security system. In order to collect such costs hereunder, the City may withhold funds in such amount from any amounts due and payable to the Contractor under this Contract.

The construction of all the Project / Task Items that involve the breaching of any airport perimeter security

Exhibit E - Special Conditions

boundary or continued access to restricted access rooms or areas will require the posting of authorized contract security personnel to maintain required security controls. The Contractor's Total Contract Bid Amount shall include the cost of providing security services to maintain control and supervision of any and all airport perimeter security boundary breaches and for the duration of work activities where access to restricted areas is required and until the airport perimeter security boundaries are reestablished.

When security boundaries are opened for any reason, the Contractor must maintain one hundred percent (100%) control and supervision for the entire time that the openings are present to prevent unauthorized access to the secure / restricted access areas.

THE IMPORTANCE OF THIS SPECIAL CONDITION CANNOT BE OVER-EMPHASIZED. SEVERE FINANCIAL PENALTIES AS WELL AS CONTRACT TERMINATION COULD RESULT IF AIRPORT PERIMETER SECURITY REQUIREMENTS ARE NOT STRICTLY FOLLOWED. THE REQUIREMENT TO PROVIDE ONE HUNDRED PERCENT (100%) CONTROL AND SUPERVISION OF BREACHES IN THE AIRPORT'S PERIMETER SECURITY BOUNDARY IS ABSOLUTE. AT NO TIME, DURING WORK AND NON-WORK HOURS SHALL ANY BREACHES IN THE AIRPORT'S SECURITY PERIMETER BE UNSUPERVISED AND / OR UNSECURED.

For off-hours of construction, the Contractor may choose to erect a temporary wall to close all perimeter openings. The wall construction shall be of sufficient materials and strength to prevent access to the airport's Sterile/Restricted Areas. The Contractor shall submit for review and approval, the details and materials for the temporary closure of security perimeter breaches for review and approval.

The Contractor will provide contract security guard services to maintain supervision of these openings. The security services must provide coverage to allow for lunch breaks, comfort breaks, etc. The security services **must** be obtained from the following contract security guard company:

HSS
900 S. Broadway, Suite 100
Denver, Colorado 80209

DEN Contact:
HSS Management
(303) 342-4366

All security guards provided for this project must have a Denver Airport SIDA Badge.

The DEN Security Guard Contractor may change between the bidding or Bid phase of this contract from Notice to Proceed to closure of all security perimeter breaches. The Contractor shall maintain a contractual relationship with the Security Guard Contractor holding the most current contract with Denver International Airport.

The Contractor shall continue to provide security of these areas until such time that the breaches in the airport's security perimeter have been permanently secured.

The Contractor shall submit a written security plan for approval to the Director of Airport Security prior to the start of construction on any work where a breach of the perimeter security boundaries is required.

SC-10 CONSTRUCTION ACCESS

The work site is are located at the East Economy Parking Lot, 8511 Peña Boulevard, Denver, CO 80249. The Contractor shall have access to the work site via the East Economy Lot entrance gate. The Contractor is responsible for

Exhibit E - Special Conditions

ensuring that the Contractor's and Subcontractor's personnel have the ability to access and locate the areas of work where the scope is to be performed without additional escorting or supervision from DEN.

The City will not provide parking spaces for the Contractor's employees or subcontractor employees at the Airport. Arrangements for transportation and parking for its employees and its subcontractors' employees will be the responsibility of the Contractor. The Total Contract Bid Amount or Contract Amount shall include any and all costs associated with the Contractor's and subcontractors' employee parking. Information about parking facilities and charges is available from the Airport Parking Office. Refundable deposits are required for all parking passes.

Unless specifically required by the Contract Documents, the Contractor shall install no fences or other physical obstructions on or around any project work area without the approval of the City.

SC-11 VEHICLE PERMITTING

Vehicle access on the Airport Operation Area ("AOA") is controlled by and requires permission from the Airport Access Services Office. It is not anticipated that the Contractor will need to operate vehicles on the AOA to perform the Work. Only direct construction support vehicles and/or equipment will be allowed in the contractor's work areas or sites.

SC-12 VENDORS AND SUPPLIERS

The Contractor shall provide the Project Manager's office with a list of its equipment/material vendors and suppliers. Vendors or suppliers shall access the construction work areas via the Contractor's access route, described in SC-10 above. All delivery vehicles are subject to search.

SC-13 COMMUNICATION DEVICES

Any site communications devices, mobile communication devices or internet data devices used at DEN must be approved by DEN Technologies.

SC-14 USE, POSSESSION OR SALE OF ALCOHOL OR DRUGS

The Contractor and its officers, agents, and employees shall cooperate and comply with the provisions of Executive Order No. 94 and Attachment A thereto concerning the use, possession, or sale of alcohol or drugs. Violation of these provisions or refusal to cooperate with implementation of the policy can result in the City's barring the Contractor from City facilities or participating in City operations.

SC-15 ATTORNEYS' FEES

Colorado Revised Statute 38-26-107 requires that in the event any person or company files a verified statement of amounts due and unpaid in connection with a claim for labor and materials supplied on this project, the City shall withhold from payments to the Contractor sufficient funds to insure the payment of any such claims. Should the City and County of Denver be made a party to any lawsuit to enforce such unpaid claims or any lawsuit arising out of or relating to such withheld funds, Contractor agrees to pay to the City its costs and a reasonable attorney's fee. Because the City Attorney Staff does not bill the City for legal services on an hourly basis, Contractor agrees a reasonable fee shall be computed at the rate of two hundred dollars per hour of City Attorney time.

SC-16 INSURANCE REQUIREMENTS

In accordance with the provisions of Title 16 of the General Conditions, the minimum insurance requirements for this contract are set forth in Section II-15 of the Instructions to Bidders. The Contractor specifically agrees to comply with each condition, requirement or specification set forth in Attachment 3 for each required coverage during all periods when the required coverages are in effect.

Exhibit E - Special Conditions

Contractor and sub-contractors shall procure and maintain until all of their obligations have been discharged, including any warranty periods under this Contract are satisfied, required insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or sub-contractors.

The insurance requirements herein are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract.

The City and County of Denver in no way warrants that the minimum limits contained herein are sufficient to protect the Contractor from liabilities that might arise out of the performance of the work under this Contract by the Contractor, his agents, representatives, employees or sub-contractors. The Contractor shall assess its own risks as it deems appropriate and/or prudent, maintain higher limits and/or broader coverages. The Contractor is not relieved of any liability or other obligations assumed or pursuant to the Contract by reason of its failure to obtain or maintain insurance in sufficient amounts, duration or types.

Contractor shall furnish the City and County of Denver with certificates of insurance (ACORD form or equivalent approved by CCD) as required by this Contract. The certificates for each insurance policy are to be signed by a person authorized by the insurer to bind coverage on its behalf.

All certificates and any required endorsements are to be received and approved by the City before work commences. Each insurance policy required by this Contract must be in effect at or prior to commencement of work under this Contract and remain in effect for the duration of the project. Failure to maintain the insurance policies as required by this Contract or to provide evidence of renewal is a material breach of the Contract. All insurance coverages for sub-contractors shall be subject to the minimum requirements identified in the Exhibit. All sub-contractors' certificates and endorsements shall be received and approved by the Contractor before work commences. The City reserves the right to request copies of these certificates at any time.

All certificates required by this Contract shall be sent directly to ContractAdminInvoices@flydenver.com. The City project/contract number and project description shall be noted on the certificate of insurance. The City reserves the right to require complete, certified copies of all insurance policies required by this Contract at any time.

The parties hereto understand and agree that the City and County of Denver, its officers, officials and employees, are relying on, and do not waive or intend to waive by any provisions of this Contract, the monetary limitations or any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, §§ 24-10-101 - 120, C.R.S., or otherwise available to the City and County of Denver, its officers, officials and employees.

SC-17 SUBCONTRACTOR RELEASES

The release form referred to in General Condition 907 is attached to this Contract. It is entitled "Denver International Airport Partial Release."

SC-18 ADDITIONAL AFFIRMATIVE ACTION REQUIREMENTS, FEDERAL PROVISIONS

This contract is subject and subordinate to the terms, reservations, restrictions, and conditions of any existing or future agreements between the City and the United States, the execution of which has been or may be required as a condition precedent to the transfer of federal rights or property to the City for airport purposes, and the expenditure of federal funds for airport purposes. The "Federal Requirements" section attached hereto is made a part of this Contract.

Exhibit E - Special Conditions

SC-19 ESTIMATED QUANTITIES OF UNIT PRICED ITEMS

The "total estimated quantity" of each unit price item as stated on the bid schedules shall be the estimated quantity which is used to determine the percentage of change in such item for purposes of G.C. 1104.7.

SC-20 REVISIONS TO G.C. 1102

G.C. 1102.2 is amended by replacing the phrase "Change Request" in all its occurrences in such G.C. with the phrase "Change Notice."

G.C. 1102.3 is amended by replacing the phrase "Field Order/Change Order Directive" in all its occurrences in such G.C. with the phrase "Change Order Directive."

SC-21 LISTING OF ACCEPTABLE MANUFACTURERS

The Technical Specifications list "Acceptable Manufacturers" for certain products. Such listing identifies manufacturers of certain products which have been determined by a preliminary review to be able to meet the basic product and/or system technical requirements. The listing is not intended to provide a blanket endorsement or acceptance of the manufacturer's specified products or product line. All products from listed manufacturers must meet the detailed requirements of the Technical Specifications. Products that do not meet all detailed Technical Specifications are not acceptable and will be rejected, regardless of whether the manufacturer was listed as "acceptable." The Contractor is responsible for determining the acceptability of all products under the Technical Specifications prior to submission of products for approval.

SC-22 ACCESSIBLE PARKING SPACES, ACCESS AISLES AND ROUTES OF TRAVEL

If any Work is performed in or adjacent to parking facilities at the Airport, the Contractor is responsible for compliance with this SC-30. "Accessible" parking spaces and access aisles as used in this SC-30 mean parking spaces and access aisles which are accessible for, and reserved for use by, persons with disabilities. These parking spaces and access aisles are designed and built to standards established by federal regulations implementing the Americans with Disabilities Act of 1990 ("ADA") and are marked by signage. "Accessible routes of travel" as used herein means routes through parking facilities which comply with ADA accessibility standards, including degree of slope and absence of obstructions.

Accessible routes of travel and accessible parking spaces and access aisles must be kept free of obstructions and construction debris at all times. No accessible parking spaces or access aisles or accessible routes of travel shall be relocated, blocked or rendered unusable unless the contractor has obtained specific advance approval in writing for such actions from the airport's ADA Compliance Officer.

When prosecution of the Work requires that accessible spaces be temporarily blocked, those accessible spaces and their access aisles shall be temporarily relocated to another location as close as possible to an accessible building entrance. Temporary signage that identifies these parking spaces and access aisles as reserved for the handicapped shall be installed, and the accessible route shall be clearly marked as required.

Before blocking or relocating accessible parking spaces or accessible routes of travel, the contractor must obtain written approval from the DEN ADA Compliance Officer, by submitting a completed request form, which will be provided to the Contractor by the Project Manager at the preconstruction meeting if it is not included as a standard form in Section 019990 of the Technical Specifications. The request shall include the location of alternative spaces and/or routes, and specifications of the temporary signage to be used. Work shall not proceed without this approval.

If a vehicle is parked in any accessible space which is either temporary or approved to be relocated, the contractor will not remove signage or take any other action which would allow the access aisle for such parking space to be

Exhibit E - Special Conditions

blocked. Such actions must be postponed until the parking space is no longer occupied.

SC-23 SUBCONTRACTOR PAYMENTS AND SUBCONTRACTOR RELEASES – REQUIRED USE OF THE B2G CONTRACT MANAGEMENT SYSTEM

The Contractor is required to use the City B2G Contract Management System to report all subcontractor payments and shall adhere to the City’s Procedure for Reporting Subcontractor Payments. It is the Contractor’s obligation to ensure that complete subcontractor information is entered into the B2G System prior to submission of the first application for payment in order to avoid any delays in payment. The Contractor shall, prior to the submission of each subsequent invoice, ensure payments to subcontractors have been entered into the B2G System, including subcontractor confirmation of amount of payment received, for services performed during the prior billing period.

SC-24 PAYMENTS TO CONTRACTORS

The Contractor recognizes and agrees that applications for payment shall be submitted using the Textura® Payment Management System (PPM System), which will also be the payment mechanism to disburse payments to sub-contractors used on this Project. For more information, please refer to Division I, Technical Specifications.

The Contractor further agrees that, to the fullest possible within the TPM System, the City shall be entitled to all non-Confidential records, reports, data and other information related to the project that are available to Contractor through the TPM System, including, but not limited to, information related to Contractor and subcontractor billings. To that end, Contractor agrees that it will activate any available settings within the TPM System that are necessary to grant the City access to such non-Confidential information related to the contract and the project. Applications for payment shall be based on the Contract Unit Prices or the approved Schedule of Values described in GC 903.1

In accordance with General Contract Condition 902, PAYMENT PROCEDURE, the party(ies) responsible for review of all Pay Applications shall be:

Agency/Firm

DEN Division CA
DEN Division PM
DEN Division Director
DEN Contract Procurement CA
CCD Denver Prevailing Wage

In accordance with General Contract Condition 906, APPLICATIONS FOR PAYMENT, each Application submitted shall include the following:

1. The estimate of Work completed shall be based on the approved schedule of values or unit prices, as applicable, and the percent of the Work complete.
2. Each Application for Payment shall include each and every independent subcontractor’s payroll information including pay dates and pay amounts.
3. The Contractor shall also submit to the Auditor and other appropriate officials of the City in a timely fashion, information required by General Contract Condition 1004, REPORTING WAGES PAID.

Exhibit E - Special Conditions

In accordance with General Contract condition 907, RELEASES AND CONTRACTORS CERTIFICATION OF PAYMENT, Applications for Payment must be accompanied by a completed Partial or Final Claim Release Form, as appropriate, from EACH subcontractor and supplier, **AND** the Contractor's Certification of Payment Form.

SC-25 CONFIRMATION OF LAWFUL EMPLOYMENT

General Condition 311 is deleted in its entirety and replaced by:

311 No employment of a worker without authorization to perform work under the agreement.

1. This Agreement is subject to Division 5 of Article IV of Chapter 20 of the Denver Revised Municipal Code, and any amendments (the "Certification Ordinance").
2. The Contractor certifies that:
 - A. At the time of its execution of this Agreement, it does not knowingly employ or contract with a worker without authorization who will perform work under this Agreement, nor will it knowingly employ or contract with a worker without authorization to perform work under this Agreement in the future.
 - B. It will participate in the E-Verify Program, as defined in § 8-17.5-101(3.7), C.R.S., and confirm the employment eligibility of all employees who are newly hired for employment to perform work under this Agreement.
 - C. It will not enter into a contract with a subconsultant or subcontractor that fails to certify to the Contractor that it shall not knowingly employ or contract with a worker without authorization to perform work under this Agreement.
 - D. It is prohibited from using the E-Verify Program procedures to undertake pre-employment screening of job applicants while performing its obligations under this Agreement, and it is required to comply with any and all federal requirements related to use of the E-Verify Program including, by way of example, all program requirements related to employee notification and preservation of employee rights.
 - E. If it obtains actual knowledge that a subconsultant or subcontractor performing work under this Agreement knowingly employs or contracts with a worker without authorization, it will notify such subconsultant or subcontractor and the City within three (3) days. The Contractor shall also terminate such subconsultant or subcontractor if within three (3) days after such notice the subconsultant or subcontractor does not stop employing or contracting with the worker without authorization, unless during the three-day period the subconsultant or subcontractor provides information to establish that the subconsultant or subcontractor has not knowingly employed or contracted with a worker without authorization.
 - F. It will comply with a reasonable request made in the course of an investigation by the Colorado Department of Labor and Employment under authority of § 8-17.5-102(5), C.R.S., or the City Auditor, under authority of D.R.M.C. 20-90.3.
3. The Contractor is liable for any violations as provided in the Certification Ordinance. If the Contractor violates any provision of this section or the Certification Ordinance, the City may terminate this Agreement for a breach of the Agreement. If this Agreement is so terminated, the Contractor shall be liable for actual and consequential damages to the City. Any termination of a contract due to a violation of this section or the Certification Ordinance may also, at the discretion of the City, constitute grounds for disqualifying the Contractor from submitting bids or proposals for future contracts with the City.

EXHIBIT F

City and County of Denver



D E N V E R
THE MILE HIGH CITY

**DEPARTMENT OF AVIATION
DEPARTMENT OF PUBLIC WORKS**

**STANDARD SPECIFICATIONS FOR
CONSTRUCTION
GENERAL CONTRACT CONDITIONS**

2011 Edition

Statement

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Exhibit G

XI. ATTACHMENT 6, PERFORMANCE AND PAYMENT BOND

Bond # K40574785

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned IHC Scott Inc [Bidder name], a corporation organized under the laws of the State of Michigan [Bidder state], hereinafter referred to as the "Contractor" and Federal Insurance Company [Bond issuer], a corporation organized under the laws of the State of Indiana [Bond company state], and authorized to transact business in the State of Colorado, hereinafter referred to as Surety, are held and firmly bound unto the CITY AND COUNTY OF DENVER, a municipal corporation of the State of Colorado, hereinafter referred to as the "CITY", in the penal sum of ^{Eleven-Million One Hundred Fifty Five Thousand} Three Hundred Thirty One Dollars & Thirty Two Cents [Bid amount text] Dollars (\$ 11,155,331.32), lawful money of the United States of America, for the payment of which sum the Contractor and Surety bind themselves and their heirs, executors, administrators, successors and assigns, jointly and severally by these presents.

WHEREAS, the above Contractor has, as of the date of execution listed on the contract signature page, entered into a written contract with the City for furnishing all labor, materials, equipment, tools, superintendence, and other facilities and accessories for the construction of Contract No. 202265100, Economy Parking Lot Pavement Rehabilitation Phase 1, Denver International Airport, in accordance with the Technical Specifications, Contract Drawings and all other Contract Documents therefor which are incorporated herein by reference and made a part hereof, and are herein referred to as the Contract.

NOW, THEREFORE, the condition of this performance bond is such that if the Contractor:

1. Promptly and faithfully observes, abides by and performs each and every covenant, condition and part of said Contract, including, but not limited to, its warranty provisions, in the time and manner prescribed in the Contract, and
2. Pays the City all losses, damages (liquidated or actual, including, but not limited to, damages caused by delays in the performance of the Contract), expenses, costs and attorneys' fees, that the City sustains resulting from any breach or default by the Contractor under the Contract, then this bond is void; otherwise, it shall remain in full force and effect.

IN ADDITION, if said Contractor fails to duly pay for any labor, materials, team hire, sustenance, provisions, provender, or any other supplies used or consumed by said Contractor or its subcontractors in its performance of the work contracted to be done or fails to pay any person who supplies rental machinery, tools, or equipment, all amounts due as the result of the use of such machinery, tools, or equipment in the prosecution of the work, the Surety shall pay the same in an amount not exceeding the amount of this obligation, together with interest as provided by law.

PROVIDED FURTHER, that the said Surety, for value received, hereby stipulates and agrees that any and all changes in the Contract or compliance or noncompliance with the formalities in the Contract for making such changes shall not affect the Surety's obligations under this bond and the Surety hereby waives notice of any such changes.

(End of Page)

Exhibit G

IN WITNESS WHEREOF, said Contractor and said Surety have executed these presents as of this 23
day of January, 2023.

IHC Scott INC

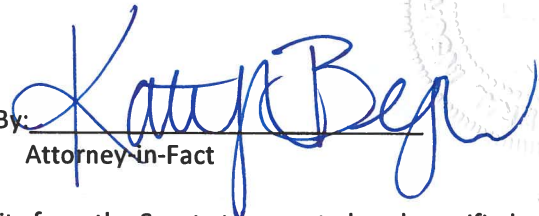
CONTRACTOR

By: 

President

Federal Insurance Company


SURETY

By: 

Attorney-in-Fact

(Accompany this bond with Attorney-in-Fact's authority from the Surety to execute bond, certified to include the date of the bond.)

CITY AND COUNTY OF DENVER

By: 

MAYOR

By: 

Chief Executive Officer
Denver International Airport

APPROVED AS TO FORM:

J46
KERRY C. TIPPER
KRISTIN M. BRONSON, Attorney for the
City and County of Denver

By: 

Assistant City Attorney

Exhibit G



Power of Attorney

Federal Insurance Company | Vigilant Insurance Company | Pacific Indemnity Company
Westchester Fire Insurance Company | ACE American Insurance Company

Know All by These Presents, that FEDERAL INSURANCE COMPANY, an Indiana corporation, VIGILANT INSURANCE COMPANY, a New York corporation, PACIFIC INDEMNITY COMPANY, a Wisconsin corporation, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY corporations of the Commonwealth of Pennsylvania, do each hereby constitute and appoint Katlyn Bigelow, Danielle Marchant, Adam Snow, W. Douglas Snow, Vicki Sorensen and Brady Thorn of Salt Lake City, Utah-----

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In Witness Whereof, said FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY have each executed and attested these presents and affixed their corporate seals on this 30th day of December, 2021.

Dawn M. Chloros (handwritten signature)

Dawn M. Chloros, Assistant Secretary

Stephen M. Haney (handwritten signature)

Stephen M. Haney, Vice President



STATE OF NEW JERSEY
County of Hunterdon SS.

On this 30th day of December, 2021 before me, a Notary Public of New Jersey, personally came Dawn M. Chloros and Stephen M. Haney, to me known to be Assistant Secretary and Vice President, respectively, of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY, the companies which executed the foregoing Power of Attorney, and the said Dawn M. Chloros and Stephen M. Haney, being by me duly sworn, severally and each for herself and himself did depose and say that they are Assistant Secretary and Vice President, respectively, of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY and know the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of said Companies; and that their signatures as such officers were duly affixed and subscribed by like authority.

Notarial Seal



KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2316685
Commission Expires July 16, 2024

Kath J Ad (handwritten signature)
Notary Public

CERTIFICATION

Resolutions adopted by the Boards of Directors of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY on August 30, 2016; WESTCHESTER FIRE INSURANCE COMPANY on December 11, 2006; and ACE AMERICAN INSURANCE COMPANY on March 20, 2009:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into in the ordinary course of business (each a "Written Commitment"):

- (1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.
(2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such person's written appointment as such attorney-in-fact.
(3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
(4) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing to any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
(5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

I, Dawn M. Chloros, Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY (the "Companies") do hereby certify that

- (i) the foregoing Resolutions adopted by the Board of Directors of the Companies are true, correct and in full force and effect,
(ii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Whitehouse Station, NJ, this January 20, 2023



Dawn M. Chloros (handwritten signature)

Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT:
Telephone (908) 903-3493 Fax (908) 903-3656 e-mail: surety@chubb.com

Exhibit H

Page 57

Attachment 6, Payment and Performance Bonds

Bond # K40574785

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned IHC Scott INC
[Proposer name], a corporation organized under the laws of the State of Michigan [Proposer
state], hereinafter referred to as the "Contractor" and Federal Insurance Company [Bonding company
name], a corporation organized under the laws of the State of Indiana [Bonding company
state], and authorized to transact business in the State of Colorado, hereinafter referred to as Surety, are
held and firmly bound unto the CITY AND COUNTY OF DENVER, a municipal corporation of the State of
Colorado, hereinafter referred to as the "CITY", in the penal sum of
Eleven-Million One Hundred Fifty Five Thousand Three Hundred Thirty One Dollars
& Thirty Two Cents [Proposal amount text] Dollars
(\$ 11,155,331.32), lawful money of the United States of America, for the payment of which sum
the Contractor and Surety bind themselves and their heirs, executors, administrators, successors and
assigns, jointly and severally, firmly by these presents.

WHEREAS, the above Contractor has entered into a written contract with the City for furnishing all labor,
materials, tools, superintendence, and other facilities and accessories for the construction of Contract No.
202265100, Economy Parking Lot Pavement Rehabilitation Phase 1, Denver International Airport, in
accordance with the Technical Specifications, Contract Drawings and all other Contract Documents
therefor which are incorporated herein by reference and made a part hereof, and are herein referred to
as the Contract.

NOW, THEREFORE, the condition of this payment bond obligation is such that if the Contractor shall at all
times promptly make payments of all amounts lawfully due to all persons supplying or furnishing it or its
subcontractors with labor and materials, rental machinery, tools, or equipment, used or performed in the
prosecution of work provided for in the above Contract and shall indemnify and save harmless the City to
the extent of any and all payments in connection with the carrying out of such Contract which the City
may be required to make under the law, then this obligation shall be null and void, otherwise, it shall
remain in full force and effect;

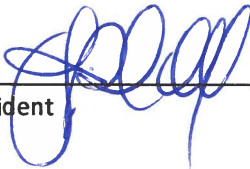
PROVIDED FURTHER, that the said Surety, for value received, hereby stipulates and agrees that any and
all changes in the Contract, or compliance or noncompliance with the formalities in the Contract for
making such changes shall not affect the Surety's obligations under this bond and the Surety hereby
waives notice of any such changes.

[END OF PAGE]

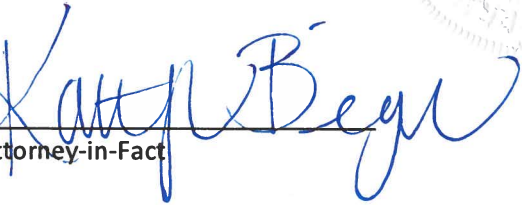
Exhibit H

IN WITNESS WHEREOF, said Contractor and said Surety have executed these presents as of this 23
day of January, 2023.

IHC Scott Inc
CONTRACTOR

By: 
President

Federal Insurance Company
SURETY

By: 
Attorney-in-Fact

(Accompany this bond with Attorney-in-Fact's authority from the Surety to execute bond, certified to include the date of the bond.)

CITY AND COUNTY OF DENVER

By: 
MAYOR

By: 
Chief Executive Officer
Denver International Airport

APPROVED AS TO FORM:

JCG KERRY C. TIPPER
KRISTIN M. BRONSON, Attorney for the
City and County of Denver

By: 
Assistant City Attorney

Exhibit H



Power of Attorney

Federal Insurance Company | Vigilant Insurance Company | Pacific Indemnity Company
Westchester Fire Insurance Company | ACE American Insurance Company

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each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

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Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

Stephen M. Haney

Stephen M. Haney, Vice President



STATE OF NEW JERSEY
County of Hunterdon SS.

On this 30th day of December, 2021 before me, a Notary Public of New Jersey, personally came Dawn M. Chloros and Stephen M. Haney, to me known to be Assistant Secretary and Vice President, respectively, of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY, the companies which executed the foregoing Power of Attorney, and the said Dawn M. Chloros and Stephen M. Haney, being by me duly sworn, severally and each for herself and himself did depose and say that they are Assistant Secretary and Vice President, respectively, of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY and know the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of said Companies; and that their signatures as such officers were duly affixed and subscribed by like authority.

Notarial Seal



KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2316685
Commission Expires July 16, 2024

Katherine J. Adelaar
Notary Public

CERTIFICATION

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- (5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

I, Dawn M. Chloros, Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY (the "Companies") do hereby certify that

- (i) the foregoing Resolutions adopted by the Board of Directors of the Companies are true, correct and in full force and effect,
- (ii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Whitehouse Station, NJ, this **January 20, 2023**



Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT:
Telephone (908) 903-3493 Fax (908) 903-3656 e-mail: surety@chubb.com



DIVISION 01

PROJECT SPECIFICATIONS

DENVER INTERNATIONAL AIRPORT – ECONOMY PARKING LOT
PAVEMENT REHABILITATION - PHASE 1

FEBRUARY 10, 2023



PROJECT MANUAL

Economy Parking
Lot Pavement
Rehab – Phase 1

DEN Contract Number: 202265100

DIV 01

Issue for Construction
February 2023

City and County of Denver
Department of Aviation

Philip A. Washington, CEO

ECONOMY PARKING LOT PAVEMENT REHABILITATION – PHASE 1**TABLE OF CONTENTS****DIVISION 01 – GENERAL REQUIREMENTS**

SECTION 011100 - SUMMARY OF WORK
SECTION 011400 - WORK SEQUENCE AND CONSTRAINTS
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SECTION 012300 - ALTERNATES
SECTION 012510 - SUBSTITUTIONS
SECTION 012910 - SCHEDULE OF VALUES
SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION
SECTION 013119 - PROJECT MEETINGS
SECTION 013210 - SCHEDULE
SECTION 013223.11 - CONSTRUCTION LAYOUT AND AS-BUILT SURVEYS
SECTION 013223.15 - SURVEY INFORMATION
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SECTION 014525 - MATERIAL TESTING AGENCY
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SECTION 016610 - STORAGE AND PROTECTION
SECTION 017330 - CUTTING AND PATCHING
SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
SECTION 017420 - CLEANING
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SECTION 017840 - CONTRACT RECORD DOCUMENTS

SECTION 011100**SUMMARY OF WORK****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY AND DESCRIPTION

- A. The Work specified in this contract consists of furnishing all management, supervision, labor, materials, tools, equipment, services, testing and incidentals for the construction of the Work indicated in the contract documents including lump sum items and unit price items.
- B. The Work in this Contract may affect operations at DEN. The Contractor shall bid, plan and execute the Work to minimize disruption of operations and inconvenience to the public.
- C. Change Notice:
1. The Contractor will be required to submit a proposal for each Change Notice
 2. The Contractor shall submit a proposal for the complete scope of the Work within the specified duration identified by the Notice. Where there is no time requirement identified by the notice documents, the Contractor shall submit a proposal within 20 days of receiving the notice or as allowed in Title 11 - Changes in the Work, Contract Price, or Contract Time of the General Contract Conditions, 2011 Edition.
 3. The proposal could contain both competitive bid and estimated costs and shall adhere to the requirements of Title 11 of the General Contract Conditions.
 4. The Contractor shall not proceed on any change notice work until a change order is issued.
- D. Change Directives:
1. The DEN Project Manager may issue Change Directive(s) for a Scope of Work. The Contractor shall keep all Time and Material record for any Change Directive(s) issued until a final settlement for the task is settled and finalized in a Change Order.
 2. The Contractor shall keep records and approvals for all Time and Material impacts of a Change Directive until a final settlement is reached and fully executed by the DEN Project Manager.
 3. The Contractor may invoice for a Change Directive in accordance with Title 11 of the General Contract Conditions, 2011 Edition.
- E. Guaranteed Maximum Price (GMP): For Contracts assigned as GMP the Contractor shall follow the Special Conditions issued for the Contract.
- F. This Project will be administered using the current Project Management Information System (PMIS). The application will be supplied by DEN at no cost to the Contractor. DEN will provide PMIS training for up to two (2) of the contractor's personnel.
- G. The Contractor shall participate in a preconstruction coordination meeting and prepare a

**TECHNICAL SPECIFICATIONS
DIVISION 01 – GENERAL REQUIREMENTS
SECTION 011100 - SUMMARY OF WORK**

**DENVER INTERNATIONAL AIRPORT
ECONOMY PARKING LOT PAVEMENT REHAB – PHASE 1
CONTRACT NO. 202265100**

BIM Project Execution Plan if one does not exist based upon the DEN BIM Project Execution Plan (BPXP) template included as provided by the DEN Digital Facilities and Infrastructure (DFI) group and the coordination meeting instructions.

- H. DEN utilizes several programs as part of the Asset Management System. Keeping accurate as-built record and operation and maintenance data are essential in the integrity and the validity of the airport operation. The Contractor is required to make every effort to keep the airport data informed, updated and accurate in the format required by DEN Project Manager:
1. The Contractor shall provide and implement BIM Project Execution Plan based on the DEN BIM Project Execution Plan. The Contractor shall employ or contract a consultant to provide all the requirements to produce the Project model in the latest edition of the currently approved DEN format.
 2. The Contractor shall comply with all the requirements of DEN BIM Project Execution Plan and provide the data to DEN to produce the complete record of the BIM model of the Project
- I. Inspection Requirements:
1. Special Inspection and Testing required by the building official or the Engineer of Record in the Contract Documents or in the Statement of Special Inspections will be performed by DEN contracted Agencies.
 2. Contractor shall subcontract Qualified Material Testing Agency(s) to perform all necessary Quality Control, processing control and any additional Testing required by the Contract Documents.
 3. DEN Quality Assurance Manager may audit all material tests performed by the Contractor Quality Control at any time. Testing and Inspections for structural elements (reinforced concrete, steel, masonry caissons, fire protection, precast and post tension concrete) not identified as special inspection will be performed by the Contractor Quality Control Program and Contractor Material Testing Agency and audited and confirmed by DEN Quality Assurance Manager. DEN will perform 100% visual inspection on all weldments. DEN will perform Quality Assurance testing at a frequency of approximately 10% of the Quality Control test and inspection frequencies. The testing frequencies by DEN may escalate to higher percentages and the Contractor will be responsible for all costs associated with failing tests of the same pay item elements. The Contractor may not hire the DEN contracted or testing agency in any capacity on this Project.
- J. DEN Quality Assurance will perform all quality assurance pull and adhesion tests on all airfield joint sealants. Contractor shall perform all quality control tests for the same items.
- K. DEN Quality Assurance is required to submit a letter indicating that all Work performed on the project complies with all applicable codes. The Contractor shall make sure that all required test frequencies and all deficiencies has been corrected to comply with all applicable codes and standards and the requirements of the Contract Documents.

1.03 WORK BY OTHERS AND FUTURE WORK

- A. Refer to Title 7 – Cooperation, Coordination and Rate of Progress of the General Contract Conditions, 2011 Edition

1.04 SITE CONDITIONS

- A. Refer to Title 14 – Site Conditions of the General Contract Conditions, 2011 Edition

PART 2 - PRODUCTS (NOT USED)**PART 3 - EXECUTION****3.01 CONTRACTOR'S DUTIES**

- A. Refer to Title 3 – Contractor Performance and Services of the General Contract Conditions, 2011 Edition
- B. Execute the Work as specified and in a timely manner. Submit a schedule of Work that will be performed at times other than during the eight-hour working day of Monday through Friday, daylight hours. Submit this schedule five (5) working days prior to the beginning of Work to the DEN Project Manager for review and acceptance. Approval to work at night may be obtained after Contractor presents a written program outlining special precautions to be taken to control the extraordinary hazards presented by night work. That program shall include, but not be limited to, supplementary lighting of work areas, availability of medical facilities, security precautions, and noise limitations.

3.02 COORDINATION

- A. Coordinate execution of the Work with those public utilities, governmental bodies, private utilities and other contractors performing work on and adjacent to the worksites. Eliminate or minimize delays in the Work and conflicts with those utilities, bodies, and contractors. Schedule governmental, private utility and public utility work that relies upon survey points, lines and grades established by the Contractor to occur immediately after those points, lines and grades have been established. Confirm coordination measures for each individual case with the DEN Project Manager in writing.
- B. In the coordination effort of work by others, the Contractor shall obtain and refer to equipment locations and other layouts, as available, to avoid interface problems.
- C. The City reserves the right to permit access to the site of the Work for the performance of work by other contractors and persons at such times that the City deems proper. The exercise of such reserved right shall in no way or to any extent relieve the Contractor from liability for loss and damage to the Work due to or resulting from its operations or from responsibility for complete execution of the Contract. The Contractor shall cooperate with other contractors and persons in all matters requiring common effort.

3.03 CONTRACTOR USE OF WORK SITE

- A. Confine work site operations to areas permitted by law, ordinances, permits, and the Contract.
- B. Consider the safety of the Work and that of the people and property on and adjacent to the work site when determining amount, location, movement, and use of materials and equipment on work site.
- C. Do not load work site with equipment and products that would interfere with the Work. Only equipment, tools, or materials required for this Work may be stored at the work site.
- D. Protect products, equipment, and materials stored on work site.
- E. Relocate stored products, equipment, and materials that interfere with operations of City, government bodies, public, and private utilities, and other contractors.

TECHNICAL SPECIFICATIONS
DIVISION 01 – GENERAL REQUIREMENTS
SECTION 011100 - SUMMARY OF WORK

DENVER INTERNATIONAL AIRPORT
ECONOMY PARKING LOT PAVEMENT REHAB – PHASE 1
CONTRACT NO. 202265100

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 011100

SECTION 011400**WORK SEQUENCE AND CONSTRAINTS****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 OTHER WORK

- A. Other concurrent construction contracts with which the Contractor must interface are described elsewhere in the Contract Documents. Refer to Section 013210 "Schedule" and the Special Conditions for specific work constraints and milestones.

1.03 WORK SEQUENCE

- A. The work sequence shall comply with Phasing, Sequencing, and Milestones as indicated in the Contract Documents and in accordance with the approved Construction Schedule developed by the Contractor. The schedule shall comply with requirements indicated in the Special Conditions and Section 011400 "Work Sequence and Constraints". The Construction Schedule is described in Section 013210 "Schedule".

1.04 WORK CONSTRAINTS

- A. Site Constraints:
1. Access to the Project shall be generally as indicated in the Contract Documents. Access shall be organized and planned by the Contractor to ensure no disruption of airline or DEN operations.
 2. Access to work sites will be strictly monitored and must comply with DEN Airport Operations and FAA Regulations. The Contractor shall provide monitoring and escorts as required by DEN Operations in the area of the Work.
 3. The Contractor's staging area will be as indicated in the Construction Documents.
 4. Contractor employee parking will not be allowed within the existing revenue control system. Parking facilities will be as indicated in the Construction Documents.
 5. Material for work in the Terminal may be brought in through the Terminal Loading Dock accessed via Gate 1. Employee and material access to the Concourses will be via Gate 5.
 6. The Contractor shall use the haul routes specified in the Construction Documents.
 7. If required, the Contractor shall provide a bus and driver to transport the Contractor's employees between the designated employee parking area and the work sites. No separate payment will be made for this bus and driver. The cost shall be included in the bid item "Mobilization". The bus driver shall be provided at all times when Contractor employees are working on the Project.
- B. System Interruptions:
1. DEN is a 24/7/365 facility. Construction activity that requires any system shutdown must be coordinated with the project manager and DEN AIM MCC.

TECHNICAL SPECIFICATIONS**DIVISION 01 – GENERAL REQUIREMENTS****SECTION 011400 - WORK SEQUENCE AND CONSTRAINTS****DENVER INTERNATIONAL AIRPORT****ECONOMY PARKING LOT PAVEMENT REHAB – PHASE 1****CONTRACT NO. 202265100**

2. The Shutdown cannot proceed unless all approver groups have approved the request. If any of the groups rejects the request, you may not proceed with the Shutdown. If a Shutdown is determined to be an emergency due to pending health issues or the risk of additional damage, this process may be bypassed. If the Shutdown is an emergency, proceed with the shutdown without the approvals. Approvals must be obtained as follows
 - a. Airfield Shutdowns must be submitted at least 72 hours prior to the shutdown start date.
 - b. All other Shutdowns must be submitted at least five (5) business days prior to the shutdown start date.
 - c. All Shutdown Requests must be submitted using the Shutdown Request form, which can be accessed via the Home page of the DEN intranet.
- C. Airfield Operations at Denver International Airport:
1. Full airport and aircraft operations are underway adjacent to this Project. Contractors are required to obtain a Contractor Participant Manual from the Security Manager and must follow the guidelines in the manual. Copies of the Contractor section of the manual are available for review at the Denver International Airport Access Services Office.
 - a. If any Work contains requirements for Work activities or access through or in the restricted area, reference Section 011420 "Security Requirements & Sensitive Security Information (SSI)" for requirements.
 - b. If not in a restricted area, the Contractor personnel still must be badged; reference Section 011420 "Security Requirements & Sensitive Security Information (SSI)".
- D. Conduct of persons using the Denver Municipal Airport system:
1. Contractor activities shall comply with Airport Operations and Regulation 130 "TRAFFIC" and Regulation 20 "CONDUCT OF PERSONS USING THE DENVER MUNICIPAL AIRPORT SYSTEM" shall be followed at all times. These regulations are available from Airport Operations at Denver International Airport.
- E. Operational safety on airports during construction:
1. All Work shall be accomplished in accordance with FAA Advisory Circular AC150/5370-2C, "Operational Safety on Airports during Construction", FAR Part 139 and FAR Part 107 except as herein modified.
- F. Welding Equipment, Procedures and Constraints:
1. Natural gas-powered portable welders or inverter single- and three-phase electric portable welders are the only acceptable welding equipment to be used inside the building basement or tunnel areas. Acceptability of equipment other than the equipment noted above shall be at the sole discretion of the DEN Project Manager.
 2. Welding activities inside buildings require submittal of a System Interruption Request (See paragraph "System Interruptions" above). Prior to welding in any area, the Contractor shall locate smoke detectors and shall request interruption of the fire alarm system. Subsequent to the interruption of the fire alarm system and prior to welding activities, the Contractor shall cover and protect smoke detectors until work is complete. Prior to expiration of each interruption of the system, the Contractor shall uncover the smoke detectors.
 3. Electrical Service: The Contractor shall be responsible for verifying with the DEN Project Manager or representatives locations acceptable for accessing electrical power for welders and other electrical equipment feeders. The Contractor shall be responsible for all work and equipment required to install temporary or permanent

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electrical modifications for construction power and lighting.

- a. Temporary Hook-up: In addition to the requirements of paragraph “Temporary Power and Lighting for Construction” below, comply with the following:
 - 1) Provide wiring sized to accommodate full load of welding equipment, accounting for voltage drop.
 - 2) Provide appropriate NEMA twist-lock or ANSI receptacle for welder hook-up.
 - 3) 480V, 3 phase, 3 pole, 4-wire twist lock ground line.
 - 4) NEMA L16-20 or ANSI C73.87.
 - b. The Contractor may not begin operation of the equipment prior to request for inspection by DEN representatives and acceptance of the installation.
 - c. Permanent installation of electrical branch circuiting for welding equipment shall be made in accordance with all Division 26 Specification Sections
4. Welding Practices: All standard safe welding practices must be followed, including but not limited to the following:
- a. Flash protection for surrounding areas.
 - b. Contractor fire extinguisher in area.
 - c. One person in each welding area solely designated as fire watch for each welder.
 - d. Protect all equipment, cable trays and contents, etc., in area.
 - e. Use fire blankets and other appropriate materials to confine sparks and molten metal from the welding, cutting, and/or grinding activities.
 - f. All welders shall have been qualified through welding tests in accordance with applicable welding code, such as but not limited to AWS, ASME, API, within one year prior to welding taking place. Evidence of qualification shall be through Welding Performance Qualification Records (WPQR).
 - g. All welder qualifications test shall be or shall have been administered and witnessed by an Independent Testing Agency (ITA), AWS Certified Welding Inspector (CWI).
 - h. If recertification of welders is required, delay costs and retesting costs shall be borne by the Contractor.
5. Grounding: Review with DEN representative’s area of work prior to beginning work to ensure ground procedures do not induce undesirable charges in steel building system or other systems. This review should take place subsequent to the pre-work meeting. Do not ground to adjacent building systems, baggage system, hangers, or devices that support mechanical or electrical equipment.

G. Temporary Power and Lighting for Construction:

1. The Contractor shall be responsible for all work and equipment required to install temporary or permanent electrical modifications for construction power and lighting.
2. The Contractor shall be responsible for all work and equipment required to install temporary or permanent electrical modifications for construction power and lighting.
 - a. Comply with all requirements of NEC Article 590.
 - b. Flexible cords used for temporary power shall be listed in accordance with NEC Article 400, and rated for ‘extra-hard’ usage.
 - c. Provide an equipment grounding conductor with all temporary power circuits.
 - d. All temporary power distribution devices and equipment shall be listed and rated for the application.
 - e. Provide ground fault protection for personnel.
 - f. Temporary lighting fixtures shall be protected from physical damage.

H. Cleaning Equipment and Spoils:

1. Discharge of water, liquids, or chemicals into a building sanitary sewer system or

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storm drainage systems is prohibited. The Contractor shall comply with all Federal, State, and Local requirements for disposal of chemicals and equipment wash water. The Contractor shall maintain and service all equipment in work areas and collect all wash water, spoils and water from excavations in containers for discharge or removal off site.

I. Vehicle Permitting for Tunnel and Basement Use:

1. Electric carts require permitting. The Contractor shall provide at least one (1) electric cart for Contractor use during the work in the tunnel and basements of the buildings. Only electric or CNG powered trucks are allowed in the tunnel and basements of the buildings. Only electric or CNG trucks may be used and shall not be parked overnight or for long terms within the tunnel or basements. All vehicles require permitting. Permits may be acquired at the DEN Airport Security Office.

J. Radio and Cell Phone Use:

1. The Contractor shall have wireless communications in place prior to initiation of work in the tunnel or basements by use of cell phone and/or radio. Radio and cell phone coverage in the tunnels and basements varies in signal strength throughout the campus. An RF Application must be submitted for the Radio equipment intended for use at least 14 days prior to intended use. Include the following radio information:
 - a. Make
 - b. Model
 - c. Frequency
 - d. Effective Radiated Power (ERP)
2. Contractors must receive an approval letter from the RF Systems Manager prior to use of the radio equipment on the DEN campus.

K. Keys:

1. The Contractor shall be required to contact DEN Maintenance Control to procure keys for access to all rooms having locks in order to gain access. Keys may be checked out at the beginning of each work shift by the Contractor and shall be returned to DEN Maintenance Control at the end of each work shift

1.05 COORDINATION

- A. The Contractor will designate a contact person for coordination with the DEN Project Manager and airline tenants. The contact person shall have the authority to make decisions for the Contractor firm and shall have binding signatory power for changes in work. The contact person shall be on site at all times during work activity.
- B. No additional costs shall be considered for coordination activities throughout this project. The Contractor shall include in the Contractor's bid costs for coordination of all activities.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 DUST/PROTECTION BARRIERS

- A. HVAC system containment. The Contractor shall submit to DEN Maintenance HVAC and Fire Alarm shutdown requests prior to modifications to the area of work for dust

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containment. The HVAC system shall be interrupted, re-routed, or blocked off to prevent dust from entering return or supply ducts.

- B. Debris and Protection Barriers:. The Contractor shall construct code-approved and DEN-approved dust and debris barriers on both sides of walls and doors that are to be modified. Barriers shall be constructed to allow emergency ingress and egress to and from equipment and spaces. Barriers shall be constructed to allow continual uninterrupted function of building equipment and spaces.
1. Return all removed door hardware to DEN. Label each hardware set correlating the door number of the original hardware set. Coordinate with the DEN Project Manager for storage and return of hardware.

3.02 EQUIPMENT

- A. Equipment: CNG-powered equipment is allowed within the buildings. No other fossil fuel equipment may be used within the buildings unless the equipment is directly vented to the building exterior.
- B. Electric: Electric powered equipment is acceptable in the Work area.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 011400

SECTION 011810**UTILITIES INTERFACE****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Various utilities are located within the limits of work in the Project area. The owners of these utilities may require that the Contractor work around their existing facilities until alterations, relocation, or abandonment have been completed. All known existing utilities are shown; however, the Contractor shall verify and satisfy itself that there are no other existing utilities that may not be shown.
- B. The owners of known utilities within the project area include, but are not limited to:
1. Century Link Telephone
 2. DEN Telephone
 3. Xcel Energy Natural Gas
 4. Xcel Energy Elec. Services
 5. DEN Storm Water
 6. DEN Sanitary Sewer
 7. DEN Deicing Waste
 8. Denver Water Department
 9. DEN Deicing Supply operated by Inland Technologies
 10. Fuel System (ASI)
 11. Premise Wiring System- DEN Business Technologies
 12. FAA Duct Bank
 13. Oil/Gas Wells
 14. DEN Electrical Department
 15. Fire Alarm System
 16. Paging System
- C. The location and establishment of each construction vehicle crossing shall be at sites mutually agreed upon in writing by the Contractor and the owner of the utility.
- D. At the locations where the Contractor needs to establish a construction vehicle crossing over any of the operating pipelines, the furnishing and placing of a crossing shall be by the Contractor. The crossing shall allow the normal operation of the pipeline at all times unless specifically approved by DEN or the owner of the pipeline. Each crossing shall be adequately marked and signed for safe passage of vehicles over the crossing. Construction vehicles shall not be allowed to cross over operating pipelines at any place other than an established crossing.

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- E. These utility locations are based upon information provided by the utility companies or previous construction contractors that were the basis for determining utility coordinates. The Contractor is responsible for confirming the accuracy of the provided coordinates with the utility owner.
- F. The Contractor shall control the Contractor's operations in order to avoid creating any obstacles for the utility owner's access for maintaining or operating their equipment.

1.03 REFERENCE DOCUMENTS

- A. Section 312323.33 "Flowable Backfill (Controlled Low-Strength Material)"

1.04 REGULATORY REQUIREMENTS

- A. The Contractor shall obtain and pay for all utility company permits, fees, and licenses necessary for the execution of this work. The Contractor shall give all notices and shall comply with all laws, ordinances, rules, and regulations of all authorities having jurisdiction.

1.05 QUALITY CONTROL

- A. When the Contractor performs any operations that will affect a utility owner, the Contractor shall give timely notice to the utility owner and the DEN Project Manager so that the Contractor's operations may be observed by the utility owner or their representative.

1.06 WORK INCLUDED

- A. The Work of this Section includes furnishing all materials, equipment, and labor necessary to provide utility crossings as required and as specified herein and subject to approval by the associated utility owner.
- B. North American Resources has a line passing through airport property. The Contractor shall contact the utility prior to beginning earthwork operations to ascertain any special requirements or conditions required to maintain and protect this service during construction activities.
- C. FAA Underground Duct lines: The FAA has duct lines passing under the site. The Contractor shall contact the FAA prior to beginning earthwork operations to ascertain any special requirements or conditions required to maintain this service during construction activities.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Suitable cover material shall be in accordance with Colorado Department of Transportation Standard Specifications. Wet, soft, or frozen material, asphalt chunks, or other deleterious substances shall not be used for cover.
- B. Aggregate for road base material shall consist of clean, sound and durable particles of crushed stone, crushed gravel or crushed slag, shall be free from coatings of clay, silt and organic matter, and shall contain no clay balls. Material shall conform to the State of Colorado Standard Specifications for Road and Bridge Construction Class 6 aggregate base unless otherwise specified.
- C. The materials for the load distribution system on top of the cover shall conform to the

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specification of the American Institute of Steel Construction, the American Institute of Timber Construction, or the American Concrete Institute, as applicable, depending upon the system agreed upon between the Contractor and utility owner.

- D. Materials for the sleeving of the pipelines shall be purchased by the utility owner at the Contractor's expense.
- E. Comply with utility backfill requirements for the use of flowable backfill in Section 312323.33 "Flowable Backfill (Controlled Low-Strength Material)" and Division 26 and Division 33 requirements.

PART 3 - EXECUTION**3.01 NOTIFICATION OF UTILITIES FOR LOCATING AND POTHOLING**

- A. The Contractor shall verify the location of all utilities prior to any operations including physically uncovering the utility to verify location as required by the utility owner.
- B. The Contractor shall notify the Utility Notification Center of Colorado at (303) 534-6700 or 811, as a minimum for location of utilities.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 011810

SECTION 012300**ALTERNATES****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.03 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.04 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Prior to the Contractor signing the Contract, the Owner will notify each party involved, in writing, of the status of each alternate, indicating if alternates have been accepted, rejected, or deferred for later consideration. The owner will also include a complete description of negotiated revisions to alternates.
- C. Execute accepted alternates under the same conditions as other Work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the Work described under each alternate.

PART 2 - PRODUCTS (NOT USED)**PART 3 - EXECUTION**

3.01 SCHEDULE OF ALTERNATES

- A. Alternate No. XX (Alternate Title)
- B. Base Bid: (Item Description) (Reference)
- C. Alternate: (Item Description) (Reference)

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 012300

SECTION 012510**SUBSTITUTIONS****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. All material and equipment substitutions must comply with Title 4, Article 406: Substitution of Materials and Equipment in the General Contract Conditions, 2011 Edition.
- B. The Work specified in this Section consists of submitting form CM-09, Request for Substitution for the approval of a different material, equipment, or process than is described in the Contract Documents.
- C. If the substitution changes to the Scope of Work, Maximum Contract Cost, cost of the Work (if less than the Maximum Contract Cost), or Contract time, a Change Order is required.
- D. As-built drawings and specifications must include all substitutions even if a Change Order is not issued.

1.03 REFERENCE DOCUMENTS

- A. Form CM-09, Request for Substitution
- B. Section 013300 "Submittal Procedures"
- C. Section 013325 "Shop and Working Drawings, Product Data and Samples"

1.04 QUALITY CONTROL

- A. The substitution shall provide as a minimum, the same performance as specified.

1.05 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- B. A completed Form CM-09 shall be submitted at least 60 days prior to when an order needs to be placed or a method needs to be changed.
- C. The submittal shall contain all the data required to be submitted for acceptance of the originally specified item or process, including, as appropriate:
 - 1. Detailed product data sheets for the specified items and the substitution.
 - 2. Samples and shop drawings of the substitution.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION**3.01 SUBSTITUTION PROCESS**

- A. Provide the information as required on Form CM-09.

3.02 SUBSTITUTION REQUEST

- A. The formal Request for Substitution will be evaluated by the DEN Project Manager and the Designer of Record based on the following criteria:
1. Compatibility with the rest of the project.
 2. Reliability, ease of use and maintenance.
 3. Both initial and long term cost.
 4. Schedule impact.
 5. The willingness of the Contractor to share equally in any cost savings.
 6. The ability of the item or process to meet all applicable governing regulations, rules, and laws along with funding agency requirements.
 7. The cost of evaluating the substitution.
- B. Based upon the above evaluation, the Senior Director of AIM Development will make a final determination of what is in the best interest of the City and either approve, disapprove or approve as noted the requested substitution.

3.03 CONDITIONS

- A. As a condition for submitting a Request for Substitution, the Contractor waives all rights to claim for extra costs or changes in the costs, schedule, Contract time or Scope of Work, other than those outlined in the request and approved by the Senior Director of AIM Development. The Contractor, by submitting a Request for Substitution, also accepts all liability for cost and scheduling impact on other contractors or the City due to the substitution.
- B. Included with the Request for Substitution shall be the following statement:
1. "The substitution being submitted is equal to or superior in all respects to the Contract-required item or process. All differences between the substitution and the Contract-required item or process are described in this request along with all required information, cost, and scheduling data."
- C. The statement shall be signed and dated by the Contractor's Superintendent.
- D. Replacement of Substitution Found to be Not Equal: The Contractor shall be responsible for all aspects and conditions of the substitution that are not clearly identified in the substitution submittal, and shall be liable for the appearance, function, performance or other aspects of the substitution that are found not to be equal to the originally specified item.
1. The Contractor shall incur all labor and costs associated with replacement of any substitution that is found to be not equal to the originally specified item or process and rejected by the DEN Project Manager.
 2. The replacement of any rejected substitution shall either be with the originally specified item or process, or a substitution approved by the DEN Project Manager.

3.04

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PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 012510

SECTION 012910**SCHEDULE OF VALUES****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions other Division 01 Specification Sections, and Related Requirements apply to this Section.

1.02 RELATED REQUIREMENTS

- A. The Work specified in this Section consists of preparing and submitting the Schedule of Values (“Schedule”) as referenced in the General Conditions. Use the Project Specifications Table of Contents or Schedule of Prices and Quantities (Bid Tabs), if applicable, as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section. The Work also includes the preparing and submitting of updated copies of the Schedule if the Schedule is affected by change orders.
- B. A Schedule of Stored Material is a detailed cost breakdown for permanent materials that will be temporarily stored prior to their being installed and for which the Contractor seeks partial payments. The Schedule of Stored Material will be incorporated as a part of the Schedule of Values.
- C. Within 14 calendar days of issuance of the Notice to Proceed (NTP), the Contractor shall submit the Schedule of Values including the Schedule of Stored Material if applicable. The Schedule of Values and Schedule of Stored Material used to prepare the work/cost breakdown for the Schedule will be used for the Contractor's billings.
- D. D.Any Contract allowances shall be included in the Schedule. Expenditure of allowances shall be done using the Allowance Authorization form. Use of this form does not increase or decrease the Contract value.

1.03 RELATED DOCUMENTS

- A. Title 9 – Compensation of the General Contract Conditions, 2011 Edition
- B. Section 013300 "Submittal Procedures"
- C. Section 013325 “Shop and Working Drawings, Product Data and Samples”.
- D. Form CM-89, Schedule of Values
- E. Form CM-91, Schedule of Values for Unit Price Contracts

1.04 SUBMITTALS

- A. The Schedule of Values shall be formally approved by the DEN Project Manager.
- B. The Schedule shall identify each item of work. Work items in the Schedule shall represent all Work and shall be referenced with the Technical Specifications section numbers, specification subparagraph, specification section title and the bid item number used for the Schedule of Prices and Quantities when applicable.

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- C. Upon request by the City, the Contractor shall support values given with the data that will substantiate the correctness of the values.
- D. The Schedule will be utilized only as a basis for review of the Contractor's application for progress payment.

1.05 REVIEW AND RESUBMITTAL

- A. If review by the DEN Project Manager indicates that changes to the Schedule are required, the Contractor shall revise and resubmit the Schedule.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 PREPARING SCHEDULE OF VALUES

- A. Provide a breakdown of the Contract Price in enough detail to facilitate continued evaluation of Applications for Payment and progress reports.
- B. Breakdown of the items used in the Schedule shall include the following item costs. Ensure each item is complete:
 1. Delivered cost of product with applicable taxes paid.
 2. Total installation cost with overhead and profit.
 3. Breakdown costs of each lump sum item with a list of products and major operations for which the Contractor seeks to receive progress payments to recover the Contractor's costs for that bid Item.
 4. Each unit price item as listed in the bid Schedule of Prices and Quantities shall list products and major operations for which the Contractor seeks to receive progress payments for that bid item.

3.02 PREPARING SCHEDULE OF STORED MATERIAL

- A. The Contractor shall submit with the Schedule an indication of whether products will be stored on or off the work site. The Schedule of Stored Material shall show all quantities and types of products that will be stored.
- B. Material allowances consist of only the net cost of the product, the cost of delivery and unloading at the storage site, the cost of applicable sales taxes, and all discounts.
- C. In no case will the cost paid for a permanent material be greater than 90 percent of the Contract price for the Work in which they are included.

3.03 PAYMENT FOR STORED MATERIALS

- A. Only materials that are described in the specifications and on the drawings will be considered permanent materials. Permanent materials are materials that will be left in the Work after the Contract is completed.
- B. Nothing in these specifications shall be interpreted as requiring the City to pay for stored materials. The DEN Project Manager shall decide on a case-by-case basis whether stored materials shall be paid for. No payment will be made for stored materials that have not been submitted and accepted.

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- C. The Contractor must, at all times, store permanent materials in accordance with manufacturer's recommendations. Any material not properly stored will not be paid for. Amounts will be deducted from payments for any stored permanent material previously paid for and subsequently found to be improperly stored or not present, based upon a physical inventory of stored permanent material.
- D. Only the neat line quantity of material needed for the finished product may be paid for.
- E. All requests for stored permanent material payment must be accompanied by paid invoices clearly showing the quantity of permanent material, the type of permanent material and discounts or rebates and the net amount paid to the supplier along with a certificate stating that the permanent material is free of any liens or judgments preventing its use by the City.
- F. If the permanent material is stored outside the Denver area the Contractor must pay for the City representative's transportation and lodging to see the stored material as needed. Acceptable lodgings must, as a minimum, have a Mobil Travel Guide Rating Criteria® rating of Two-Star or the American Automobile Association Lodging Listing Requirements & Diamond Rating Guidelines® rating of Two Diamonds. The minimum transportation shall be by regularly scheduled commercial air carrier at coach rates. The DEN Project Manager will determine if an overnight stay is required.
- G. All permanent material stored off site, for which payment is being requested, must be insured and stored in bonded, insured warehouses. The Contractor shall provide proof of insurance for all material stored off site, and specific address and storage conditions of storage location.
- H. Any permanent material on which payment is requested must be in such a form that it cannot be used on work other than this Contract, or stored in a manner acceptable to the DEN Project Manager to ensure that the permanent material cannot be used on work other than this Contract.

3.04 ALLOWANCE AUTHORIZATION AND PAYMENT

- A. Contractor shall request written approval for expenditure of any Contract allowances PRIOR TO performing the Work involved. List work to be performed and estimated cost in the requesting correspondence.
- B. Original copies of all invoices and receipts must be submitted with the Allowance Authorization as part of the request for payment.
- C. Using the format provided by the City, the Contractor's request for payment of all Contract allowances shall be included in the Schedule of Values.

PART 4 - MEASUREMENT
4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT
5.01 METHOD OF PAYMENT

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- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 012910

SECTION 013100**PROJECT MANAGEMENT AND COORDINATION****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations and coordination with other stakeholders and adjacent Contractors on the Project including,
1. Subcontractor's Acceptance Certification and Subcontractors List.
 2. General Coordination Procedures.
 3. Contract Administration Procedures.
 4. Current Project Management Information Systems (PMIS)
 5. Coordination drawings.
 6. Current DEN Asset Management Systems
 7. Requests for Information (RFIs).
- B. Related Requirements:
1. Section 011100, " Summary of Work" for a description of the division of work among separate contracts and responsibility for coordination activities not in this Section.
 2. Section 011400 "Work Sequence and Constraints" for shutdown requests and coordinating with airport operational activities.
 3. Section 011420 "Security Requirements and Sensitive Security Information (SSI)".
 4. Section 013210 "Schedule" for preparing and submitting Contractor's Construction Schedule.
 5. Section 013223 "Construction Layout, As-built and Quantity Surveys" for coordinating, survey activities and survey related record documents.
 6. Section 013300 "Submittal Procedures. "
 7. Section 013325 "Shop and Working Drawings, Product Data and Samples".
 8. Section 017720 "Contract Closeout" for coordinating closeout of the Contract.
 9. Section 017419 "Construction Waste Management and Recycling".
 10. DEN Building Information Modeling (BIM) Design Standards Manual (DSM)

1.03 DEFINITIONS

- A. RFI: Request from the DEN Contractor DEN Project Manager seeking information required by or clarifications of the Contract Documents.

1.04 SUBMITTALS - SUBCONTRACTORS ACCEPTANCE CERTIFICATION AND SUBCONTRACTORS LIST

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- A. To comply with Section 502.2 in the General Contract Conditions, 2011 Edition, the Contractor must complete and submit form CM-02 Subcontractor Acceptance Certification for each Subcontractor working on the project. Additionally, the Contractor must prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.
- B. Provide emergency contacts list to the DEN Project Manager prior to any site activities. List must contain project name, number, location, company name and address, name and title of emergency contacts in order and time and assigned responsibilities. Keep list current and accurate at all times. Include any specific security arrangements or special projects requirements.
- C. Within two (2) days of Notice to Proceed, the Contractor shall submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identifying individuals and their duties and responsibilities listing addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Providing names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
 1. Post copies of the accepted list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.05 GENERAL COORDINATION PROCEDURES

- A. Coordination with other Contractors:
 1. For details on coordinating with other Contractors, refer to Article 701 Cooperation with Other Work Forces, Article 702 Coordination of the Work, and Article 703 Coordination of Public Contact in the General Contract Conditions, 2011 Edition.
- B. Minimum cooperation requirements with other contractors include the following, unless directed by the DEN Project Manager in writing:
 1. Regular meetings, minimum weekly.
 2. Construction schedule coordination.
 3. Staging area and access planning (to include employee shuttle routes).
 4. Deliveries.
 5. Traffic control.
 6. When and where required or specified, the Contractor shall develop appropriate coordination drawings for use by interfacing adjacent parties using the Denver International Airport site.
- C. The following is a list that includes, but is not limited to, all of the contractors that will be working in the area of the project limits:
- D. Coordination with DEN entities shall include but is not limited to the following:
 1. Coordinate with Owner Contracted Communication Contractor.
 2. Coordinate with Utility Companies for utilities that are single sole source.
 3. Coordinate with Airport Security and DEN Maintenance for all security related services.
 4. Coordinate with DEN Life Safety Team for all issues related to fire alarm, fire protection systems in addition to compliance with all regulatory agencies.
 5. Coordinate all shutdowns and system interruptions in accordance with section 011400

"Work Sequence and Constraints."

1.06 CONTRACT ADMINISTRATION PROCEDURES

- A. This Project will be administered in part using the current Project Management Information System (PMIS). Any processes necessary to properly administer the Contract and not included in the list below shall be addressed as acceptable to the DEN Project Manager. DEN Project Manager may modify the list below in serialized correspondence without constituting a change to the Contract. Administrative tools and processes shall not in any form waive any contractual or legal requirements of the law or the Contract. The Contractor shall attend all coordination meetings with the DEN Project Manager and the DEN Project Control Administrators to arrange for staff training, and technical support to facilitate the execution of electronic data management and control.
- B. Project Management Information Systems (PMIS): Oracle Unifier Enterprise Project Portfolio Manager (EPPM), or the Oracle Primavera P6.
- C. All submittals, RFIs, Pay Applications, Correspondence, change requests, and pricing proposals and settlement agreements shall be recorded and submitted using the current PMIS:
1. The Contractor shall follow the specified PMIS Access Request Procedure and adhere to all user license conditions.
 2. The Contractor shall sign the Information Technology Agreement (ITA) to comply with the DEN computer system security requirements and any contractual obligation to the software and service providers for the current PMIS software
 3. DEN will train the Contractor's staff on the use of the PMIS.
 4. At a minimum, the Contractor shall provide computer hardware and software to meet the following requirements and to run the following programs, as required for the project:
 - a. Internet connectivity that provides the necessary high-speed connection to perform all activities indicated in this Contract.
 - b. Internet Explorer version 8 or higher.
 - c. Based on the project, a specific Java JRE application may be required, which can be downloaded from the Internet. If needed, the revision and update number will be provided at NTP.
 - d. Other files capability pre-approved by the DEN Project Manager or as required by the DEN BIM Execution Plan
 - e. Most current version of Revit, as per DEN requirements.

1.07 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, BIM Design Standards Manual and BIM Project Execution Plan (BPXP), and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity. Coordination drawings will be the result of a Contractor driven Spatial Coordination effort as spelled out in the BPXP.
1. Field verify all existing dimensions and any as-built dimensions, whether built by the Contractor or others, necessary to produce accurate coordination and working drawings.
 2. Content: Project-specific information, drawn accurately to a scale large enough to

indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:

- a. Use applicable Models/Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
- b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
- c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
- d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
- e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
- f. Indicate required installation sequences.
- g. Indicate dimensions shown on the Models/Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to DEN Project Manager indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

- B. Coordination Drawing Organization: Using software as in the BXP, the Contractor shall coordinate these systems per floor or zone per BXP, and as follows:
1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
 2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
 3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire alarm, and electrical equipment.
 4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
 5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
 6. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - c. Fire-rated enclosures around ductwork.
 7. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.

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- c. Panel board, switchboard, switchgear, transformer, busway, generator, and motor control center locations.
- d. Location of pull boxes and junction boxes dimensioned from column centerlines.
- 8. Fire-Protection System: Show the following:
 - a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
- C. Review: DEN Project Manager will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If DEN Project Manager determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, DEN Project Manager will so inform Contractor, who shall make changes as directed and resubmit.
- D. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
 - 1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings, unless approved otherwise by DEN Project Manager.
 - 2. File Preparation Format: Provided in the Project BIM Execution Plan operating in Microsoft Windows operating system.
 - 3. File Submittal Format: Submit or post coordination drawing files as required in the Project BIM Execution Plan.
 - 4. The submittal must be logged in accordance with the submittal procedure
 - 5. For Fire Protection system; provide shop drawing and design calculations as approved by the building department. Submit as-built drawings in format as outline in BXP.
 - 6. For all projects, receiving official variance from the BIM requirements not utilizing BIM, coordination drawings must be submitted in acceptable digital format shall be in an industry recognized 3D AutoCAD model.
 - 7. BIM File Incorporation: DEN Project Manager will incorporate Contractor's coordination drawing files into Building Information Model for Revit as established for Project.
 - a. Contractor shall lead three-dimensional component conflict analysis as part of preparation of coordination drawings. Resolve component conflicts prior to submittal. Indicate where conflict resolution requires modification of design requirements by Architect or other sub-consultants.
 - 8. DEN Project Manager will furnish Contractor one (1) set of digital data files of Models and/or Drawings for use in preparing coordination digital data files.
 - a. The Design consultants and Contractors and Sub Contractors acknowledge and represent the following Right Of Reliance regarding Electronic Models and/or Drawing deliverables:
 - 1) Models may be transferred for allowing the recipients to develop derivative models to develop the means and methods by which to construct the project.
 - 2) It must be clear that each party be able to rely on the fact that the model furnished by others "match the 2D Contract Documents or shop drawings in their equivalent state of development"

1.08 COORDINATION WITH DEN ASSET MANAGEMENT SYSTEM:

- A. The full intent is to produce comprehensive record documents integrating existing data in the form of digital files and models, reconciled to actual field conditions, modifications or

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additions facilities or components of existing facilities according to new Contract Documents, and to produce record documents that could be incorporated into DEN asset management system.

- B. Utilize the BIM to link all necessary data content to the model and follow the BXP as collaboratively modified by the Contractor, Designer, and DEN BIM Administrators and approved by DEN Project Manager
- C. Provide the following information through the execution of the Contract for all elements and element types that DEN has designated as assets. The information shall include but is not limited to:
 - 1. Project title, number, project manager contact information, contractor and subcontractor contact information
 - 2. Pertaining shop drawings
 - 3. Operational Manuals and safety information, MSDS and cut sheets, and any pertinent technical information.
 - 4. Details of all components' maintenance procedures and requirements.
 - 5. Details of all applicable warranties including but not limited to; warranty providers, manufacturers information, warranty start and finish dates, contacts , bonding company name, consent of surety,
 - 6. Equipment location (by room number and location description or grid location format acceptable to DEN Project Manager, for civil projects), equipment make, model, serial number, and other asset information as outlined in the DEN BIM DSM
 - 7. List of all spare parts including but not limited to; equipment make and model, location, submittal number or link, and suppliers reordering information
 - 8. Commissioning results, acceptance criteria, test reports, and Tab reports

1.09 REQUESTS FOR INFORMATION (RFIS)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI through the PMIS
 - 1. DEN Project Manager will distribute the RFIs to the proper entities.
 - 2. DEN Project Manager will coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's Work or work of subcontractors
- B. DEN Project Manager has the right to reject RFIs or those that do not contain proper information and required data to properly evaluate the request and respond in a timely manner.
- C. RFIs: Use PMIS to generate RFIs.
 - 1. Attachments shall be electronic files in Adobe Acrobat PDF format.
 - 2. Attachments include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- D. For projects not using Unifier to create the RFI, the RFI must include a detailed, legible description of item needing information or interpretation and the following:
 - 1. Project name.

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2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of DOR and DEN Project Manager.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
- E. DEN Project Manager will review each RFI, determine action required, and respond. RFIs received by DEN Project Manager after 1:00 p.m. will be considered as received the following working day. Direct responses by any entity other than DEN Project Manager shall not be binding to the City and County of Denver. E-mails, and verbal conversations must be followed by an official RFI or proper contractual vehicle before it is considered for any additional compensation or time impact to the project terms and conditions.
1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of DEN Project Manager's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 2. DEN Project Manager's action may include a request for additional information, in which case DEN Project Manager's time for response will date from time of receipt of additional information.
 3. DEN Project Manager's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Title 11 - Changes In the Work, Contract Price, or Contract Time in the General Contract Conditions, 2011 Edition as amended by Special Conditions.
 4. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify DEN Project Manager in writing within five (5) days of receipt of the RFI response or the time required by Title 11 - Changes In the Work, Contract Price, or Contract Time in the General Contract Conditions, 2011 Edition
- F. RFI Log: For projects not utilizing the PMIS application, prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. The log shall include but not limited to the following data:
1. Project name.

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2. Name and address of Contractor.
3. Name and address of DEN Project Manager.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date DEN Project Manager's response was received.

PART 2 - PRODUCTS (NOT USED)**PART 3 - EXECUTION (NOT USED)****PART 4 - MEASUREMENT****4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 013100

SECTION 013119**PROJECT MEETINGS****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. The Work specified in this Section requires the Contractor's Project Manager, Superintendent, and Quality Control representative to attend meetings scheduled by the DEN Project Manager for the collection and dissemination of information related to the subject Contract.
- B. The DEN Project Manager will prepare the minutes of each meeting and distribute them to each of the participants.

1.03 REFERENCE DOCUMENTS

- A. Form CM-01, Preconstruction Meeting Agenda
- B. Form CM-62, Construction Meeting Agenda/Minutes

1.04 OTHER MEETINGS

- A. The Contractor shall attend all other project related meetings as directed by the DEN Project Manager.

PART 2 - PRODUCTS (NOT USED)**PART 3 - EXECUTION****3.01 PRECONSTRUCTION MEETING**

- A. A Preconstruction Meeting will be scheduled by the DEN Project Manager after the Contract has been signed by all parties. The purpose of this meeting is to introduce the City's Representatives to their counterparts in the Contractor's organization and to establish lines of communication between these representatives and outline some Contract requirements. The Contractor's key personnel shall attend this meeting.
- B. The DEN Project Manager will distribute a notice of this meeting, along with an agenda of the subjects to be addressed. Refer to form CM-01, Preconstruction Meeting Agenda.
- C. The DEN Project Manager will explain and discuss the responsibilities and authorities of the City, the Designer of Record, and the DEN Project Manager's organization.
- D. The Contractor shall introduce the Contractor's key personnel, subcontractors, and representatives and briefly describe each person's responsibilities.

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- E. The Contractor shall prepare a presentation with the items outlined in the CM-01, Preconstruction Meeting Agenda, at a minimum.

- F. Explanations provided by the DEN Project Manager will not amend, supersede, or alter the terms or meaning of any Contract document, and the Contractor shall not claim reliance on such explanations as a defense to any breach or failure by the Contractor to perform as specified in the Contract.

3.02 CONSTRUCTION PROGRESS MEETINGS

- A. Progress meetings will be scheduled weekly and more often as necessary by the DEN Project Manager to promote the competent and timely execution of the Contract.

- B. The meetings will be held at the work site or at a location selected by the DEN Project Manager. Meetings will be chaired by the DEN Project Manager or the DEN Project Manager's representative.

- C. The Contractor's key personnel shall attend unless otherwise agreed by the DEN Project Manager.

- D. At a minimum, and as directed by the DEN Project Manager, the items detailed in CM-62, Construction Meeting Agenda/Minutes shall be addressed at each meeting. The items addressed in the meeting do not waive notification or submittal requirements as required elsewhere in the Contract.

- E. The DEN Project Manager will be responsible for publishing minutes of the meetings. Refer to form CM-62, Construction Agenda/Meeting Minutes.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 013119

SECTION 013210 – SCHEDULE**PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. The Work specified in this Section describes the procedures and requirements for scheduling and documenting the progress of the project:
1. Design Schedules
 2. Preliminary Construction Schedule
 3. Initial Project Construction Schedule (IPS)
 4. Monthly Progress Schedule update
 5. As-built Schedule
 6. Special reports:
 - a. Weather impacts and mitigations
 - b. Unforeseen Conditions and mitigations
 - c. Recovery Schedule and alternatives

1.03 REFERENCE DOCUMENTS

- A. Article 1105 – Time Extensions in the General Contract Conditions, 2011 Edition.
- B. Section 011100 "Summary of Work"
- C. Section 011420 "Work Sequence and Constraints".
- D. Section 012910 "Schedule of Values".
- E. Section 013119 "Project Meetings"
- F. Section 013300 "Submittal Procedures"

1.04 SUBMITTALS

- A. Submit for City acceptance the following in accordance with Section 01 33 00 – Submittal Procedures:
1. Project Scheduler Qualifications
 2. Design Schedules
 3. Preliminary Project Construction Schedule
 4. Initial Project Construction Schedule
 5. Monthly Progress Update Schedules
 6. Time Impact Analysis, when necessary

7. As-built Schedule
- B. Scheduler/Scheduling Consultant Qualifications:
1. A professional with a minimum of two (2) years of experience with scheduling design and construction projects similar in size and scope of work as this project using Oracle Primavera P6 software.
 2. The scheduler shall have a comprehensive knowledge of Critical Path Method (CPM) scheduling principles and application.
 3. The scheduler shall produce reports and diagrams within 24 hours of the DEN Project Manager's request and perform tasks, including but not limited to, the following:
 - a. Create, maintain and update the project design and construction schedule, including but not limited to baseline schedule management, cost and resource loading, time impact analysis, and schedule progress analysis.
 - b. Prepare monthly progress schedule updates, submit for review and incorporate the City's review comments into the schedule.
 - c. Coordinate the participation of qualified personnel to assist in the development of the initial design and construction schedule and updating of the monthly progress schedule.
 - d. Develop a Work Breakdown Schedule (WBS) to the appropriate level and be able to discuss verbally and in writing the applicability of the WBS.
 - e. Incorporate milestone dates for Owner-furnished products and deliverables.
 - f. Incorporate submittal requirements, procedures and time required for review of submittals and resubmittals.
 - g. Incorporate requirements for tests and inspections by independent testing and inspecting agencies.
 - h. Incorporate required meetings, such as Safety and Pre-work meetings.
 - i. Incorporate time required for Project closeout and Owner start-up procedures, including commissioning activities.
 - j. Adhere to contract specifications and requirements.
- C. Schedule Submittal Package Requirements:
1. XER/XML file compatible with the latest version of Oracle Primavera P6
 2. PLF File (if XER)
 3. Narrative report including the following:
 - a. Prepare an accurate statement of the project's progress status to assist in decision making.
 - 1) Contract Milestone Dates, Current Schedule Dates
 - 2) Activities started or completed since last update
 - 3) Identify deviations from the baseline schedule and evaluate possible corrective actions.
 - 4) Logic Changes
 - 5) Critical Path Analysis / Schedule Risks
 - 6) Upcoming Activities that are impacted by or may impact stakeholders
 - 7) Change Order Activities
 - 8) Weather and other delays
 - b. A standard layout will be provided to the contractor.
 4. PDF of the following:
 - a. Full Schedule View
 - b. Critical Path
 - c. Three Week Lookahead

1.05 SCHEDULE PREPARATION REQUIREMENTS

- A. Schedules should meet the requirements outlined in the “Schedule Approval Checklist” (Appendix 1) and the “Contractor Schedule Package” (Appendix 2). Contractor shall obtain current versions of Appendix 1 and 2 from the DEN Project Manager for use in developing the schedule. These requirements utilize the following documents as references for best practices:
1. AACE Recommended Practices (RP)
 2. USACE Project Schedules Regulation ER_1-1-11
 3. DCMA 14-Point Schedule Assessment
- B. Projects regulated by the FAA must follow all FAA scheduling requirements, in addition to the requirements provided by DEN. In the event of a conflict between the DEN and FAA scheduling requirements, the more stringent requirement shall apply.
- C. The schedule shall satisfy, at minimum, the following criteria:
1. Prepare all Project Schedules utilizing the Critical Path Method (CPM) of network calculation to generate all schedule reporting.
 2. Show in the schedule, the proposed sequence to perform the work and dates contemplated for starting and completing the schedule activities.
 3. The scheduling of the entire project is required.
 4. Provide a schedule that is forward planning as well as a project monitoring tool
 5. Contractors, Design management personnel and DEN PMT/Stakeholders shall actively participate in its development.
 6. Subcontractors and suppliers working on the project shall also contribute in developing and maintaining an accurate project schedule.
 7. The contractor shall keep the subcontractors and suppliers informed of the Project Construction Schedule to enable the subcontractors to plan and perform their work properly.
 8. All schedules shall comply with the City and County of Denver General Contract Conditions (GC)
 9. The schedule WBS will align with the approved schedule of values, as determined by the DEN Project Management Team, and contain, at minimum, the following milestone activities:
 - a. Start
 - b. Mobilization Complete
 - c. Substantial Completion
 - d. Final Completion
 - e. DEN reserves the right to request additional milestones to be included in all schedules as appropriate for each projects. The additional reporting requirements will be communicated by the Project Manager and PMO.
- D. Cost and Resource Loading of P6 Schedules
1. All schedules shall be cost loaded using the Lump Sum resource. Cost loading will align with the approved schedule of values, as determined by the DEN Project Management Team.
 2. Period Performance shall be stored for each schedule update provided to DEN.
 3. All schedules will be resource loaded with manhours by critical trade. Additional

resource loading requirement may be required by DEN PMT.

E. Layout Requirements (.PLF)

1. Project Layout Files (.PLF) will be created to standardize the information provided to DEN from the schedule, and the .PLF will be used to create the PDF schedule documents as part of the submittal package.
2. All PDF's will contain both the table and the Gantt Chart, and will be scaled to fit timescale to 1 page wide. Additionally, the following information will be displayed:
 - a. Table will contain: Activity ID, Activity Name, Baseline Start, Baseline Finish, Original Duration, Start, Finish, Duration at Completion, Finish Variance, Total Float
 - b. Gantt Chart:
 - 1) Timescale shall show the entire project schedule without cutting off any data
 - 2) In the Bar Options, the following Bars shall be displayed: Remaining Level of Effort, Actual Level of Effort, Primary Baseline, Actual Work, Remaining Work, Critical Remaining, Start Constraint, Finish Constraint, Milestone, Summary, Negative Float Bar. Activity names will be included as the bar label.
 - 3) In the Bar Chart Options, "Show Relationships" shall be checked.
 - 4) In the print layout, the header shall include at minimum the data date, current date, filter, project name, schedule update version, and contractor. The footer shall contain at minimum the legend and page count.
3. Full Schedule View will not be filtered, all activities will be shown.
4. Critical Path view will be filtered to show only the critical Activities.
5. Three Week Lookahead View will be filtered to show activities completed in the past week, or activities that are in progress or not started for the next three weeks.
6. Additional information or reports may be requested at the DEN Project Management Team's discretion, including but not limited to cash flow, manhours graph, earned value, period performance.

F. Withholdings / Payment Rejection

1. Failure to meet the requirements of this Section may result in the disapproval of the schedules or updates and subsequent rejection of payment requests until requirements are met.
2. If the DEN Project Manager directs schedule revisions and those revisions have not been included in subsequent Project Schedule revisions or updates, the DEN Project Manager may withhold 10 percent of pay request amount for each payment period until such revisions to the project schedule have been made.

1.06 COORDINATION

- A. Pre-scheduling Conference:** Schedule conference at Pre-Construction meeting to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to setting up the Preliminary Project Design and / or Construction Schedule and Initial Project Construction Schedule, including, but not limited to, the following:
1. Verify availability of qualified personnel needed to develop and update schedule.
 2. Review content and format for reports.
 3. Discuss constraints, including phasing, area separations, interim milestones, stakeholder requirements and partial Owner occupancy.

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4. Review milestone dates for Owner-furnished products and deliverables.
 5. Review submittal requirements and procedures.
 6. Review time required for review of submittals and resubmittals.
 7. Review time required for Shutdown request and approval.
 8. Review requirements for tests and inspections by independent testing and inspecting agencies.
 9. Review time required for Project closeout and Owner startup procedures, including commissioning activities.
 10. Review procedures for updating schedule.
 11. Review requirements for content and input of direct man-hour resources in activities.
 12. Review requirements for cost loading of activities.
 13. Coordinate Initial Project Construction Schedule with the Schedule of Values and Schedule Template.
 14. Secure time commitments for performing critical elements of the Work from entities involved.
- B. Construction Coordination: If there are activities in the schedule that are impacted by DEN, DOR, other contractors or other stakeholders, a periodic meeting will be set up with all stakeholders to evaluate the schedule and confirm dates for activities outside of the contractor's control. The contractor will be responsible for providing the most up to date schedule to all attendees in PDF format, in accordance with Section 1.3.C Submittals of Technical Specifications 013210 Schedule. The frequency of this meeting will be at the discretion of the Project Management Team.
- C. Delays, Recovery Schedules, and Requests for Extension: If the project is experiencing delays, a meeting will be set up with the designer, engineer, contractor, the PMT, and DEN Project Controls to evaluate the package provided by the contractor. The designer / contractor will be responsible for providing the most up to date schedule to all attendees in PDF format in advance of any meetings, in accordance with Section 1.3.C Submittals of Technical Specifications 013210 Schedule, as well as any supplemental information that supports requests for re-sequencing, extensions etc. Additionally, the contractor will provide all required information from sections 3.10, 3.11, and 3.12 of Technical Specifications 013210 Schedule. If DEN determines that additional coordination is required, a periodic meeting will be set up at the discretion of the Project Management Team.

PART 2 - PRODUCTS**2.01 SOFTWARE**

- A. DEN Default Software:
1. DEN shall use the latest release of Oracle Primavera P6 for all city scheduling needs.
- B. Designer / Contractor Software:
1. Scheduling software used by the designer / contractor shall be compatible with the latest release of Oracle Primavera P6.
 2. The software and any support agreements shall be purchased at the designer's / contractor's expense from a vendor of the contractor's choosing.
 3. The City will not provide training or support services for designer / contractor purchased software.

- C. Oracle Primavera P6 Software Settings:
1. The following settings are mandatory and required in all schedule submissions to the City. Submittals that do not meet these criteria will be rejected:
 - a. All schedules will only contain project data at the Project Level and not at the Global or EPS level. Project data includes but is not limited to calendars, risks, OBS, activity codes and user defined fields.
 - b. Time Period Administration Preferences shall remain the default “8.0 hour/day, 40 hour/week, 172 hour/month, 2000 hour/year”. Set Calendar Work Hours/Day to 8.0-hour days.
 - c. Set Schedule Option for defining Critical Activities to “Longest Path”
 - d. Set up cost loading using single lump sum resource. The resource should be named “Lump Sum”. The Price/Unit shall be \$1/hour, Default Units/Time shall be 8h/d”, and settings “Auto Compute Actuals” and “Calculate Cost from Units” selected.
 - e. Activity ID’s shall not exceed 10 characters.
 - f. Activity Names shall not exceed 30 characters, and will start with Verb/Action, followed by the work area, followed by additional information.

PART 3 - EXECUTION**3.01 PRELIMINARY PROJECT DESIGN / CONSTRUCTION SCHEDULE SUBMISSION**

- A. General
1. Within ten (10) days after the issuance of Notice to Proceed (NTP), submit the Preliminary Project Design / Construction Schedule:
 - a. If contract time is greater than 120 calendar days, submit the Schedule defining the planned operations detailed, at a minimum, for the first sixty (60) calendar days of the project for acceptance.
 - b. If contract time is shorter than 120 calendar days. submit the Schedule defining the planned operations detailed for the full contract term for acceptance.
 - c. It shall be early start and late finish constrained and logically tied as specified.
 2. The Preliminary Project Design / Construction Schedule shall form the basis for the Initial Design / Project Construction Schedule specified herein and shall include all the required plan and program preparations, submissions and approvals identified in the contract. For example, Design Work Plan, Design Submittal dates and review times, Quality Control Plan, Site-specific Safety Plan, and Environmental Protection Plan, etc.
 3. The DEN Project Management Team will respond within 14 days to the Preliminary Schedule submittal with either acceptance or direction to revise and resubmit.
 4. In lieu of the Preliminary Project Design / Construction Schedule, the Designer / Contractor may, at the Designer’s / Contractor’s own discretion, submit the Initial Project Design / Construction Schedule at the Design Kick-Off or Preconstruction Meeting.
 - a. If the Initial Project Design / Construction Schedule is submitted in lieu of the Preliminary Project Design / Construction Schedule, the DEN Project Management Team will respond within thirty (30) days with acceptance or direction to revise and resubmission is required within ten (10) days.
 5. Acceptance of Preliminary Project Construction Schedule will not constitute approval of Schedule of Values.

3.02 INITIAL PROJECT DESIGN / CONSTRUCTION SCHEDULE SUBMISSION

A. General

1. Submit the Initial Project Design / Construction Schedule for acceptance within fourteen (14) days after issuance of NTP.
2. The schedule shall demonstrate a reasonable and realistic sequence of activities which represent the Work through the entire contract performance period.
3. The DEN Project Manager will respond within 14 days with acceptance or direction to revise and resubmit.
4. The acceptance of the schedule is for general conformity to the Contract requirements and shall not constitute any relief of any Contract requirements.
5. Upon acceptance from the DEN Project Manager and DEN Project Controls, the Initial Project Design / Construction Schedule shall become the Baseline Schedule for the duration of the project.
6. The Baseline Project Design / Construction Schedule may be changed when one or more of the following events occur:
 - a. When a Change Order significantly affects the contract completion date or sequence of work.
 - b. When the Designer / Contractor elects to change the sequence or duration of work items affecting the critical path resulting in a major change that requires DEN approval.
 - c. When the City directs a change that affects a milestone dates specified in the Special Conditions or alters the length of a critical path.
7. Failure to include any work item required for performance of this Contract shall not excuse the Designer / Contractor from completing all Work within applicable completion dates, regardless of the City's acceptance of the schedule.
8. Failure of the designer / contractor to have an Initial Project Design / Construction Schedule accepted by DEN Project Manager will be considered cause for withholding progress payment.
9. This submittal shall include all package requirements included in section 1.3.C of this Technical Specifications 013210 Schedule document.

3.03 MONTHLY PROGRESS DESIGN / CONSTRUCTION SCHEDULE UPDATES**A. General**

1. The Designer / Contractor shall submit a monthly progress schedule at the end of each month following the issuance of NTP, prior to approval of the invoice.
2. At the end of each month, the Contractor and DEN Project Manager shall agree on the progress of the work and the Contractor shall update the Construction Schedule accordingly.
3. This review does not constitute an acceptance of the Monthly Progress Schedule update and shall not be used for the purpose of modifying the accepted Baseline Project Design / Construction Schedule.
4. Failure of the Designer / Contractor to have a Monthly Progress Design / Construction Schedule accepted by the DEN Project Manager will be considered cause for withholding progress payment per Article 306 - Working Hours and Schedules and Article 909 - Additional Withholding of Progress Payments of the General Contract Conditions, 2011 Edition.
5. The Designer's / Contractor's monthly progress schedule shall include all package requirements included in section 1.3.C of this Technical Specifications 013210 Schedule document.

6. The Contractor shall provide the DEN Project Manager an electronic copy prior to and a minimum of four (4) hard copies of the Contractor's Three (3) Week Look-Ahead Schedule for review at the DEN Project Manager's weekly progress meeting.

3.04 AS-BUILT CONSTRUCTION SCHEDULE:**A. General**

1. After all Contract Work items are complete, the contractor shall submit an as-built Project Construction Schedule that reflects the actual sequence of construction activities, includes all change order scope of work changes and shows actual start and finish dates for all work items and milestones for acceptance by the DEN Project Manager.
2. The basis for the As-built Construction schedule will be the approved Monthly Progress Schedules.

3.05 RECOVERY SCHEDULE**A. General**

1. When a monthly progress schedule update indicates the Work is behind the current approved schedule, the Designer / Contractor submits a separate Recovery Schedule indicating the means by which the Designer / Contractor intends to regain compliance with the schedule.
2. No additional costs will be allowed if such expediting measures are necessary to meet the agreed completion date or dates except as provided elsewhere in the Contract Documents.
3. If the early finish date for any work item or the substantial completion date does not fall within the Contract Duration, the sequence of work or duration shall be revised by the Designer / Contractor through concurrent operations, additional manpower, additional shifts or overtime, additional equipment, or alternative construction methods until the schedule produced indicates that all significant contract completion dates, occupancy dates and milestone dates will be met.
4. Provide a narrative indicating changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.
5. The narrative shall be submitted in accordance with Article 1105 – Time Extensions in the General Contract Conditions, 2011 Edition.

3.06 REQUEST FOR TIME EXTENSION**A. General:**

1. Provide a justification of delay to the DEN Project Manager, in accordance with the Contract provisions and clauses, for approval within 10 days of a delay occurring.
2. Prepare a time impact analysis for each DEN Change Directive, Change Notice and Contractor's Change Request to justify time extensions.
3. Added work by the City does not necessarily entitle a Designer / Contractor to a Time Extension, unless the Designer / Contractor can prove that this new added scope impacts the current critical path without manipulating any of the logic and relationships in the most recent and approved schedule.
4. The City may reject any Time Extension Request that does not include a detailed and a clear time impact analysis that shows direct impact to the most current critical path along with a detailed productivity rate calculation to justify the requested time to

execute such added work.

5. If the Designer / Contractor is granted an extension of time for completion of any milestone or contract completion date under the provisions of the Contract, the determination of the total number of extended days will be based upon the current analysis of the schedule and upon all data relevant to the extension. Such data shall be incorporated into the next monthly update of the schedule.
6. The Designer / Contractor acknowledges and agrees that delays in work items that, according to schedule analysis, do not affect any milestone dates or the Contract completion date shown on the CPM Network Schedule at the time of the delay will not be the basis for a Contract extension.

B. Justification of Delay

1. Provide a description of the event(s) that caused the delay and/or impact to the work. As part of the description, identify the schedule activities impacted.
2. Show that the event that caused the delay/impact was the responsibility of the City.
3. Provide a time impact analysis that demonstrates the effects of the delay or impact on the project completion date or interim completion dates.
4. Multiple impacts shall be evaluated chronologically; each with its own justification of delay. With multiple impacts, consider concurrency of delay.
5. A time extension and the schedule fragment become part of the project schedule and future schedule updates upon approval by DEN Project Controls.

C. Time Impact Analysis (Prospective Analysis)

1. Prepare a time impact analysis for City approval based on industry standard AACE 52R-06. Use a copy of the last approved schedule prior to the first day of the impact or delay for the time impact analysis.
2. If DEN Project Controls determines the time frame between the last approved schedule and the first day of impact is too great, prepare an interim updated schedule to perform the time impact analysis.
3. Unless approved by the DEN Project Controls, no other changes will be incorporated into the schedule being used to justify the time impact.

D. Fragmentary Network (FragNet)

1. Prepare a proposed fragment for time impact analysis. The proposed fragment shall sequence new activities into the project schedule to demonstrate the influence of the delay or impact to the project's contractual dates.
2. Clearly show how the proposed fragment shall be tied into the project schedule, including the predecessors and successors to the fragment activities.
3. Obtain City approval of the proposed fragment before incorporating it into the project schedule.

E. Time Extension

1. Time extensions will not be granted until after the City has approved the Justification of Delay, including the time impact analysis.
2. No time extension will be granted unless the delay consumes the available Project Float and extends the projected finish date ("Substantial Completion" milestone) beyond the Contract Duration.
3. The time extension will be in calendar days.

4. Actual delays that the City determines are caused by the Designer's / Contractor's own actions and result in a calculated schedule delay will not be a cause for an extension to the performance period, completion date, or interim milestone date.
- F. Impact to Early Completion Schedule
1. No extended overhead will be paid for delay prior to the original Contract Substantial Completion date.

3.07 FAILURE TO ACHIEVE PROGRESS

- A. General:
1. If the progress falls behind the approved baseline project schedule for reasons other than those that are excusable within the terms of the Contract, the City may require submittal of a written recovery plan for approval.
 2. The plan shall detail how progress shall be recovered, including which activities will be accelerated by adding additional crews, longer work hours, extra work days, etc.
- B. Artificially Improving Progress
1. Artificially improving progress by means such as, but not limited to, revising the schedule logic, modifying or adding constraints, shortening activity durations, or changing calendars in the project schedule is prohibited.
 2. Indicate assumptions made and the basis for logic, constraint, duration, and calendar changes used in the creation of the recovery plan.
 3. Additional resources, manpower, and daily and weekly work hour changes proposed shall be evident at the work site and documented in the daily report along with the Schedule Narrative Report.
- C. Failure to Perform
1. Failure to perform work and maintain progress in accordance with the supplemental recovery plan may result in an interim and final unsatisfactory performance rating and/or may result in Non-Conformance Report for corrective action directed by DEN Project Controls pursuant to other Contract provisions.

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 013210

SECTION 013223.11**CONSTRUCTION LAYOUT AND AS-BUILT SURVEYS****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section covers Denver International Airport (DEN) procedures and accuracy requirements for survey services for construction layout, and as-built.
- B. Before commencing any field surveys on DEN property, the Contractor must coordinate a pre-survey preparation activities meeting. This meeting is to be arranged through the DEN Project Manager's Office with the attendance of the Contractor and the DEN Survey Section. The Contractor is responsible for obtaining DEN related survey guidance, Access to DEN survey network, Primary Control, projection parameters, and training materials from the DEN Survey at the pre-survey meeting and/or prior to beginning any survey work.
 - 1. Project Checklist, provided as part of this Specification, must be reviewed at the pre-survey preparation activities meeting. (Refer to Article 1.11.)

1.03 REFERENCE DOCUMENTS:

- A. Section 013223.15 "Survey Information".
- B. Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples".
- C. Latest version of Federal Aviation Administration Advisory Circular 150/5300
- D. Latest Version of DEN BIM DSM (Design Standards Manual)
- E. Latest Version of Colorado Department of Transportation (CDOT) Survey Manual.
- F. Latest Version of Minimum Standard Detail Requirements for ALTA/ NSPS Land Title Survey

1.04 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for the submittal process.
- B. Survey Statement of Work (SSOW):
 - 1. The Contractor must develop a complete SSOW and submit it to the DEN Project Manager. The SSOW is the Contractor's written description of the Contractor's methodology for surveying services that must be provided as part of the Project, including specific features that must be surveyed, action items, timelines necessary airport resources and general information.
 - 2. SSOW must be submitted by the Contractor prior to commencement of any survey or

- layout work on the site.
3. The SSOW will be accepted by the DEN Project Manager.
 4. Under no circumstances must the Contractor begin work until the SSOW has been accepted.
- C. Survey and Quality Control Plan (SQCP):
1. The Contractor must develop a complete SQCP and submit it to the DEN Project Manager. The SQCP is the Contractor's written description detailing the Contractor's methodologies for data collection, data safeguarding and quality assurance. Provide insight on how the Contractor must completely check all data to ensure it is complete, reliable, and accurate. Identify data safeguards used to protect the sensitive and safety critical data. Utilize a checklist based quality control process with definable and repeatable standards for each element ensuring consistency of work between different personnel within an organization. Submit the plan in a non-editable PDF.
 2. SQCP must be submitted by the Contractor prior to commencement of any survey or layout work on the site.
 3. The SQCP will be accepted by the DEN Project Manager.
 4. Under no circumstances must the Contractor begin work until the SQCP has been accepted.
- D. Weekly Project Status Report:
1. Contractor must submit a project status report in compliance with FAA AC 150/5300-18B to the DEN Project Manager every Monday by 2:00 P.M. Mountain Time, from the date of the task order until the date of Substantial Completion
 2. The Weekly Project Status Report must use format from AC 150/5300-18B
- E. Final Project Survey Report:
1. The Final Project Survey Report, must use format from AC 150/5300-18B
 2. Final Project Survey Report must be stamped and wet signed by a current Colorado Registered Professional Land Surveyor.
- F. SURVEY DELIVERABLES:
1. Contractor must submit all of the following deliverables.
 2. All raw files: GPS and Levels that is compatible with Trimble Business Center.
 3. If combining x, y from GPS and z from Levels, provide field notes and data that shows where this data came from to verify values. The GPS point numbers must match to the Level descriptions.
 4. As-built or as-constructed survey submittals must need to be in both Portable Document Format (PDF) and in AutoCAD Civil 3D. Refer to current and criteria document for direction on PDF production.
 5. All copies of original pages of field notes or electronic field notes must be in (PDF).
 6. Scanned copies of all original field notebooks used for this Project must be submitted at the end of Contract.
 7. All as-built points files must be in either CSV or TXT format.
 8. All CAD drawings must be in current approved Autodesk Civil 3D format.
 - a. CAD layers are specified in DEN BIM Design Standards Manual
 - b. DEN must provide the Autodesk Civil 3D drawing template.

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9. The as-built survey must follow the most recent Minimum Standard Detail Requirements for ALTA/ NSPS Land Title Survey for all sections, as far as they are applicable to the scope of work for the project and site in question.
10. Documentation in accordance with “Table A, Optional Survey Responsibilities and Specifications” (Refer to Article 1.11.) is filled out with the required content to be submitted.
11. Hard copy of all documentation stamped and wet signature by licensed PLS responsible for the work.

1.05 QUALITY REQUIREMENTS

- A. Contractor – Company contracted to perform survey work under the direct supervision of a Colorado Registered Professional Land Surveyor with current FAA “Idle Certification”
- B. Subsurface Utilities Engineering (SUE): Refer to Section 011810 "Utilities Interface" for information related to underground utilities.
- C. Surveying accuracies and tolerances in control surveys, construction layouts: See CDOT Survey Manual for acceptable tolerances.

1.06 DEN SITE SURVEY REQUIREMENTS

- A. A site survey, construction survey, or construction as-built survey providing horizontal location and level information of surface features and both above and below ground services and utilities must be completed. This must also be annotated with information (where applicable) relating to the size, direction of and material type.
 1. When collecting utilities, Contractor must be responsible to have all exposed and installed utilities surveyed prior to being covered. If Contractor fails to survey utilities, DEN Project Manager can have the Contractor uncover the utilities so they can be surveyed.
 2. Any temporary works that remain at the completion of the project must also be surveyed.
 3. FAA and DEN Survey codes must be provided by The DEN Project Manager via DEN Survey or Designee and must be used throughout the project by Contractor for as surveyed features.
 4. The most current DEN Civil 3D template must be provided by The DEN Project Manager via the DEN BIM team. All DEN BIM requirements must be met.

1.07 DEN ALIGNMENT MONUMENTATION

- A. Alignment monuments must be set at their corresponding coordinates as shown on the monumentation sheet of the Alignment Plans. When monumenting the Alignment, the Contractor must verify that the latest set of Alignment plans are being used. After the Alignment monument locations are staked in the field, any necessary utility locates should be called for prior to setting the monument.
- B. All Alignment monuments set must be established within the Minimum Horizontal Accuracy Tolerance as required in this chapter for a CDOT Class B – Secondary survey.
- C. Alignment monuments must be set at the locations as shown on the Alignment Plans, which include the following locations:
 1. All angle points or changes of directions.

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2. At the beginning and ending of curves.
 3. At the points of change of direction or changes of radius of any boundary defined by circular arcs.
 4. Not to exceed 1,400 feet apart along any straight boundary line.
 5. Any other points as approved by the Survey Coordinator due to field conditions encountered during setting of the Alignment monumentation.
- D. Alignment monuments must have a witness post installed within 2 ft and facing the monument, or as accepted by DEN Survey. For setting easement monuments, the witness post requirement may be waived by DEN Survey.
- E. Use Orange Carsonite witness post:
- F. All Alignment monument caps set in the field must be stamped with the following:
1. DEN Project Code number
 2. Point number as shown on the Right of Way Plans
 3. Colorado PLS number setting the monument
- G. All Alignment monuments set in the field must be shown on the Final set of Alignment Plans in accordance with the CDOT Right of Way Manual, Chapter 2 – ROW Plans. The Colorado PLS who is in responsible charge for setting the Alignment monuments must stamp her/his number on the monument cap, and must certify on the Alignment Plans to setting of the Alignment monuments in the field.
- H. The Contractor in responsible charge of the Alignment Plans and the Contractor in responsible charge of setting the Alignment monuments in the field might not be the same individual. Therefore, care must be taken to ensure any monuments set in the field at locations different than that shown on the Alignment Plans are communicated to the Alignment plans section, and the final Alignment Plans are corrected to show these new monument locations and descriptions prior to submitting the plans to DEN Survey.
- I. Alignment monuments, witness posts, and monument box materials must be furnished by Contractor.

1.08 FEATURES TO BE RECORDED

- A. Surface and Above Ground Features: The survey of surface features must include, but is not limited to:
1. Structures and Surfaces – paths, driveways, retaining walls, slabs/paved areas, significant structural footings (plinths etc.), poles/ floodlighting.
 2. Drainage Structures – headwalls, open drains, grated drains, culverts.
 3. Roads – edge of pavement, curbs, shoulders, line-marking, bridges, road furniture (NOTE – the top back and bottom face of curb, and all water channels must be surveyed and recorded).
 4. Buildings – footprints, awnings, overhangs, columns, external fixtures (stairs, ramps, plant, etc.).
 5. Fences and Gates – AOA, security, general fencing, gates and handrails.
 6. Aircraft Pavements and Movement Area Structures – finished surfaces, pavement markings, airfield markers/signage/ navigational aids, PLB and other aeronautical infrastructure;

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7. Topographical Features – general topography, embankments, earthworks platforms and surcharge.
 8. Vegetation – gardens, significant trees (>0.2' trunk diameter, decorative shrubs), vegetation stands, riparian zones.
 9. Signage – road, airfield, parking, advertising, other general signage.
 10. Survey Marks – survey control points used, any settlement plates/ monitoring points placed during works.
 11. Airfield panel corner elevations must be derived from digital levels.
- B. Services and Utilities - Prior to any backfilling or covering, information on all underground services must be obtained and documented according to DEN's modified ASCE-SUE Standards, including but not limited to:
1. Electrical (LV and HV) – top of conduit every fifty feet including horizontal and vertical bends, cables and conduits, pits/ manholes and chambers, HV cable joints, earth points and earth mats, substations/ transformers and surrounding pad, pillars, cabinets and switchboards, top of conduits.
 2. Fuel Control – top of conduit every fifty feet including horizontal and vertical bends, cables and conduits, pits/ manholes and chambers, cabinets, emergency shut-off points.
 3. Communications - top of conduit every fifty feet including horizontal and vertical bends, fiber optic, microducts, comms cables and conduits, pits/ manholes and chambers, top of conduit casing/housing.
 4. Drainage – top of pipes at fifty-foot intervals and at every vertical and horizontal bend, inspection openings, pits/ manholes and chambers, roof water drainage (downpipes, small pits/ grates).
 5. Fuel – top of pipes every fifty feet including horizontal and vertical bends, all weld points with weld numbers documented in the point description and in the field notes, pits/ manholes and chambers, valves, hydrants, earth points, test points.
 6. Sewer (note whether gravity or force main) – top of pipes every fifty feet including horizontal and vertical bends, pipes, pipe inverts, pipe outflows, inspection openings, pits/ manholes and chambers, vent pipes, pump stations and associated components.
 7. Water (differentiate between potable and recycled) – top of pipes every fifty feet including horizontal and vertical bends, pits/ manholes and chambers, valves (and type), meters, taps, hydrants, tanks, pumps, irrigation control.
 8. Compressed Air – top of pipes every fifty feet including horizontal and vertical bends, hoses and other fixtures.
 9. Natural Gas / Petroleum– top of pipes every fifty feet including horizontal and vertical bends, valves, tanks, meters.
- C. Sufficient points must be recorded to ensure that the extremities of all surface features, structures and footings are clearly defined and all bends, intersections, and changes of gradient are accurately recorded. The distance between points of location should generally be about 50 feet and must not exceed 100 feet. All curves must be accurately defined using a minimum of three points (two tangent points and one midpoint).
- D. Where actual positions of linear features deviate from a straight line, sufficient additional points of location must be provided to define the deviation – horizontal and/or vertical change in directions.
- E. For systems, utilities, and features not identified herein, refer to PM for direction on capture

requirements

1.09 SURVEY METHODOLOGY – SERVICES AND UNDERGROUND FEATURES

- A. Sufficient points must be recorded to ensure that the extremities of all pits, manholes, and any other features related to the service are clearly defined and all bends, joints, intersections, changes of gradient, and fittings on or along the service, pipe or conduit are accurately recorded. All curves must be accurately defined using a minimum of three points (two tangent points and one midpoint). Where actual positions of linear features deviate from a straight line, sufficient additional points of location must be provided to define the deviation – horizontal and/or vertical change of directions.
- B. The maximum distance between points of location along services must not exceed 50 feet. Horizontal and vertical locations must be surveyed on the top of the utility and must be labeled as “top”. Inverts measurements must also be taken in manholes and must be labeled.
- C. The Contractor must record and annotate all services and utilities with information relating to the size, direction of and material type. The Contractor must record and clearly differentiate between the communication service providers and DEN and/or FAA communications infrastructure.
- D. The Contractor must record the size and orientation of all grates, pits and manholes. Grates and pits must be recorded using a minimum of three corner or edge points. Pit/ manhole chambers only need to be located and where the extents of the chamber extend past the extremities of the pit at surface level. In all instances, any thrust blocks or concrete cover/ protection over services must be located, showing depth.

1.10 EXISTING FEATURES AND SERVICES

- A. Existing Services: where the existence of services and other features on the site of the Work and the Work exposes or interacts with these existing services, the Contractor must locate and record the details of all such features and services.
- B. Tunnel Boring: The Contractor must provide records (logs, profiles etc.) relating to all tunnel boring undertaken as part of the Project. Where appropriate this information must be incorporated into the as-built site survey. Where the contract drawings do not show the existence of certain utilities and features and the Work exposes or interacts with the utilities and features, these must be located and recorded by the Contractor.
- C. Services Alteration/ Abandonment / Demolition: Where existing infrastructure, building services and/or utilities are demolished or services realigned or abandoned this information must be reflected within the as-built site survey. A distinction must be made between services (or part services) which have been abandoned (but left in the ground) and those that have been physically removed.

1.11 SURVEY CHECK LIST

	Yes	No	N/A	Project Kickoff Phase
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did Contractor meet with DEN PM obtain the data standards and general requirements for data gathering?
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did Contractor meet with Airport Survey Office to obtain airport survey control points, projection parameters, and airport survey training materials?
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did Contractor provide Survey Statement of Work to DEN PM?

Exhibit I

TECHNICAL SPECIFICATIONS				DENVER INTERNATIONAL AIRPORT
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4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did Contractor provide Geodetic Verification Survey to DEN PM?
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did Contractor provide Survey Control Plan to DEN PM?
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did Contractor provide Imagery Plan to DEN PM? (Only required if collecting aerial imagery)?
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did the FAA accept survey plans?
	Yes	No	N/A	Construction Phase (As-Built)
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did Contractor perform field survey of project site to collect accurate as-built data?
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did the Contractor provide DEN PM with subsurface utility data?
10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Each week, did the Contractor provide DEN PM with Project Status Reports?
11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did the Contractor provide DEN PM with 25% as-built data in both CADD and GIS formats including all attribute information and metadata?
12a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did DEN PM report 25% QA findings via email to Contractor?
12b	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If required, did the Contractor provide DEN PM with 50% as-built data in both CADD and GIS formats including all attribute information and metadata?
12c	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If applicable, did DEN PM report 50% QA findings via email to Contractor?
12d	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If required, did the Contractor provide the DEN PM with 75% as-built data in both CADD and GIS formats including all attribute information and metadata?
12e	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If applicable, did DEN PM report 75% QA findings via email to Contractor?
13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did the Contractor provide DEN PM with 100% as-built data in both CADD and GIS formats including all attribute information and metadata?
14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did Contractor provide DEN PM with a completed Final Survey Report?
15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did DEN PM report QA findings via email to Contractor?

PART 2 - PRODUCTS (NOT USED)**PART 3 - EXECUTION****3.01 CONSTRUCTION LINES AND GRADES**

- A. The Contractor must make surveys and layouts as necessary to delineate the Work. The Contractor must make the surveys for the proper performance of the Work. As a part of such surveys, the Contractor must furnish, establish, and maintain in good order survey control points that may be required for the completion of the Work subject to the approval of the DEN Project Manager as to their location, sufficiency and adequacy. However, such approval by the DEN Project Manager must not relieve the Contractor of responsibility for the accuracy of the Contractor's survey work.
- B. The DEN Project Manager must have the right to check surveys and layouts made by the Contractor prior to approving any of the Work. The Contractor must give advance notice of not less than forty-eight (48) hours to the DEN Project Manager to enable such checking prior to placing any work. The Contractor must furnish assistance as may be required for

checking purposes when so requested by the DEN Project Manager.

- C. The Contractor must furnish skilled labor, instrument platforms, ladders and such other temporary structures as may be necessary for making and maintaining points and lines in connection with the surveys required.
- D. The DEN Project Manager may draw the Contractor's attention to errors or omissions in lines or grades, but the failure to point out such errors or omissions must not give the Contractor any right or claim nor must in any way relieve the Contractor of obligations according to the terms of this Contract.
- E. The Contractor's instruments and other survey equipment must have current certification from manufacturer's representative Surveys must be performed under the direct supervision of a current Colorado Registered Licensed Land Contractor.
- F. Field Notes:
 - 1. The Contractor must record surveys in field notebooks or as electronic field notes, whichever is more appropriate to the type of survey work.
 - 2. If the DEN Project Manager finds errors in the field notes DEN must have the Contractor correct and resubmit the notes. This review does not relieve the Contractor from the responsibility of maintaining accurate survey data. Whichever method of note-taking the Contractor starts with, the Contractor must use the same method throughout the Contract duration.
- G. The DEN Project Manager may at any time use line and grade points and markers established by the Contractor. The Contractor's surveys are a part of the Work and may be checked by the DEN Project Manager or the DEN Project Manager's representatives at any time.

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 013223.11

SECTION 013223.15**SURVEY INFORMATION****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section covers Denver International Airport (DEN) procedures and accuracy requirements for survey control.
- B. Before commencing any field surveys on DEN property, the Contractor must coordinate a pre-survey preparation activities meeting. This meeting is to be arranged through the DEN Project Manager's Office with the attendance of the Contractor and the DEN Survey Section. The Contractor is responsible for obtaining DEN related survey guidance, Access to DEN survey network, Primary Control, projection parameters, and training materials from the DEN Survey at the pre-survey meeting and/or prior to beginning any survey work.
- C. Survey Project Checklist, provided after the end of this Section, will be reviewed at the pre-survey preparation activities meeting.

1.03 REFERENCE DOCUMENTS:

- A. Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples".
- B. Latest version of Federal Aviation Administration Advisory Circular 150/5300
- C. Latest Version of DEN BIM DSM (Design Standards Manual)
- D. Latest Version of Colorado Department of Transportation (CDOT) Survey Manual.
- E. Latest Version of Minimum Standard Detail Requirements for ALTA/ NSPS Land Title Survey

1.04 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for the submittal process.
- B. Survey Statement of Work (SSOW):
 - 1. The Contractor must develop a complete SSOW in accordance with Specification Section 013223.11, "Construction Layout and As-Built Surveys".
- C. Survey and Quality Control Plan (SQCP):
 - 1. The Contractor must develop a complete SQCP in accordance with Specification Section 013223.11, "Construction Layout and As- Built Surveys".

1.05 QUALITY REQUIREMENTS

- A. Equipment Calibration:
1. Equipment must be regularly checked, and calibrated for accuracy at the beginning of any survey project to ensure that the equipment is operating appropriately. Errors due to poorly maintained or malfunctioning equipment will not be accepted. If any equipment errors are found to exist they must be reported to the DEN Survey prior to the start of any surveying. These errors must be verified and eliminated prior to performing any survey work. For projects lasting longer than six (6) months, the checking, and calibration of equipment must be repeated. Furthermore, documentation must verify such equipment has met acceptable tolerances.
 2. The Contractor must submit to the DEN Project Manager written proof that survey equipment has been checked and calibrated before commencing any survey work. If repairs are made, documentation of such repairs from an authorized equipment vendor must be submitted.
- B. See CDOT Survey Manual for acceptable procedures for calibrating equipment electronic survey instruments adjustments, calibration, or repairs:
1. All electronic survey instruments must be repaired, adjusted, or calibrated only by an authorized equipment vendor or manufacturers service department.
 2. A calibration check on all types of electronic survey instrumentation is essential to obtain and maintain the tolerances required for any DEN project. At the beginning of any DEN project, all survey equipment utilized to perform the survey must be calibrated by the surveyor in charge of the Project.
 3. See CDOT Survey Manual for acceptable procedures for calibrating equipment.
- C. Baseline Calibration Requirements:
1. See CDOT Survey Manual for the procedures to check the survey equipment and the method of reporting the findings to the DEN Project Manager and the DEN Survey Section.
 2. The Contractor must submit to the DEN Project Manager written proof that survey equipment has been checked and calibrated before commencing any survey work. If repairs are made, documentation of such repairs from an authorized equipment vendor must be submitted.

1.06 SURVEY CONTROL

- A. DEN utilizes its own local coordinate system that is tied to the National Spatial Reference System (NSRS). The DEN Survey Section will provide the data required to use this coordinate system during the mandatory pre-survey preparation activities meeting. The DEN Survey Section will also provide coordinates for all Primary Control Points based upon the location of the Project.
- B. The coordinates of the Primary Airport Control Station (PACS) and Secondary Airport Control Station (SACS) were correct at the time of installation (or subsequent date listed on the plan) but may be subject to the effects of subsequent subsidence and/ or disturbance. Marks with any noticeable signs of disturbance, damage, or location out of tolerance must be reported so that they can be repaired and/ or noted on the control plan. In addition, any marks that have been or will be destroyed either before or during Works must be noted and mentioned in the Survey Statement of Work and the Survey and Quality Control Plan. If removed or destroyed, the Contractor will create a plan and must replace the PACS or SACS.

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- C. DEN is based on the North American Vertical Datum of 1988 (NAVD 1988). Vertical Control and Bench Marks must be tied into this datum. DEN has existing established National Geodetic Survey (NGS) vertical stations around its property and these points must be used in all DEN projects. Project control points must be established by performing measurements with a digital level from at least two NGS vertical stations that are given by the DEN Survey Section. The benchmarks used to establish ties to the datum must be shown in the Contractor's notes and on the CSP.
- D. The Contractor will be provided survey control from the DEN Survey Section. If the nearest NGS Vertical Station is a considerable distance from the site, the Contractor may establish a Temporary Survey Control Point (TSCP) near the site. Appropriate survey procedures must be used to establish any additional TSCP. A minimum of 3 TSM must be established for the project. Each must be visible and tied to at least 2 separate TSCP or PACS and/or SACS. It is the Contractor's responsibility to verify the stability of the mark over the life of the project. Where unacceptable discrepancies in control marks due to land settlement, disturbance or from other factors are apparent, the Contractor must refer the matter to DEN Project Manager for resolution prior to the continuation of Work.
- E. Horizontal Control is based on a local coordinate system. The Contractor must establish reliable horizontal control that will last the duration of the Project. Where unacceptable discrepancies in control marks due to land settlement, disturbance or from other factors are apparent, the Contractor must refer the matter to DEN Project Manager for resolution prior to the commencement of Work. The horizontal control establishing ties to the datum must be shown in the Contractor's notes and on the CSP.
- F. Geodetic Verification Survey Instructions and Procedures:
1. The geodetic verification survey is created to insure the stable position of the DEN Primary control points that are used to reference the TSCP to the NSRS. Acceptable monuments will be identified by the DEN Survey Section and will be limited to monuments of the NSRS with permanent identifiers (PIDS) and published positions and elevations. Temporary design/construction control points established for such project will be referenced by direct measurement to at least two (2) separate NGS control stations.
 - a. The Contractor must recover each identified monument and determine its condition, stability, and suitability for the intended use. A location sketch and visibility diagram will be prepared for each station. A minimum of three (3) digital photographs, one of each type described in AC 150/5300-18B, Section 1.5.2.1, will be captured, captioned, and properly named. A recovery note will be filed with NGS if no current recovery is shown in the NSRS database.
 - b. After recovering the identified NSRS NGS control stations that are located on DEN property, the procedure to verify the control points are as follows:
 - 1) DEN has created its own Virtual Reference System (VRS) Network that will be used on all survey projects. This network will be known as DENVRS.
 - a) This system is comprised of hardware and software designed to facilitate real-time GPS/GNSS positioning based on a set of reference stations.
 - b) DEN has created a control network that incorporates fifteen (15) Primary Control Points tied together with the reference stations for the DENVRS,
 - c) This network, in turn, is tied to the National Spatial Reference System (NSRS).
 - d) DEN will be monitoring the stations on an annual basis and the primary control points on an annual basis and the primary control points on a quarterly basis.
 - 2) The Consultant is required to validate the DENVRS by observing at least two (2) Primary control points using a Fast Static method

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- a) Fast Static surveys allow for systematic errors to be resolved when high accuracy positions are required by collecting simultaneous data between stationary receivers for a shorter period of time than that of Static surveys. DEN will require an observation time of (15) minutes on all Primary control points. Each baseline between adjacent intervisible control points must be observed at least twice.
 - 3) The results must be reviewed and approved by the DEN Survey Office, allowing at least seventy-two (72) hours to review and either approve or reject the temporary control. All temporary control points **MUST BE** accepted before any design survey work can commence.
 - 4) Obtain elevation checks either from GPS observations or from digital levels. The distances must agree within, plus or minus, three (± 3) cm; the difference in ellipsoidal height must agree within, plus or minus, four (± 4) cm, and the difference in orthometric height must agree within, plus or minus, five (± 5) cm. If the tolerances are not met the data must be recollected.
 - 5) Provide the results or the comparisons as part of the observational data in a report to the DEN Project Manager to be reviewed and approved by the DEN Survey Section prior to the start of construction and include this approved report in the final report.
 - 6) Submit a Recover Observe Report for the NGS horizontal control stations to the NGS. Refer to <https://www.ngs.noaa.gov/GPSonBM/Report.shtml> for the report format.
- G. Limitations and Additional Information for NGS Control Stations and NGS Benchmarks:
1. The use of control monuments and projection parameters for construction layout other than those shown on the Contract Drawings or furnished by or approved by the DEN Survey Section is **STRICTLY PROHIBITED**. Use of other monuments is solely at the risk of the Contractor.
 2. The DEN Survey Section will provide the Contractor with the projection parameters and any assistance in implementing the coordinate system. It is up to the Contractor to use the correct methodology in performing any survey task which must be submitted to the DEN Project Manager and reviewed during the pre-survey preparation activities meeting.
 3. The DEN Project Manager will need all pertinent data from the Contractor to check and verify that the Contractor implemented the coordinate system correctly.
- H. Modifications to AC 150/5300-18B, Section 2.6.10.1.1, Verification of Survey Marks:
1. DEN requires Contractor to verify the unmoved position and elevation of both the PACS and SACS for any airside projects and any two (2) DEN approved NGS control stations for any landside project.
 2. The Contractor must follow the same verification procedure as stated in Section G above.
- I. Reporting Damage or Errors of NGS Control Stations:
1. Report damaged or destroyed airport control points, bench marks, and section corner monuments promptly to the DEN Project Manager.
 - a. If section corner monuments are damaged or destroyed during construction activities, such points must be re-established pursuant to Laws of the State of Colorado Regulating the Practice of Land Surveying by a current Registered Professional Land Contractor in the State of Colorado.
 - b. If NGS control stations or NGS bench marks are damaged, moved, altered, or destroyed by the Contractor, DEN's cost of reestablishing such points must be

- borne by the Contractor.
- c. DEN will not be responsible for any increased costs or delays to the Contractor relating to reference points, airport control points, or bench marks which are damaged, moved, altered, or destroyed by the Contractor or its, suppliers, agents or employees or other Contractors working on the site.
2. Report alleged errors in NGS control stations or NGS bench marks promptly to the DEN Project Manager.
 - a. Discontinue use of NGS control stations or NGS bench marks alleged to be in error until the accuracy of points can be verified or as directed.
 - b. Claims for extra compensation for alteration or reconstruction allegedly due to errors in NGS control stations or NGS benchmarks will not be allowed unless original NGS control stations and NGS bench marks still exist or substantiating evidence proving error is furnished by the Contractor, and unless the Contractor has reported such errors to the DEN Project Manager as specified herein.

1.07 TEMPORARY SURVEY CONTROL

- A. The Contractor MUST set a minimum of either 'chiseled X' in concrete; a drill hole with lead and tack in concrete; a PK nail with shiner in asphalt or concrete or a 5/8" rebar with plastic cap in natural ground. An 'Inked X' set as a control point is UNACCEPTABLE.
- B. When a Contractor establishes TSCP for DEN survey work the Contractor MUST follow FAA guidelines. All TSCP must be referenced to the National Spatial Reference System (NSRS) using the NGS control stations provided by the DEN Survey Section. Temporary control may be necessary based on project site location. Below are the acceptable means to establish temporary geodetic control for DEN design or construction projects:
 1. Temporary control must be established under close cooperation with the DEN Survey Section following the procedures outlined in AC150/5300-16 "General Guidance and Specifications for Aeronautical Surveys: Establishment of Geodetic Control and Submission to National Geodetic Survey" only in the following cases:
 - a. Large airport construction projects that significantly changes the airport geometry and would trigger the need to acquire new Digital Stereo Imagery following AC 150/5300-17 "General Guidance and Specification for Aeronautical Survey Airport Imagery Acquisition and Submission to the National Geodetic Survey". Examples include a new runway and taxiway complex, significant modification of existing runway or taxiway system, development of new outboard deice pad complex or establishment of new mid airfield concourse and terminal complex. The size and complexity of the Project will dictate the need to acquire new digital stereo imagery for significant construction.
 - b. Construction that establishes a new ILS CAT II/III Operations.
 - c. New Instrument Development Procedure.
 - d. New Airport Layout Plan Survey Update.
 - e. New Airport Obstruction Chart Update.
 - f. New Airport Mapping Database.
 2. On DEN projects, the Contractor, may use TSCPs on their project site. These TSCP must be referenced to the nearest two (2) DEN primary control points and MUST BE referenced vertically to two (2) different NGS benchmarks. Also, all Contractors MUST obtain permission to establish TSCPs on DEN property by means of communicating with the DEN Survey Section.
 3. In addition, all vertical control MUST BE established only using a digital level unless otherwise authorized by the DEN Survey Section.
 4. Minimum Construction Horizontal and Vertical Accuracy Tolerance:

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- a. Adjustments:
 - 1) No adjustment of the survey field data will be permitted without the written consent of the DEN Project Manager. If it is determined that an adjustment is necessary, a weighted least squares adjustment method is recommended.
- b. Primary NGS vertical stations values must be held unless the Contractor has determined that there is an issue with one of the values. If this is the case, the Contractor must notify the DEN Project Manager to determine which other Primary stations can be used.
- c. Secondary Control Project Benchmark Minimum Vertical Accuracy Tolerance:
 - 1) Setting of secondary control benchmarks must meet the Minimum Vertical Accuracy Tolerance of the square root of the total horizontal distance of the level loop in miles multiplied by 0.035 feet.
 - 2) The results of this evaluation must be recorded in the field book for each differential level loop. At least two (2) established NGS benchmarks on the same datum must be used to verify that the starting mark has not been disturbed.
5. Whether establishing TSCPs or not, the Contractor must set up a Pre-Survey Preparation Activity meeting with the DEN Project Manager to discuss Geodetic Control Verification, obtain pertinent survey data, and projection parameters before the commencement of any survey work.
6. If TSCPs are needed, the Contractor can set and collect temporary control while performing as outlined in Part 1 of this Section. Once the data is collected the Contractor is required to submit all pertinent data to the DEN Project Manager. This data must include all GPS raw data in a Trimble format with an Excel spreadsheet that displays the comparison from each observation of the NGS control stations. The comparison must include showing the delta northings, delta eastings, and delta elevations for each redundant pair of control points Contractor Only the redundant values of the TSCPs should be averaged. The results must be reviewed and accepted by the DEN Project Manager, allowing at least seventy-two (72) hours to review and either approve or reject the temporary control. All TSCPs MUST BE approved before any survey work can commence.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 013223.15

SECTION 013223.19**QUANTITY SURVEYS****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section covers Denver International Airport DEN procedures and accuracy requirements for survey services for construction layout, as-built and quantity surveys.
- B. Before commencing any field surveys on DEN property, the Contractor must coordinate a pre-survey preparation activities meeting. This meeting is to be arranged through the DEN Project Manager's Office with the attendance of the Contractor, the Contractor's surveyor, and the DEN Survey Section. The Contractor is responsible for obtaining DEN related survey guidance, primary control stations, projection parameters and training materials from the DEN Survey Section prior to beginning any survey work.
- C. Reference Contract General Conditions.

1.03 REFERENCE DOCUMENTS:

- A. Section 013326 "Survey Control".
- B. Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples".
- C. Latest version of Federal Aviation Administration Advisory Circular 150/5300
- D. Latest Version of DEN BIM DSM (Design Standards Manual)
- E. Latest Version of Colorado Department of Transportation (CDOT) Survey Manual.
- F. Latest Version of Minimum Standard Detail Requirements for ALTA/ NSPS Land Title Survey

1.04 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for the submittal process.
- B. Weekly Project Status Report:
 - 1. Contractor must submit a project status report in compliance with FAA AC 150/5300-18B to the DEN Project Manager every Monday by 2:00 P.M. Mountain Time, from the date of the task order until the date of Substantial Completion
 - 2. The Weekly Project Status Report must use format from AC 150/5300-18B
- C. Final Project Survey Report:

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1. The Final Project Survey Report, must use format from AC 150/5300-18B
2. Final Project Survey Report must be stamped and wet signed by a current Colorado Registered Professional Land Surveyor.

1.05 QUALITY REQUIREMENTS**A. Equipment Calibration:**

1. Equipment must be regularly checked, and calibrated for accuracy at the beginning of any survey project to ensure that the equipment is operating appropriately. Errors due to poorly maintained or malfunctioning equipment will not be accepted. If any equipment errors are found to exist they must be reported to the DEN Survey prior to the start of any surveying. These errors must be verified and eliminated prior to performing any survey work. For projects lasting longer than six (6) months, the checking, and calibration of equipment must be repeated. Furthermore, documentation must verify such equipment has met acceptable tolerances.
2. The Contractor must submit to the DEN Project Manager written proof that survey equipment has been checked and calibrated before commencing any survey work. If repairs are made, documentation of such repairs from an authorized equipment vendor must be submitted.

B. See CDOT Survey Manual for acceptable procedures for calibrating equipment electronic survey instruments adjustments, calibration, or repairs:

1. All electronic survey instruments must be repaired, adjusted, or calibrated only by an authorized equipment vendor or manufacturers service department.
2. A calibration check on all types of electronic survey instrumentation is essential to obtain and maintain the tolerances required for any DEN project. At the beginning of any DEN project, all survey equipment utilized to perform the survey must be calibrated by the surveyor in charge of the Project.
3. See CDOT Survey Manual for acceptable procedures for calibrating equipment.

C. Baseline Calibration Requirements:

1. See CDOT Survey Manual for the procedures to check the survey equipment and the method of reporting the findings to the DEN Project Manager and the DEN Survey Section.
2. The Contractor must submit to the DEN Project Manager written proof that survey equipment has been checked and calibrated before commencing any survey work. If repairs are made, documentation of such repairs from an authorized equipment vendor must be submitted.

PART 2 - PRODUCTS (NOT USED)**PART 3 - EXECUTION****3.01 QUANTITY SURVEYS FOR PAYMENT**

- A. When the specifications or the DEN Project Manager require items in the Schedule of Prices and Quantities to be measured by surveying methods, the Contractor must perform the surveys.
- B. All such surveys, including control surveys run for establishing the measurement reference lines, must be performed in the presence of the DEN Project Manager or the DEN Project

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Manager's representative who will witness the surveying operation and who will acknowledge receipt of the field notes or keep duplicate field notes, at the DEN Project Manager's option.

- C. The Contractor must reduce the field notes and calculate final quantities for payment purposes. The note reductions and calculations must be given to the DEN Project Manager.

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 013223.19

SECTION 013300**SUBMITTAL PROCEDURES****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. The Work specified in this Section summarizes the requirements for the submittal of documents to the DEN Project Manager that are defined in these Specifications. It also describes the procedures for "supplemental" submittals.
- B. The Contractor must follow all the requirements of the procedures and the product details and keep all the submittals current and approved prior to any placement of work.

1.03 SUBMITTAL SCHEDULE

- A. The Contractor shall provide a submittal schedule within 14 days after Notice to Proceed. The Submittal Schedule shall be directly related to the CPM schedule, shall identify all the submittals, and shall include the following information for each submittal item
1. Specification section, Contract article, or special condition.
 2. Specification Subparagraph.
 3. Item description.
 4. Date the submittal shall be submitted.
 5. Name of subcontractor or supplier.
- B. The submittal schedule shall be kept current by the Contractor and submitted with the progress payment requests.
- C. For large files that cannot be loaded or e-mailed through the electronic Project Manager application (Unifier), submit the files on a CD, DVD, or USB flash drive media.

1.04 ELECTRONIC SUBMITTALS

- A. Before the initiation of the submittal process, coordinate and ensure that all submittals comply and follow the requirements of the DEN Building Information Modeling (BIM) Design Standards Manual (DSM) and the DEN BIM PXP.
- B. Submit request for progress payment applications utilizing TEXTURA software as instructed by DEN Project Manager.
- C. Submit Subcontractor's Contract information required by the City and County of Denver Small Business Office as instructed by DEN Project Manager.
- D. Submit original electronic copies of all City and County of Denver Development Department/ Building Inspection Department Approved drawings including all approvals of Deferred Submittals; including but not limited to shoring plans, Fire Protection distribution

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plans, and structural shop drawings to DEN Project Manager as Informational Submittals. The lack of approval of the Denver Development Services on any document shall be basis for rejection of Work and non-compliance.

1. NOTE: Only original copies shall be accepted. Scans will not be accepted.
- E. Submit electronically scanned copies of all documents required by Chapter 17 “Special Inspection and Testing” of the International Building Code 2009 as amended by City and County of Denver 2011. Keep scale and clarify dimension where electronic copies are not as originally scaled and dimensioned.
- F. All submittals shall be delivered to the DEN Project Manager utilizing the Primavera Construction Manager program (PCM) as attachments and as separate file when files are too large to attach or of an electronic media that is not supported by PCM or Utilizing the EPPM Unifier software uploaded to the share drive Unifier's project site when directed by DEN Project Manager.
1. Acceptable electronic formats
 - a. Print document format (pdf) shall have no security and bookmark every applicable submittal. All pages shall be completely legible and oriented to correct reading view.
 2. Formats are acceptable only with written permission of the DEN Project Manager or required by the BIM PXP. For files in any of the following formats, the corresponding stringency will apply:
 - a. Microsoft Office 2007 or newer. All files shall be fully compatible with Microsoft Office 2007.
 - 1) AutoCAD files shall be self-contained with no external x-references.
 - b. BIM files shall conform to the standards and formats outlined in the BIM PXP and DEN BIM DSM.
 - c. Portable Document Format (PDF) files shall be compatible with Adobe Acrobat 10.0, non-password-protected, and security-free.
 - d. Other files pre-approved by the DEN Project Manager.

1.05 INITIAL SUBMITTAL

- A. Each submittal document shall include a title block showing the following information:
1. Date of submittal and revision dates.
 2. Contract title and number.
 3. The names of Contractor, subcontractor, supplier, manufacturer and when applicable, the seal and signature of an Engineer registered in the State of Colorado, for the involved discipline.
 4. Identification of product by either description, model number, style number or lot number.
 5. Subject identification by Contract Drawing or specification reference.
- B. On each submitted drawing, include a blank space on each sheet, three inches by four inches, in the lower right corner, just above the title block, in which the DEN Project Manager or the Designer of Record may indicate the action taken.
- C. Make submissions sufficiently in advance so that the DEN Project Manager Review may be completed not less than 30 days before Work represented by those submittals is scheduled to be performed.

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- D. Allow a minimum cycle of 30 days for review of each submittal by the DEN Project Manager.
- E. Accompany submittal documents with DEN transmittal form CM-30, Submittal, which shall contain the following information:
1. Contractor's name, address and telephone number.
 2. Submittal number and date.
 3. Contract title and number.
 4. Supplier's, manufacturer's, or subcontractor's name, address and telephone number.
 5. Identification of variations from Contract Documents.
 6. Contractor's stamp and signature certifying the Contractor's review.
 7. Identification of submittal:
 - a. If the submittal is being made on a General Condition or Special Condition, reference the General or Special Condition number the first two digits of the specification section shall be 00XXXX.
 - b. If the submittal is being made under a specification section, reference the specification number, paragraph number, and subparagraph number.
 - c. If the submittal is being made under a drawing, reference the drawing(s) number and sub-number.
- F. The Contractor shall describe, at the time of submission, variations from the Contract documents in writing, separate from the submittal document. If the DEN Project Manager approves any such variations, an appropriate Contract change order shall be issued, except that if the variation is minor and does not involve a change in price or in time of performance, a modification need not be issued. If a submission contains variations and the variation column is not marked on the transmittal form, it will not be considered for review and acceptance. Along with marking the transmittal as a variation, a description must be included which outlines all the differences including maintenance and utility services along with any cost savings from an item not containing the variation.
- G. Changes in accepted submittal documents will not be permitted unless those changes have been accepted, in writing, by the DEN Project Manager.
- H. The form and quality of submittal documents shall comply with Section 013325 "Shop and Working Drawings, Product Data, and Samples."

1.06 SUPPLEMENTAL SUBMITTALS

- A. Supplemental submittal documents initiated by the Contractor for consideration of corrective procedures shall contain sufficient data for review. Make supplemental submittals in the same manner as initial submittals with the appropriate primary transmittal referenced.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 CONTRACTOR'S REVIEW

- A. The Contractor shall review all submittal documents, stamp, and sign as reviewed and approved as complying with Contract Documents prior to submission to the DEN Project Manager. Submittal documents that are submitted to the DEN Project Manager THAT

HAVE NOT BEEN REVIEWED BY THE CONTRACTOR will not be reviewed and will be returned to the Contractor. Contractor is responsible for any delays in the Project due to improperly reviewed, stamped, and signed submittals.

- B. The Owner review period will be limited to ten (10) business days from the time complete submittal documents have been submitted.
- C. The Contractor is responsible to obtain all approvals for all deferred submittals, shop drawings, and significant changes from the CCD Development Service Department.
- D. All submittals must delineate any deviation from the intended design and must submit request for substitution to address any significant variation. Refer to Title 4, Article 405 – Shop Drawings, Product Data, and Samples, and Article 406 – Substitution of Materials and Equipment of the General Contract Conditions, 2011 Edition.

3.02 REVIEW BY DEN PROJECT MANAGER

- A. Submittal documents will be reviewed by the DEN Project Manager, the DEN Project Manager Team, and/or the DOR for conformance to requirements of the Contract Documents. Review of a separate item will not constitute review of an assembly in which the item functions. The DEN Project Manager will withhold approval of submittals that depend on other submittals not yet submitted. Review and acceptance will not relieve the Contractor from the Contractor's responsibility for accuracy of submittals, for compliance with all applicable regulations, for compliance with all codes and specifications, for conformity of submittal document to requirements of Contract Drawings and specifications, for compatibility of described product with contiguous products and the rest of the system, or for protection and completion of the Contract in accordance with the Contract Drawings and specifications. Acceptance is not verification or certification that the submittals comply with all requirements nor does it guarantee approval by the Denver Building Department or Denver Fire Department.
- B. The City, the DOR, and/or the DEN Project Manager will review the submittal documents for general conformance with the Contract Documents and mark the Action Code, sign, and date the transmittal.
- C. The Action Codes have the following meanings:
 - 1. Accepted (ACC)
 - a. The submittal conforms to the respective requirements of the contract documents.
 - 2. Accepted as Noted (AAN)
 - a. The submittal conforms to the respective requirements of the Contract Documents after changes are made in accordance with reviewer's comments. AAN submittals do not need to be resubmitted.
 - 3. Revise and Resubmit (R&R)
 - a. The submittal is unacceptable and must be revised and resubmitted.
 - 4. Rejected (REJ)
 - a. The submittal is not approved and a new submittal in accordance with the Contract Documents must be prepared and submitted.
 - 5. For Information Only (FIO)
 - a. An item is received by the DEN Project Manager but is not reviewed.

3.03 CONTRACTOR'S RESPONSIBILITIES

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- A. Coordinate each submittal document with the requirements of the Work. Place particular emphasis upon ensuring that each submittal of one trade is compatible with other submittals of that trade and submittals of other trades including producing as needed drawings showing the relationship of the Work of different trades.
- B. Contractor's responsibility for errors and omissions in submittal documents and associated calculations is not relieved by the DEN Project Manager's review, correction, and acceptance of submittals.
- C. Contractor's liability to the City, in case of variations in the submittal document from the requirements of the Contract Documents, is not relieved by the DEN Project Manager's review and acceptance of submittals containing variations unless the DEN Project Manager expressly approves the deviation in writing, in which the DEN Project Manager describes the variation.
- D. The Contractor shall maintain a file of all approved submittal documents at the work site. The complete file of approved submittal documents shall be turned over to the DEN Project Manager with the as-built documents at the end of the job.
- E. Schedule impact due to resubmittal requirements is the responsibility of the Contractor.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 013300

SECTION 013325**SHOP AND WORKING DRAWINGS, PRODUCT DATA, AND SAMPLES****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. The Work specified in this Section consists of preparing and submitting shop and working drawings, product data, samples, and record documents required by other specifications Sections.
1. The Contractor shall submit all shop drawings, working drawings, product data, and samples, as defined in the General Conditions, to the DEN Project Manager in accordance with the requirements in the technical specifications. The DEN Project Manager will return one (1) copy of the shop drawings, working drawings and product data to the Contractor with a written transmittal.
- B. The Contractor shall not submit as shop drawings, copies or reproductions of drawings issued to the Contractor by DEN.
- C. Related Requirements
1. Section 013300 "Submittal Procedures"
 2. Section 012510 "Substitutions"
 3. Section 017720 "Contract Closeout"

1.03 SUBMITTALS

- A. All submittals shall be delivered to the DEN Project Manager in electronic format. All submittals must be of a consistent format (all PDF). No combination of electronic file types will be allowed unless required by a specific specification section.
1. Acceptable electronic formats: Comply with the electronic file formats approved by DEN Building Information Modeling (BIM) Design Standards Manual. If any of the files are in any of the formats listed below then the version of the software shall be no less than identified below:
 - a. Adobe Acrobat 8.0 or newer. All files shall be fully compatible with Adobe Acrobat 8.0.
 - b. Microsoft Office 2007 or newer. All files shall be fully compatible with Microsoft Office 2007.
 - c. AutoDesk AutoCAD 2007 or newer. All files shall be fully compatible with AutoDesk AutoCAD 2007.
 - 1) AutoCAD files shall be self-contained with no external x-references.
 - d. BIM format outlined in the BIM Project Execution Plan (PXP)
 - e. Other files pre-approved by the DEN Project Manager.
 2. Adobe Acrobat Requirements:
 - a. Drawings shall have security set to "No Security." Commenting, printing, adding

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- photos, form fields and document signing must be allowed.
- b. PDF submittals shall be one continuous file or Portfolio. No external links are allowed.
 - c. All individual components of submittals shall be bookmarked inside the PDF file.
 - d. All original documents shall be directly converted from the original electronic format to PDF. Scanning of files shall only be allowed by the DEN Project Manager when the original electronic information is not obtainable.
 - e. Failure to comply with these requirements will result in a return of file to the Contractor for immediate revision.
3. Electronic files submitted shall correspond with DEN File Control Numbering System available from the DEN Project Manager.
- B. Quantities**
1. One (1) electronic submittal in Unifier containing electronic files of each shop or working drawing.
 2. One (1) electronic submittal in Unifier containing electronic files of manufacturer's standard schematic drawings.
 3. One (1) electronic submittal in Unifier containing electronic files of manufacturer's calculations and manufacturer's standard data.
 4. One (1) electronic submittal in Unifier containing electronic files of manufacturer's printed installation, erection, application, and placing instructions.
 5. Nine (9) samples of each item specified in the various specification sections, unless otherwise specified.
 6. One electronic submittal in Unifier containing electronic files of inspection, test reports, and certificates of compliance.
 7. Note: If manufacturer's printed information is in color, all copies of submittals must be in color.
- C. Review:**
1. Submittal review comments by the DEN Project Manager will be in electronic form and incorporated into the electronic submittal file.
 2. Resubmittals of electronic documents shall modify the original electronic file with new information and include the DEN Project Manager's comments with appropriate responses and additional information.

1.04 CHANGES

- A. Changes in products for which shop or working drawings, product data or samples have been submitted will not be permitted unless those changes have been accepted and approved in writing by the Deputy Manager of Aviation as provided in Section 012510 "Substitutions."

1.05 QUALITY CONTROL

- A. Shop drawings and record documents shall be prepared to the standards of quality outlined in the specifications, DSM and BIM PXP, prepared and printed from Revit and checked in the spatial coordination format specified in the BIM PXP.
- B. Refer to DEN DFI DSM for other requirements that may be applicable to this Article.

PART 2 - PRODUCTS**2.01 SHOP AND WORKING DRAWINGS**

- A. Prepare shop and working drawings in an electronic format that is current and approved by DEN to a scale large enough to easily depict and annotate each of the various items.
- B. Comply per other BIM requirements for Shop and Working Drawings as established in the DEN BIM DSM.
- C. Include the following as they apply to the subject:
 - 1. Contract title, work order, and number.
 - 2. Respective Contract drawing numbers.
 - 3. Applicable specification section numbers.
 - 4. Relation to adjacent structure or materials.
 - 5. Field dimensions clearly identified as such.
 - 6. Applicable standards such as ASTM or Federal Specification number, FAA, AASHTO, and pertinent authority specifications or standards.
 - 7. Identification of deviations from the Contract Drawings and specifications.
 - 8. Drawing name, number, and revision.
 - 9. Contractor's stamp, initialed or signed, certifying:
 - a. Verification of field measurements.
 - b. Review of submittals for compliance with Contract requirements.
 - c. Compatibility of the Work shown thereon with that of affected trades.
 - 10. Blank space on each sheet per Technical Specifications Section 013300 "Submittal Procedures."
- D. Drawings of equipment and other items that contain multiple parts shall include exploded views showing the relationship of parts and the description of the parts into the smallest units that may be purchased or serviced.
- E. Comply with all submittal requirements of Section 013300 "Submittal Procedures."

2.02 PRODUCT DATA

- A. Modify manufacturer's standard and/or schematic drawings to delete information that is not applicable to the Contract. Supplement standard information with additional information applicable to this Contract.
- B. Modify manufacturer's standard(s), diagrams, schedules, performance charts, illustrations, calculations, and other descriptive data to delete information that is not applicable to the Contract. Indicate dimensions, clearances, performance characteristics, and capacities. Include with the submittal electrical, plumbing, HVAC, and any other diagrams, as applicable.
- C. Modify erection, application, and placing instructions to delete information that is not applicable to the Contract or work order.
- D. Include the following:

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1. Contract title, work order, and number.
 2. Respective Contract drawing numbers.
 3. Applicable Contract technical specification section numbers.
 4. Applicable standards such as ASTM or Federal Specification number, FAA, AASHTO and pertinent authority specifications or standards.
 5. Identification of deviations from the Contract Drawings and specifications.
 6. Contractor's stamp, initialed or signed, certifying:
 - a. Dimensional compatibility of the product with the space in which it is intended to be used.
 - b. Review of submittals for compliance with Contract requirements.
 - c. Compatibility of the product with other products with which it is to perform or which will be next to it.
 - d. The products electrical, plumbing, control and HVAC requirements conform to Contract Documents and the necessary utilities are provided for in the Contract Documents.
- E. Comply with all submittal requirements of Section 013300 "Submittal Procedures."

2.03 SAMPLES

- A. Submit samples of sizes and quantities to clearly illustrate full color range and functional characteristics of products and materials including attachment devices.
- B. Erect field samples and mockups at the work site as specified in specification Sections and at locations acceptable to the DEN Project Manager. All field samples shall be erected in a location that will be readily visible throughout the life of the Contract to allow comparison of the Work as it progresses to the field sample. Field samples and mockups may be incorporated into the Work at Contractor's risk if approved by DEN Project Manager.
- C. The Contractor shall verify, through appropriate inspections and tests, that the samples submitted meet the specifications and shall provide inspection and test data with the samples. The review and comments on the sample shall not relieve the Contractor of the Contractor's responsibility for completion of the Contract.
- D. Show the following information:
 1. Contract title and number.
 2. Respective Contract drawing numbers.
 3. Applicable technical specification section numbers.
 4. Applicable standards such as ASTM or Federal Specification number.
 5. Identification of deviations from the Contract Drawings and specifications
 6. Contractor's stamp, initialed or signed, certifying:
 - a. Dimensional compatibility of the product with the space in which it is intended to be used
 - b. Review of submittals for compliance with Contract requirements
 - c. Compatibility of the product with other products with which it is to perform or which will be next to it
 7. If multiple samples are submitted and the DEN Project Manager is requested to make a choice, each sample shall have a unique identification number attached to it so the

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returned transmittal can state the identification number of the accepted sample and the Contractor will know which one it is.

- E. Comply with all submittal requirements of Section 013300 "Submittal Procedures."

PART 3 - EXECUTION

3.01 CONTRACTOR RESPONSIBILITIES

- A. Verify field measurements, catalog numbers, and similar data.
- B. The Contractor shall not start work for which submittals are required until a transmittal has been received by the Contractor marked with the Action Code ACCEPTED or ACCEPTED AS NOTED by the DEN Project Manager.
- C. Before making submittals, ensure that the products will be available in the quantities and at the times required by the Contract.
- D. Submit final, corrected, electronic copies of Contract and shop and working drawings showing the Work as actually installed, placed, erected, and applied. Refer to Section 017720 "Contract Closeout."

3.02 REVIEW BY THE DEN PROJECT MANAGER

- A. One (1) electronic copy of the marked-up shop and working drawing and one (1) electronic copy of the product data will be returned to the Contractor by the DEN Project Manager. Only the transmittal form appropriately marked with the Action Code and comments, if any, will be returned on sample submittals.
- B. Contractor's responsibility for errors and omissions in submittals for compatibility will not be reduced, waived or otherwise limited by the review and acceptance of submittals by the DEN Project Manager. Review and acceptance will not relieve the Contractor from the Contractor's responsibility for accuracy of shop drawings, for compliance with all codes and specifications, for conformity to requirements of Contract Drawings and specifications, for compatibility of products with contiguous products and the rest of the system, or for protection and completion of the Contract in accordance with the Contract Drawings and specifications. Approval is not verification or certification that the shop drawings comply with all requirements nor does it guarantee approval by the Denver Building Department or Denver Fire Department.

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

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END OF SECTION 013325

SECTION 013510 - CONSTRUCTION SAFETY**PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.
- B. For Airside Construction Projects Related Specification Sections include:
 - 1. Section 011420 "Security Requirements and Sensitive Security Information".
 - 2. Section 011430 "Vehicle and Equipment Permitting".
 - 3. Section 011810 "Utilities Interface".

1.02 SUMMARY

- A. Work specified in this Section includes construction safety precautions and programs by the Contractor and the basis for reviews by the DEN Project Manager.
- B. For projects enrolled under a DEN Owner Controlled Insurance Program (OCIP) or Rolling Owner Controlled Insurance Program (ROCIP) reference the Contract Special Conditions and applicable DEN OCIP or ROCIP Safety Manual, included as Contract Documents, for additional safety requirements.
- C. For projects not enrolled under a DEN Owner Controlled Insurance Program (OCIP) or DEN Rolling Owner Controlled Insurance Program (ROCIP) reference the Contract Special Conditions for all safety requirements.

1.03 RESPONSIBILITY

- A. The Contractor is responsible for the health and safety of the Contractor's personnel, agents, subcontractors and their personnel, and other persons on the worksite, for the protection and preservation of the Work and all materials and equipment to be incorporated therein, and for the worksite and the area surrounding the worksite. The Contractor shall take all necessary and reasonable precautions and actions to protect all such persons and property.
- B. This Section shall be interpreted in its broadest sense for the protection of persons and property by the Contractor and no action or omission by the DEN Project Manager or the DEN Project Manager's authorized representatives shall relieve the Contractor of any of its obligations and duties hereunder.

1.04 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for the submittal process.
- B. Contractor's Site Specific Safety Plan:
 - 1. The Contractor's Site Specific Safety Plan shall be submitted and accepted as provided in the Contract prior to commencing any Work. If a Task Order or Change Order is issued where the Work is not covered by the Contractor's Site Specific Safety Plan, then a revision to the Safety Plan specific for the Work in the Task Order shall be resubmitted for approval. The Contractor's Safety Plan must meet requirements as

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- outlined in the Contract. The Contractor should reference the applicable insurance requirements, including any Safety Manual and updates, and all applicable federal, state, and local laws and regulations. Additionally, for Airside Projects, the Contractor's Site Specific Safety Plan shall be developed according to the guidelines and requirements provided in the most current version of FAA Advisory (AC) 150/5370 "Operational Safety on Airports During Construction" and will describe how the Contractor will comply with the requirements of the Construction Safety and Phasing Plan (CSPP). The Site Specific Safety Plan shall cover the actions of not only the construction personnel and equipment, but the actions of inspection personnel and airport staff for the duration of construction activities.
2. No progress payment shall be approved until the Contractor's Site Specific Safety Plan has been accepted by the DEN Project Manager.
 3. For projects enrolled in a ROCIP or OCIP, Contractor shall submit their Site Specific Safety Plan in accordance with the requirements and lead time outlined in the applicable R/OCIP Safety Manual and in accordance with Part 1.04.A of this Section.
 4. For a project non enrolled in a ROCIP or OCIP, the Contractor shall submit the Contractor's Site Specific Safety Plan to the DEN Project Manager for review at least ten (10) calendar days before on-site construction begins. At a minimum, all applicable federal, state and local government requirements, and the following are to be included in the Contractor Site Specific Safety Plan:
 5. The Contractor shall provide the following information for acceptance by the DEN Project Manager prior to the commencement of construction activities. The Site Specific Safety Plan must address all aspects listed below. If an item is not applicable, then this must be noted in the plan.
 - a. Name of the Contractor's safety representative.
 - b. If the Contractor is running multiple shifts or working more than (40) hours per week, the name of an assistant safety representative who can act in the absence of the site safety representative.
 - c. Twenty-four (24) hours per day emergency phone numbers of Contractor site management to be used in case of injury or accident. Provide at least four contacts.
 - d. How personnel will be handled who are unable to safely perform their duties, including how the Contractor will determine whether personnel are unable to safely perform duties. This may include the Contractor's disciplinary process and employee's physical capabilities to perform the work safely.
 - e. Injury and accident handling, including samples of the reporting form.
 - f. The type of safety training that will be provided to personnel to inform them of safe work procedures.
 - g. How daily audits and inspections will be performed to ensure compliance with the Contractor's Site Specific Safety Plan and current, applicable OSHA regulations.
 - h. Means of protecting employees working in trenches and excavations, including sloping and shielding.
 - 1) Soil classification will be considered as Type C when designing protective systems, unless the Contractor can prove to the satisfaction of DEN that the soil classification is otherwise. Soil classification change request shall be provided to the DEN Project Manager in writing. The decision of the DEN Project Manager will be provided to the Contractor in writing.
 - 2) The Contractor shall show how material shall be stored beside the excavation. Stored material shall include the excavated and backfilled material.
 - i. How and when equipment will be checked to see that it is safe, that all safety guards are in place, and that the equipment is being used for its designed purpose and within its rated capacity.

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- j. How and when all electric devices will be checked for proper grounding and insulation. Describe the methods that will be used for lock out tag out of electric systems that should not be energized.
- k. How trash and human organic waste will be disposed of.
- l. How snow and ice will be removed by the Contractor in the project area.
- m. How flammable materials will be stored and handled, and how any spills will be cleaned up and removed for disposal.
- n. What system will be used to prevent fires and, if fires do occur, who will be trained to fight them. In addition, what firefighting equipment will the Contractor have available and how will this equipment's condition be monitored.
- o. How materials will be received, unloaded, stored, moved, and disposed of.
- p. How personnel will be protected from falling when working at heights of 6 feet or more.
- q. How people working beneath the construction work will be protected.
- r. What will be done to protect personnel in case of severe weather.
- s. How adequate lighting will be provided and monitored.
- t. How air quality will be monitored to ensure that chemical exposures are below current, established OSHA Permissible Exposure Limits. How personnel will be protected if these limits are exceeded.
- u. How the safety of work platforms, man lifts, material lifts, ladders, shoring, scaffolding, etc., will be ensured relating to load capacity and the protection of personnel using or working around them.
- v. Where cranes will be set up and plans for each lift.
- w. The type of personal protective equipment that will be used to protect personnel from hazards. The minimum PPE requirements include hard hat, safety toe boots, safety glasses, proper hand protection, ANSI II vests for day work, and ANSI III vests and high visibility pants (gaiters may only be used airside) for night work.
- x. Procedures to ensure that welding and other hot work is performed safely.
 - 1) A hot work permit from the Denver Fire Department (DFD) will be required for all welding, soldering, cutting, and brazing and or other processes required by DFD on the project. Contractor will comply with all of the provisions in the permit.
- y. How compressed gases will be safely stored, handled, and used.
- z. Methods to ensure that personnel safely enter, work in, and exit confined spaces.
 - 1) All confined spaces on DEN property are considered permit required. A permit must be obtained from the DFD before Contractor personnel may enter a confined space. Contractors will comply with all provisions and requirements of this permit.
- aa. How the hazards of chemicals will be communicated to personnel, including the use of material safety data sheets and chemical labels.
- bb. Methods to ensure that forklifts and other powered industrial trucks are operated in a safe manner.
- cc. How an effective hearing conservation program will be used to protect personnel from high noise levels and prevent hearing loss.
- dd. How personnel will be protected from the effects of jet blast.
- ee. How hazards will be identified and corrected when reported.

C. Safety submittal requirements

- 1. For projects enrolled in a ROCIP or OCIP, Contractor shall submit all required safety submittals required by the Contract Documents, including the applicable ROCIP or OCIP Safety Manual including, but not limited to, high-hazard pre-task plans,

subcontractor pre-mobilization meetings, and incident reports. All Safety Submittals shall be submitted in accordance with Part 1.4.A of this Section unless otherwise modified by the Contract Documents. Contractor is responsible for reviewing the ROCIP or OCIP Safety Manual in its entirety and understanding full scope, timeline, and acceptance criteria outlined for the submittal requirements

D. Additional safety submittals – ROCIP III

1. The following is a representative list of submittals, other than the Site-Specific Safety Plan, that are required for relevant scopes of work or events covered under ROCIP III. This list is not all-inclusive and Contractor is responsible for reviewing the ROCIP III Safety Manual its entirety to determine if additional submittals are required for Contractor's scope of work. In addition, DEN may require additional safety pre-planning or pre-work meetings or information based on Contractor's scope of work and safety performance:
2. High-hazard Pre-Task Plans including:
 - a. Crane Operations
 - b. Elevated Work
 - c. Lock-Out Tag-Out
 - d. Trenching and Excavation
 - e. Confined Space
 - f. Hot Work
 - g. Traffic Control
 - h. Written Silica Exposure Control Program
 - i. Respiratory Protection Program
3. Preliminary Investigative Reports
4. Final Investigative Reports
5. Contractor's Monthly Safety Report

E. Additional safety submittals – ROCIP IV

1. The following is a representative list of submittals, other than the Site-Specific Safety Plan, that are required for relevant scopes of work or events covered under ROCIP IV. This list is not all-inclusive and Contractor is responsible for reviewing the ROCIP IV Safety Manual its entirety to determine if additional submittals are required for Contractor's scope of work. In addition, DEN may require additional safety pre-planning or pre-work meetings or information based on Contractor's scope of work and safety performance:
2. High-hazard Pre-Task Plans including:
 - a. Crane Operation
 - b. Elevated Work
 - c. Lock-Out Tag-Out
 - d. Utility Damage Prevention- Ground & Concrete Penetration
 - e. Trenching
 - f. Confined Space
 - g. Demolition
 - h. Hot Work
 - i. Traffic Control
 - j. Haul Routes
 - k. Silica Exposure and Slurry Control Program
 - l. Respiratory Protection Program

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3. Subcontractor Safety Pre-Mobilization Documentation
4. Preliminary Investigative Reports
5. Final Investigative Reports
6. Contractor's Monthly Safety Report
7. Meeting Minutes and Attendance Log for Contractor's Supervisory Safety Meetings

1.05 DEN PROJECT MANAGER'S REVIEW

- A. Prior to the start of any work by contractor or subcontractor personnel, the Contractor shall provide the DEN Project Manager with a list of its personnel, subcontractor's personnel and other personnel the Contractor has requested to work at Denver International Airport, who have signified in writing that they have been briefed on, or have read and understand, the Contractor's Site Specific Safety Plan.

1.06 AUDIT OF MANUAL COMPLIANCE

- A. At its sole discretion, DEN may audit Contractor's submittals, including supporting documents that the contractor or its subcontractor is required to maintain or that would show compliance with the requirements of this Safety Manual. When documentation is requested, the Contractor must respond in the time outlined in the applicable ROCIP or OCIP Safety Manual, and where a timeline is not established, in no more than 7 days.

PART 2 - PRODUCTS (NOT USED)**PART 3 - EXECUTION****3.01 IMPLEMENT CONTRACTOR'S SITE SPECIFIC SAFETY PLAN**

- A. Implement the approved Contractor's Site-Specific Safety Plan and other project safety plans as described in Part 1 of this Section, applicable Contract Safety Manual, all applicable regulations, Contract Documents, and in Section 011100 "Summary of Work."
- B. If the Project or an individual contractor or subcontractor experiences an OSHA DART or Total Recordable injury rate greater than 75 percent of the national average for all construction, the Contractor shall notify the DEN Project Manager and audit its safety procedures and submit a plan to reduce its rate(s).
- C. If at any time the OSHA DART or Total Recordable injury rates experienced by the Project or an individual contractor or subcontractor are 150 percent or more of the national average for construction, or exceeds \$0.50/labor hour, the Contractor shall notify the DEN Project Manager and immediately hire an independent safety professional at their own cost who shall audit the Contractor's procedures and operations and make a report of changes that the Contractor should implement to reduce the rate(s) including possible personnel changes.
 1. The report shall be submitted to the DEN Project Manager.
 2. The Contractor shall immediately begin implementing the recommendations of the independent safety professional.
 3. A weekly report shall be submitted by the Contractor to the DEN Project Manager on the status of the implementation of the recommendations.
 4. Failure to comply with these requirements is a basis to withhold a portion of progress payments or to terminate the Contract.

3.02 SAFETY REQUIREMENTS FOR ALL CONSTRUCTION PROJECTS

- A. For projects enrolled in a ROCIP or OCIP, Contractor will abide by all requirements specified in the Contract Documents, including the applicable ROCIP or OCIP Safety Manual. The applicable ROCIP or OCIP Safety Manual is incorporated in this Technical Specification for all enrolled projects.
- B. Contractor personnel, airport staff and field inspectors directly involved in DEN construction shall:
1. Be aware of the types of conditions, safety problems, and/or hazards identified each day at the airport. To ensure that all personnel are aware, daily meetings between management and supervisory personnel and their employees shall be scheduled prior to any work commencing on the shift.
 2. Inspect daily all work and/or storage areas for which the Contractor is responsible to be aware of current conditions.
 3. Promptly take all steps needed to remedy any unsafe or potentially unsafe condition. Coordinate with the DEN Project Manager to ensure immediate corrective action is undertaken.
- C. Housekeeping Requirements
1. Maintain the work site in a neat, orderly, and hazard-free manner in conformance with all federal, state, and local rules, codes, regulations, and orders, including all OSHA requirements, until Final Acceptance of the Work. Keep catwalks, underground structures, work site walks, sidewalks, roadways, and streets, along with public and private walkways adjacent to the work site, free from hazards caused by construction activities. All hard concrete, steel, wood, and finished walking surfaces shall be swept clean daily.
 2. Inspect those facilities regularly for hazardous conditions caused by construction activities. Maintain structures, grounds, storage areas and other areas of work site, including public and private properties immediately adjacent to work site, free from accumulations of waste materials caused by construction operations. Place waste materials in covered metal containers. Remove or secure loose material on open decks and on other exposed surfaces at the end of each workday or more often in a manner that will maintain the work site hazard free. Secure material in a manner that will prevent dislodgment by wind and other forces.
 3. Sprinkle waste materials with water or acceptable chemical palliative to prevent blowing of dust.
 4. Promptly empty waste containers when they become full and legally dispose of the contents at dumping areas off the City's property.
 5. Control the handling of waste materials. Do not permit materials to be dropped or thrown from structures.
 6. Immediately remove spillage of construction related materials from haul routes, work site, private property, public rights of way, or on the Denver International Airport site.
- D. Hazardous Material Controls
1. Store waste materials in properly labeled waste containers. This includes solid wastes, hazardous wastes, universal wastes, etc.
 2. Store volatile wastes in covered metal containers and remove those wastes from work site daily.
 3. Do not accumulate wastes that create hazardous conditions.

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4. If volatile and noxious substances are being used in spaces that are not naturally ventilated adequately, provide artificial ventilation.
 5. Hazard controls shall conform to the applicable federal, state, and local rules and regulations.
 6. Provide appropriate waste receptacles in all areas in which employees are working. Waste receptacles shall be kept covered at all times. All materials on site shall be anchored and covered to prevent any objects from becoming wind-borne.
- E. Safe Access
1. Maintain the work site to permit access by other City contractors as required and to allow access by emergency personnel.
- F. Aviation safety and continuity of operations is a primary consideration during construction at DEN. Activities shall be planned and scheduled to minimize disruption of normal aircraft and operation activities, including minimizing impacts to vehicular traffic. If the clearances and restrictions described in this plan cannot be maintained while construction is underway, action will be taken by the Contractor to perform Work at night or during periods of minimal aircraft or operational activity.
1. During performance of this Contract, the airport runways, taxiways, taxi lanes, and aircraft parking aprons shall remain in use by aircraft to the maximum extent possible, consistent with continual safety. Aircraft use of areas near the Contractor's Work will be controlled to minimize disturbance to the Contractor's operation. However, AIRCRAFT HAVE THE RIGHT OF WAY AT ALL TIMES. The Contractor shall not allow employees, subcontractors, suppliers, or any unauthorized persons to enter or remain in any airport area that would be hazardous to persons or to aircraft operations.
 2. Before commencement of construction activity, the Contractor, through coordination with the DEN Project Manager and DEN Operations, shall give notice using the NOTAM system of construction on the airfield. In addition, a NOTAM shall be issued for the completion of construction on the airfield.
- G. The Contractor shall take all necessary steps and precautions to mitigate the impact of hazardous conditions as they may relate to the Work. Potentially hazardous conditions which may occur during airport construction include, but are not limited to, the following:
1. Trenches, holes, or excavations on or adjacent to any active runway, taxiway, taxi lane, apron, or related safety areas.
 2. Unmarked/unlighted holes or excavations on or adjacent to any active runway, taxiway, taxi lane, apron, or related safety areas.
 3. Mounds or piles of earth, construction material, temporary structures, or other objects on or in the vicinity of any active runway, taxiway, taxi lane, apron or related safety, approach, or departure areas.
 4. Pavement drop-offs that would cause, if crossed at normal operating speeds, damage to aircraft that normally use the airport. The maximum drop-off is 3 inches per the most current version of FAA AC 150/5300.
 5. Vehicles or equipment (whether operating or idle) on any active runway, taxiway, taxi lane, apron or related safety, approach, or departure areas.
 6. Vehicles, equipment, excavations, stockpiles, or other materials that could impinge upon NAVAID-critical areas and degrade or otherwise interfere with electronic NAVAIDS or interfere with visual NAVAIDS facilities.
 7. Unmarked utility, NAVAIDS, weather service, runway lighting, underground power, or signal cables that could be damaged during construction.

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8. Objects or activities anywhere on or in the vicinity of an airport which would be distracting, confusing, or alarming to pilots during aircraft operations.
 9. Unflagged/unlighted low visibility items such as tall cranes, backhoes, scrapers, dump trucks, rollers, compactors, dozers and the ilk, in the vicinity of an active runway, taxiway, taxi lane, apron or related safety, approach, or departure areas.
 10. Dirt, debris, or other transient accumulations that temporarily obscure pavement markings or pavement edges or derogate the visibility of runway or taxiway markings or lighting or of construction and maintenance areas.
 11. Trash or other materials with foreign object damage (FOD) potential, whether on runways, taxiways, taxi lanes, aprons or in related safety areas.
 12. Failure to control vehicle, human and large animal access to, and nonessential nonaeronautical activities on, open aircraft movement areas.
 13. Failure to maintain radio communication between construction vehicles and air traffic control or other on-field communications facilities.
 14. Construction activities or material which could hamper Aircraft Rescue and Fire Fighting (ARFF) vehicle access from ARFF stations to all parts of the runway/taxiway system, runway approach and departure areas, or aircraft parking locations.
 15. Inadequate fencing or other marking to separate construction areas from open aircraft operating areas.
 16. Bird attractions such as edibles (food scraps, etc.), trees, brush, other trash, grass/crop seeding, or ponded water on or near the airport.
- H. Construction Area Marking: Temporary lighting, barricades, flagging, and flashers are required as shown on the plans and per the most current version of FAA AC 150/5370 Chapter 2 Section 220.b.(1)(2) Flag lines, traffic cones, flashers, edge lights, and/or signs shall be used as necessary:
1. To clearly separate all construction from other parts of an air operations area
 2. To identify isolated hazards, such as open manholes, excavations, areas under repair, stockpiled material, waste areas, etc.
 3. Vehicle and pedestrian access routes used for airport construction shall be controlled to prevent any unauthorized entry of persons, vehicles, or animals.
 4. Vehicle parking areas for Contractor employees shall be designated in advance to minimize traffic in open/active aircraft movement areas.
- I. Cables and Utilities:
1. Special attention shall be given to preventing unscheduled interruption of utility services and facilities. The location of all cables and utilities shall be identified prior to construction activities. In addition to following regulatory utility locate requirements, Contractor shall provide a 3rd party SUE or utility designation firm to perform a ground penetrating radar (GPR) sweep in all areas that will be excavated, or the ground penetrated, prior to work.
 2. There shall be coordination among the Contractor, the DEN Project Manager, DEN Operations, the FAA, the National Weather Service, utility companies, and any other appropriate entity or organization. NAVAIDS, weather service facilities, electric cables, and other utilities must be fully protected during the entire construction time.
 3. Power, communication, and control cables leading to and from any FAA NAVAIDS, weather service, and other facilities will be marked in the field by the appropriate individuals as identified in Section 011810 "Utilities Interface" for the information of the Contractor before any work in their general vicinity is started. Thereafter, through the

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entire duration of construction, utilities shall be protected from any possible damage.

4. At the intersection of expansion joints and centerline lighting circuits on taxiways and runways, the electrical conduit may be within the 21" portion of the Portland cement concrete pavement. Coordination with the DEN Project Manager's representative and the DEN Electrical Department is required for both the scheduling of an outage and the removal of conductors while cutting the joint.

J. Employee Identification:

1. The Contractor will be required to conform to the specific requirements as outlined in Section 011420 "Security Requirements and Sensitive Security Information (SSI)" of the Contract documents.

K. Radio Communications:

1. The Contractor's construction superintendent and flagger personnel shall be required to coordinate directly with the DEN Project Manager or designated Representative. Only the DEN Project Manager or designated Representative shall monitor transceiver radios tuned to the frequency for communications with DEN Operations and B Tower Control. Radios shall be used to obtain the proper clearance concerning the movement of equipment, trucks, etc., on the airfield. Further, any unusual occurrences in the flight pattern of approaching or departing aircraft shall be acknowledged by all concerned so that operation of the airport and the construction work can be carried out safely.

L. Haul Routes Crossing Active Aircraft Operation Areas:

1. The Contractor shall provide a minimum of one (1) broom truck to continuously clean the surface of the active taxiway, taxi lane or apron of any foreign object debris (FOD) or other objectionable debris that may result from hauling activities. Additional broom trucks may be required to expedite the cleanup process. Opening the taxiway, taxi lane, or apron to aircraft operations shall only be approved after a visual inspection of the pavement surface by the DEN Airfield Operations Manager.
2. The Contractor shall not work within the minimum of the following: 160 ft. of the centerline of an active taxiway, 310 ft. of the centerline of an active runway, or the minimum requirements of the FOD or Safety Zone unless otherwise noted in the Contract Documents and as approved in writing by the DEN Project Manager.
3. All construction equipment and vehicles shall be flagged for high daytime visibility and if appropriate, lighted for nighttime operations. Vehicles that are not marked and lighted shall be escorted by a vehicle that is equipped with appropriate marking and lighting devices. Marking and lighting shall be in conformance with FAA AC 150/5210, current edition, or as outlined in Section 011430 "Vehicle and Equipment Permitting" of the Contract Documents.
4. All Contractor and Subcontractor employees must be aware of the types of safety problems and hazards associated with aircraft operations and construction activities. All haul truck drivers must have current route maps with them in their vehicles.

M. Airside Definitions:

1. Approach Surface: A surface longitudinally centered on the extended runway centerline and extending outward and upward from either a runway threshold or 200 feet behind a threshold. This surface is needed to define where unobstructed airspace above the runway begins.
2. Notice To Airmen (NOTAM): A notice to the flying public (airmen) through FAA's NOTAM system. Normally initiated by message to the nearest FAA Flight Service Station. Issuance of the NOTAM will be coordinated through the DEN Project

Manager and DEN Operations.

3. Object Free Area: A two-dimensional ground area surrounding runways, taxiways, and taxi lanes that is clear of objects, except for objects whose location is fixed by function.
4. Safety Area (see current version of AC 150/5300): A defined surface adjacent to runways, taxiways and taxi lanes prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot or excursion from the paved surface. Each safety area must be cleared and graded and have no potentially hazardous ruts, humps, depressions or other surface variations. Each safety area must be drained by grading or storm sewers to prevent water accumulation. Each safety area must be capable under dry conditions of supporting snow removal and aircraft rescue and firefighting equipment and or supporting the occasional passage of aircraft without causing any damage to the aircraft. No objects may be located in any safety area, except for objects that need to be located in a safety area because of their function. These objects must be constructed, to the extent practical, on frangibly mounted structures of the lowest practical height, with the frangible point no higher than three (3) inches above grade.

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 013510

SECTION 013516**ALTERATION PROJECT PROCEDURES****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section includes special procedures for alteration work.

1.03 DEFINITIONS

- A. Alteration Work: This term includes remodeling, renovation, repair, and maintenance work performed within existing spaces or on existing surfaces as part of the Project.
- B. Consolidate: To strengthen loose or deteriorated materials in place.
- C. Design Reference Sample: A sample that represents the DOR's prebid selection of work to be matched; it may be existing work or work specially produced for the Project.
- D. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.
- E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by DOR.
- F. Refinish: To remove existing finishes to base material and apply new finish to match original or as otherwise indicated.
- G. Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.
- H. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.
- I. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.
- J. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.
- K. Retain: To keep existing items that are not to be removed or dismantled.
- L. Strip: To remove existing finish down to base material unless otherwise indicated.

1.04 COORDINATION

- A. Alteration Work Subschedule: A construction schedule coordinating the sequencing and

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scheduling of alteration work for entire Project, including each activity to be performed, and based on Contractor's Construction Schedule. Secure time commitments for performing critical construction activities from separate entities responsible for alteration work.

1. Schedule construction operations in sequence required to obtain best Work results.
 2. Coordinate sequence of alteration work activities to accommodate the following:
 - a. Owner's continuing occupancy of portions of existing building.
 - b. Owner's partial occupancy of completed Work.
 - c. Other known work in progress.
 - d. Tests and inspections.
 3. Detail sequence of alteration work, with start and end dates.
 4. Utility Services: Indicate how long utility services will be interrupted. Coordinate shutoff, capping, and continuation of utility services.
 5. Use of elevator and stairs.
 6. Equipment Data: List gross loaded weight, axle-load distribution, and wheelbase dimension data for mobile and heavy equipment proposed for use in existing structure. Do not use such equipment without certification from Contractor's professional engineer that the structure can support the imposed loadings without damage.
- B. Pedestrian and Vehicular Circulation: Coordinate alteration work with circulation patterns within Project buildings and site. Some work is near circulation patterns. Circulation patterns cannot be closed off entirely and in places can be only temporarily redirected around small areas of work. Access to restricted areas may not be obstructed. Plan and execute the Work accordingly.

1.05 PROJECT MEETINGS FOR ALTERATION WORK

- A. Preliminary Meeting for Alteration Work: Before starting alteration work, DEN Project Manager and DOR will conduct meeting at the Project Site.
1. Attendees: In addition to representatives of City, DEN Project Manager, DOR, and Contractor, a testing service representative and specialists shall be represented at the meeting.
 2. Agenda: Discuss items of significance that could affect progress of alteration work, including review of the following:
 - a. Alteration Work Subschedule: Discuss and finalize; verify availability of materials, specialists' personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Fire-prevention plan.
 - c. Governing regulations.
 - d. Areas where existing construction is to remain and the required protection.
 - e. Hauling routes.
 - f. Sequence of alteration work operations.
 - g. Storage, protection, and accounting for salvaged and specially fabricated items.
 - h. Existing conditions, staging, and structural loading limitations of areas where materials are stored.
 - i. Qualifications of personnel assigned to alteration work and assigned duties.
 - j. Requirements for extent and quality of work, tolerances, and required clearances.
 - k. Embedded work such as flashings and lintels, special details, collection of waste,

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protection of occupants and the public, and condition of other construction that affects the Work or will affect the work.

3. Reporting: DOR will record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from meeting.

- B. Coordination Meetings: Conduct coordination meetings specifically for alteration work at monthly intervals. Coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation meeting.

1. Attendees: In addition to representatives of the City, DEN Project Manager, DOR, and Contractor, each specialist, supplier, installer, and other entity concerned with progress or involved in planning, coordination, or performance of alteration work activities shall be represented at these meetings. All participants at meeting shall be familiar with Project and authorized to conclude matters relating to alteration work.

2. Agenda: Review and correct or approve minutes of previous coordination meeting. Review other items of significance that could affect progress of alteration work. Include topics for discussion as appropriate to status of Project.

- a. Alteration Work Subschedule: Review progress since last coordination meeting. Determine whether each schedule item is on time, ahead of schedule, or behind schedule. Determine how construction behind schedule will be expedited with retention of quality; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities are completed within the Contract Time.
- b. Schedule Updating: Revise Contractor's Alteration Work Subschedule after each coordination meeting where revisions to schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
- c. Review present and future needs of each entity present, including review items listed in the "Preliminary Meeting for Alteration Work" Paragraph in this article and the following:
 - 1) Interface requirements of alteration work with other Project Work.
 - 2) Status of submittals for alteration work.
 - 3) Access to alteration work locations.
 - 4) Effectiveness of fire-prevention plan.
 - 5) Quality and work standards of alteration work.
 - 6) Change Orders for alteration work.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.06 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to City that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain the City's property.

1. Carefully dismantle and salvage each item or object in a manner to prevent damage and protect it from damage, then promptly deliver it to where directed at Project site.

1.07 INFORMATIONAL SUBMITTALS

- A. Alteration Work Subschedule:

1. Submit alteration work subschedule within seven (7) days of date established for commencement of alteration work.

- B. Preconstruction Documentation: Show preexisting conditions of adjoining construction and

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site improvements that are to remain, including finish surfaces, that might be misconstrued as damage caused by Contractor's alteration work operations.

- C. Alteration Work Program: Submit 30 days before work begins.
- D. Fire-Prevention Plan: Submit 30 days before work begins.

1.08 QUALITY ASSURANCE

- A. Specialist Qualifications: An experienced firm regularly engaged in specialty work similar in nature, materials, design, and extent to alteration work as specified in each Section and that has completed a minimum of five recent projects with a record of successful in-service performance that demonstrates the firm's qualifications to perform this work.
 - 1. Field Supervisor Qualifications: Full-time supervisors experienced in specialty work similar in nature, material, design, and extent to that indicated for this Project. Supervisors shall be on-site when specialty work begins and during its progress. Supervisors shall not be changed during Project except for causes beyond the control of the specialist firm.
 - a. Construct new mockups of required work whenever a supervisor is replaced.
- B. Title X Requirement: Each firm conducting activities that disturb painted surfaces shall be a "Lead-Safe Certified Firm" according to 40 CFR 745, Subpart E, and use only workers that are trained in lead-safe work practices.
- C. Alteration Work Program: Prepare a written plan for alteration work for whole Project, including each phase or process and protection of surrounding materials during operations. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project alteration work program with specific requirements of programs required in other alteration work Sections.
 - 1. Dust and Noise Control: Include locations of proposed temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known work in progress.
 - 2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.
- D. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-control devices during each phase or process. Coordinate plan with City's fire-protection equipment and requirements. Include fire-watch personnel's training, duties, and authority to enforce fire safety.
- E. Safety and Health Standard: Comply with the current version of the ANSI/ASSE Safety and Health Program Requirements for Demolition Operations

1.09 STORAGE AND HANDLING OF SALVAGED MATERIALS

- A. Salvaged Materials:
 - 1. Clean loose dirt and debris from salvaged items unless more extensive cleaning is indicated.
 - 2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.
 - 3. Store items in a secure area until delivery to specified location.
 - 4. Transport items to the designated storage area on-site or as indicated on the contract

drawings.

5. Protect items from damage during transport and storage.
- B. Salvaged Materials for Reinstallation:
1. Repair and clean items for reuse as indicated.
 2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.
- C. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by DOR, items may be dismantled and taken to an approved, suitable, protected storage location during construction work and reinstalled in their original locations after alteration and other construction work in the vicinity is complete.
- D. Storage: Catalog and store items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.
1. Identify each item for reinstallation with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
 2. Secure stored materials to protect from theft.
 3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5°F or more above the dew point.
- E. Storage Space:
1. DEN Project Manager will arrange for limited on-site locations for free storage of salvaged material. This storage space does not include security and climate control for stored material.
 2. Arrange for off-site locations for storage and protection of salvaged material that cannot be stored and protected on-site.

1.10 FIELD CONDITIONS

- A. Survey of Existing Conditions: Record existing conditions that affect the Work by use of preconstruction photographs or preconstruction videotapes.
1. Comply with requirements specified in Section 013233 "Photographic Documentation."
- B. Discrepancies: Notify DEN Project Manager of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.
- C. DEN's Removals: Before beginning alteration work, verify in correspondence with DEN Project Manager that the following items have been removed:
1. TBD.
- D. Size Limitations in Existing Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear

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surfaces within existing spaces, areas, rooms, and openings, including temporary protection, by 12 inches or more.

PART 2 - PRODUCTS (NOT USED)**PART 3 - EXECUTION****3.01 PROTECTION**

- A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from alteration work.
1. Use only proven protection methods, appropriate to each area and surface being protected.
 2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration work is being performed.
 3. Erect temporary barriers to form and maintain fire-egress routes.
 4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during alteration work.
 5. Contain dust and debris generated by alteration work, and prevent it from reaching the public or adjacent surfaces.
 6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
 7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.
 8. Provide supplemental sound-control treatment to isolate demolition work from other areas of the building.
- B. Temporary Protection of Materials to Remain:
1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
 2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration work program.
- C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
- D. Utility and Communications Services:
1. Notify DEN Project Manager, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by alteration work before commencing operations.
 2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for alteration work.
 3. Maintain existing services unless otherwise indicated; keep in service, and protect against damage during operations. Provide temporary services during interruptions to existing utilities.
- E. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify DEN Project Manager immediately of inadequate drainage or

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blockage. Do not begin work in an area until the drainage system is functioning properly.

1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration work.
 2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.
- F. Existing Roofing: Prior to the start of work in an area, install roofing protection as indicated on drawings.

3.02 PROTECTION FROM FIRE

- A. General: Follow fire-prevention plan and the following:
1. Comply with NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations requirements unless otherwise indicated. Perform duties titled "City's Responsibility for Fire Protection."
 2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.
 - a. If combustible material cannot be removed, provide fire blankets to cover such materials.
- B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:
1. Obtain City's approval for operations involving use of open-flame or welding or other high-heat equipment. Use of open-flame equipment is not permitted. Notify DEN Project Manager at least 72 hours before each occurrence, indicating location of such work.
 2. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.
 3. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
 4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
 5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
 6. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:
 - a. Train each fire watch in the proper operation of fire-control equipment and alarms.
 - b. Prohibit fire-watch personnel from other work that would be a distraction from fire-watch duties.
 - c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.
 - d. Have fire-watch personnel perform final fire-safety inspection each day beginning

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no sooner than 30 minutes after conclusion of work in each area to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.

- e. Maintain fire-watch personnel at each area of Project site until 60 minutes after conclusion of daily work.
- C. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire extinguisher and blanket use.
 - D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.
 - 1. Remove temporary guards at the end of work shifts, whenever operations are paused, and when nearby work is complete.

3.03 PROTECTION DURING APPLICATION OF CHEMICALS

- A. Protect motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.
- B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in alteration work program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.
- C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.
- D. Neutralize alkaline and acid wastes and legally dispose of off City's property.
- E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.04 GENERAL ALTERATION WORK

- A. Have specialty work performed only by qualified specialists.
- B. Ensure that supervisory personnel are present when work begins and during its progress.
- C. Record existing work before each procedure (preconstruction), and record progress during the work. Use digital preconstruction documentation photographs or video recordings. Comply with requirements in Section 013233 "Photographic Documentation."
- D. Perform surveys of Project site as the Work progresses to detect hazards resulting from alterations.
- E. Notify DEN Project Manager of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.

TECHNICAL SPECIFICATIONS

DENVER INTERNATIONAL AIRPORT

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SECTION 013516 - ALTERATION PROJECT PROCEDURES

CONTRACT NO. 202265100

1. Do not proceed with the work in question until directed by DEN Project Manager.

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 013516

SECTION 014100**REGULATORY REQUIREMENTS****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section identifies primary compliance with the State's and the City and County of Denver's regulatory requirements including but not limited to:
1. City and County of Denver applicable agencies, including but not limited to its Department of Aviation, Community Planning and Development (including Building Department), Department of Transportation and Infrastructure, and Mayor's Executive Orders.
 2. Colorado Department of Public Health and Environment; and
 3. The standards that govern design and construction projects at Denver International Airport; and
 4. Any other regulatory requirements that govern or apply to the specific work.
- B. Construction shall be based on the latest edition of the referenced codes including additions and revisions thereto that are in effect at the time of Project bidding or Task Order pricing or GMP established whichever is latest, and as specifically related.

1.03 RELATED SECTIONS

- A. Section 015719 "Temporary Environmental Controls" for environmental and related permitting requirements.

1.04 BUILDING CODE

- A. All design and construction work shall be governed by the Building Code for the City and County of Denver, latest edition. This is based upon the International Building Code of the International Code Council with Denver Amendments to this code. Appendix N of the Denver Amendments addresses Construction of Airport Buildings and Structures.
1. This Contract shall be based on the most current published version of the ICC series as Amended by The City and County of Denver.

1.05 DENVER BUILDING DEPARTMENT

- A. For review and approval of all construction documents for compliance to the Denver building code:

Community Planning and Development
201 W. Colfax Ave., Dept 205
Denver, CO 80202
Telephone: 720-865-2790

1.06 DENVER FIRE DEPARTMENT

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- A. For review and approval of plans for compliance with the Denver Fire Department's requirements as they apply to the Denver International Airport:
 Denver Fire Department
 725 West Colfax Avenue
 Denver, CO 80204
 Telephone: 720-913-3474
- B. The Contractor is advised that the Denver Fire Department – Fire Prevention Bureau requires permitting for the following activities as they apply to the scope of work. The Contractor is responsible for obtaining the appropriate permits necessary to complete the work including, but not limited to, the work listed below. All costs associated with this permitting and policy compliance shall be the responsibility of the Contractor. The policies all reference the International Fire Code (IFC).
1. “Hot work”, which is defined as the operation of any equipment or tool that creates sparks, hot slag, or radiant or convective heat as a result of the work. This includes, but is not limited to, welding, cutting, brazing, or soldering.
 2. Use and storage of compressed gas for both temporary storage and permanent facility installation. This includes, but is not limited to, flammable gas (excluding propane-LPG), oxidizer (including oxygen), and inert and/or simple asphyxiates.
 3. Tank installation, which includes aboveground storage tanks (AST) and underground storage tanks (UST) for both temporary tanks and permanent facility installations.
 4. Access to and work within areas that are designated as confined spaces.
- C. In addition to the above permits, the Denver Fire Department may require other permits that are associated with the specific work in the Contract Documents. Policies provided by the Denver Fire Department are meant to provide basic information for the most common conditions and situations. In any given occupancy, many other Uniform Fire Code requirements may be enforced. These should be addressed with the Denver Fire Department before construction begins and during construction with premise inspection(s).
1. The Fire Prevention Bureau web site is denfpb@denvergov.org

PART 2 - PRODUCTS (NOT USED)**PART 3 - EXECUTION****3.01 PERMITS AND CERTIFICATIONS**

- A. The Contractor shall maintain records on site of all permits acquired by federal, state, and local agencies. Posting of permits shall conform to requirements of the respective agencies.
- B. At the completion of any inspection by other agencies, the Contractor shall forward copies of the status of the inspection and copies of any approved or "signed-off" inspections by the respective agencies to the DEN Project Manager.
- C. At the time of request for Substantial Completion, the Contractor shall forward to the DEN Project Manager all permits approved by the respective agencies.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

TECHNICAL SPECIFICATIONS
DIVISION 01 – GENERAL REQUIREMENTS
SECTION 014100 - REGULATORY REQUIREMENTS

DENVER INTERNATIONAL AIRPORT
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PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 014100

SECTION 014210**REFERENCED MATERIAL****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 REFERENCED MATERIAL

- A. City and County of Denver, Department of Aviation, Standard Specification for Construction, General Contract Conditions
- B. The following documents may be available for examination at the Owner's offices unless otherwise noted. The referenced material and documents are not part of the Contract Documents unless otherwise specified.
1. Environmental Impact Statement (EIS).
 2. Geotechnical Reports:
 - a. Borings, other field and laboratory explorations, and investigations have been made to indicate subsurface materials at particular locations. Explorations and investigations conducted by designers and their subconsultants are solely for the purpose of study and design.
 - b. The subsurface exploration and investigation information is presented or made available to indicate some of the conditions that may be encountered during construction and is offered as supplementary information only. Geotechnical information presented in the referenced material represents the opinion of soils consultants as to the character of the materials encountered. Subsurface information was directly obtained only at the specified location and necessarily indicates subsurface conditions only at the respective plan location, depths penetrated and only at the time of the exploration.
 - c. Neither the City nor the Designers assume any responsibility whatever in respect to the sufficiency or accuracy of borings made, or of the logs of test borings, or of other investigations, or of the interpretations made thereof, and there is no warranty or guarantee, either expressed or implied, that the conditions indicated by such investigations are representative of those existing throughout such area, or any part thereof, or that unforeseen developments may not occur. It is expressly understood that the making of deductions, interpretations, and conclusions from all of the accessible factual information, including the nature of the materials to be excavated, the difficulties of doing other work affected by the geology, groundwater elevations and other subsurface conditions at the site of the Work are the Contractor's sole responsibility.
 - d. Information derived from inspection of logs of borings, topographic maps, technical memorandum, reports, or plans showing information of the subsurface of site conditions will not relieve the Contractor from any risk or from properly examining the site and making such additional investigations as the Contractor may elect or from properly fulfilling all the terms of the Contract Documents.
 3. Available Conceptual Utility and Drainage Reports.
 4. DEN Digital Facilities and Infrastructure (DFI) Design Standards Manual (DSM)
 5. Woolpert, Inc. Report - "A Low Distortion Projection for Denver International Airport

**TECHNICAL SPECIFICATIONS
DIVISION 01 – GENERAL REQUIREMENTS
SECTION 014210 - REFERENCED MATERIAL**

**DENVER INTERNATIONAL AIRPORT
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(DEN)", dated 12/10/2010.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 014210

SECTION 014220

ABBREVIATIONS AND SYMBOLS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Edit and/or insert items in list below as required for Project.

1.02 REFERENCE LIST

- A. Documents published by the following agencies may be referenced within these Contract Documents to define the quality of materials, equipment, workmanship, and other features of Work. Unless otherwise stated, the reference documents shall be of the latest edition as of the date of the Advertisement for Bids.
- B. Wherever used in the Contract Documents, the following abbreviations will have the meanings listed:

Abbreviation	Definition
AALA	American Association of Laboratory Accreditation
AAN	American Association of Nurserymen
AAO	Affirmative Action Officer
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ADA	Americans with Disabilities Act
AFI	Air-Filter Institute
AGTS	Automated Ground Transportation System
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
APEN	Air Pollution Emission Notes
APWA	American Public Works Association
ARI	Air Conditioning and Refrigeration Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASNT	American Society for Non-Destructive Testing
ASPE	American Society of Plumbing Engineers
ASSE	American Society of Sanitary Engineering
ASTM	American Society for Testing and Materials
AWPA	American Wood Preserver's Association
AWS	American Welding Society
AWWA	American Water Works Association
BID	Building Inspection Division, Department of Public Works
BIM	Building Information Modeling

Exhibit I**TECHNICAL SPECIFICATIONS****DIVISION 01 – GENERAL REQUIREMENTS****SECTION 014220 - ABBREVIATIONS AND SYMBOLS****DENVER INTERNATIONAL AIRPORT****ECONOMY PARKING LOT PAVEMENT REHAB – PHASE 1****CONTRACT NO. 202265100**

Abbreviation	Definition
CAR	Corrective Action Report
CCD	City and County of Denver
CCR	Contractor Change Request
CCRL	Cement Concrete Reference Laboratory
CD	Change Directive
CDOH	Colorado Department of Highways or Colorado Department of Health
CDOT	Colorado Department of Transportation
CMEC	Concrete Materials Engineering Council
CN	Change Notice
CO	Change Order
COE	Corps of Engineers
CPM	Critical Path Method
CR	Change Request
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
DEN	Denver International Airport
DFD	Denver Fire Department
DOT	United States Department of Transportation
DOR	Designer of Record
DWB	Denver Water Board
EEO	Equal Employment Officer or Equal Employment Opportunity
EIA	Electronics Industry Association
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FHWA	Federal Highway Administration
FM	Factory Mutual Association
FS	Federal Specifications (U.S. General Services Administration)
GCC	General Contract Conditions
GIS	Geographic Information Systems
GMP -	Guaranteed Maximum Price
IAPMO	International Association of Plumbing and Mechanical Officials
IBC	International Building Code (published by ICC)
IBR	Institute of Boiler and Radiator Manufacturer's
ICBO	International Conference of Building Officials
ICC	International Code Council
ICEA	Insulated Cable Engineers Association
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineering Society
IMC	International Mechanical Code (published by ICBO)
IPC	International Plumbing Code (published by ICBO)
ISA	Instrument Society of America
ITA	Independent Testing Agency
MIL	Military Specifications (Naval Publications and Forms Center)
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry
MUTCD	Manual of Uniform Traffic Control Devices
NAAB	National Association of Air Balance
NACE	National Association of Corrosion Engineers
NBS	National Bureau of Standards (now called National Institute of Standards and Technology)
NEC	National Electric Code (NFPA 70)
NECA	National Electric Contractors Association
NEMA	National Electrical Manufacturer's Association

ISSUED FOR CONSTRUCTION: Feb 2023

Revision No. 00

**TECHNICAL SPECIFICATIONS
DIVISION 01 – GENERAL REQUIREMENTS
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Abbreviation	Definition
NESCS	National Electrical Safety Code
NFC	National Fire Code (as published by NFPA)
NFPA	National Fire Protection Association
NICET	National Institute for the Certification of Engineering Technologies
NIST	National Institute of Standards and Technology
NGS	National Geological Survey
NLMA	National Lumber Manufacturers Association
NOAA	National Oceanic and Atmospheric Administration
NRMCA	National Ready Mix Concrete Association
NTP	Notice to Proceed
NVLAP	National Voluntary Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PDM	Precedent Diagram Method
PS	Product Standard of NIST (U.S. Department of Commerce)
PM	Project Manager
PMT	Project Management Team
PXP	Project Execution Plan
QA	Quality Assurance
QC	Quality Control
RFI	Request for Information
RTD	Regional Transportation District
SC	Special Contract Condition
SDI	Steel Door Institute
SMACNA	Sheet Metal and Air Conditioning Contractor's National Association
SSPWC	Standard Specifications for Public Works Construction
TCP	Traffic Control Plan
TSA	Transportation Security Administration
UL	Underwriters Laboratories, Inc.
USC	United States Code
WBS	Work Breakdown Schedule

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 014220

SECTION 014225**REFERENCE STANDARDS****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section contains a summary of industry-accepted and recognized standards published by trade associations, government, and institutional organizations that are referred to in the various Sections of these specifications or elsewhere in the Contract Documents.
- B. Standards listed herein are included in the Contract Documents by this reference and become a part of the Contract Documents to the same extent as though included in their entirety unless specific limitations are noted in the individual specifications Sections.
- C. Listings of reference standards include name and address of the organization publishing the standard, and the full name and designator of each of the standards referenced herein.
- D. If a publication date or edition number is listed with the reference standard, that publication date or edition number shall apply. Otherwise, the publication date or edition number in effect at the Contract date shall apply.
- E. Inclusion of reference standards herein does not make the DEN Project Manager an agent of the publishing agency, nor does it obligate the DEN Project Manager to perform inspections required by or to enforce rules or regulations contained in the reference standards.

1.03 SCHEDULE OF REFERENCE STANDARDS

- A. American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street, NW, Suite 249, Washington, DC 20090:
1. AASHTO M 36–Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains.
 2. AASHTO M216–Standard Specification for Lime for Soil Stabilization.
 3. AASHTO T26–Standard Method of Test for Water to be Used in Concrete.
 4. AASHTO T84–Specific Gravity and Absorption of Fine Aggregate.
 5. AASHTO T85–Specific Gravity and Absorption of Coarse Aggregate.
 6. AASHTO T103–Soundness of Aggregates by Freezing and Thawing
 7. AASHTO T219–Standard Methods of Testing Lime for Chemical Constituents and Particle Sizes.
- B. American Concrete Institute (ACI) 38800 Country Club Drive, Farmington Hills, MI 48331
1. ACI 211.1–Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
 2. ACI 301–Specifications for Structural Concrete for Buildings.

TECHNICAL SPECIFICATIONS**DIVISION 01 – GENERAL REQUIREMENTS****SECTION 014225 - REFERENCE STANDARDS****DENVER INTERNATIONAL AIRPORT****ECONOMY PARKING LOT PAVEMENT REHAB – PHASE 1****CONTRACT NO. 202265100**

3. ACI 304–Recommended Practices for Measuring, Mixing, Transporting and Placing Concrete.
 4. ACI 304.2R–Placing Concrete by Pumping Methods.
 5. ACI 305R–Hot Weather Concreting.
 6. ACI 306R–Cold Weather Concreting.
 7. ACI 318–Building Codes Requirements for Structural Concrete
 - a. Reference to ACI 318 may be limited to more stringent requirements of local building code.
- C. American Society for Testing and Materials (ASTM), International 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428:
1. ASTM A 27–Mild to Medium Strength Carbon - Steel Casting for General Application.
 2. ASTM A 36–Structural Steel.
 3. ASTM A 47–Malleable Iron Castings.
 4. ASTM A 82—Specification for Steel Wire, Plain, for Concrete Reinforcement: Replaced by A1064
 5. ASTM A 123–Hot-dip Galvanizing.
 6. ASTM A 184–Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
 7. ASTM A 185—Specifications for Steel Welded Wire, Fabric, Plain, for Concrete Reinforcement: Replaced by A1064
 8. ASTM A 283–Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars.
 9. ASTM A 615–Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 10. ASTM A 706–Specification for Low-Alloy Steel Deformed Bars for Concrete Reinforcement.
 11. ASTM C 25–Method for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime.
 12. ASTM C29–Unit Weight and Voids in Aggregate
 13. ASTM C 31–Methods of Making and Curing Concrete Test Specimens in the Field.
 14. ASTM C 33–Specification for Concrete Aggregates.
 15. ASTM C 39–Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 16. ASTM C 42–Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
 17. ASTM C 76–Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
 18. ASTM C 88–Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
 19. ASTM C 94–Specification for Ready Mixed Concrete.
 20. ASTM C 109–Compressive Strength of Hydraulic Cement Mortars
 21. ASTM C 110–Methods for Physical Testing of Quicklime, Hydrated Lime, and Limestone.

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22. ASTM C 117–Materials Finer than 75 mm (No. 200) Sieve in Mineral Aggregates by Washing.
23. ASTM C 131–Resistance of Abrasions of Small Size Coarse Aggregate by Use of the Los Angeles Machine.
24. ASTM C 136–Method for Sieve Analysis of Fine and Coarse Aggregates.
25. ASTM C 138–Unit Weight, Yield, and Air Content of Concrete.
26. ASTM C 143–Test Method for Slump of Hydraulic – Cement Concrete
27. ASTM C 150–Specification for Portland Cement
28. ASTM C 171–Specification for Sheet Material for Curing Concrete.
29. ASTM C 172–Method of Sampling Fresh Concrete.
30. ASTM C 173–Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
31. ASTM C 231–Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
32. ASTM C 260–Specification for Air Entraining Admixture for Concrete.
33. ASTM C 309–Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
34. ASTM C 443–Joints for Concrete Pipe and Manholes, using Rubber Gasket
35. ASTM C 494–Specification for Chemical Admixtures for Concrete.
36. ASTM C 595–Blend Hydraulic Cements.
37. ASTM C 618–Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for use in Concrete
38. ASTM C 655–Reinforced Concrete D Load Culvert, Storm Drain, and Sewer Pipe.
39. ASTM C 789—Precast Reinforced Concrete Box Sections for Culverts, Storm Drains and Sewers: Replaced by C1433
40. ASTM C 803–Test Method for Penetration Resistance of Hardened Concrete.
41. ASTM C 805–Test Method for Rebound Number of Hardened Concrete.
42. ASTM C 977–Specification for Quicklime and Hydrated Lime for Soil Stabilization.
43. ASTM D 75–Sampling Aggregate.
44. ASTM D 422–Test Method for Particle Size Analysis of Soils.
45. ASTM D 516-88–Standard Test Method for Sulfate Ions in Water.
46. ASTM D 693—Crushed Stone, Crushed Slag and Crushed Gravel for Dryer Water-Bound Macadam Base Courses and Bituminous Macadam Base and Surface Courses of Pavements: Withdrawn
47. ASTM D 698–Laboratory Compaction Characteristics of Soil using Standard Effort
48. ASTM D 751–Test Method for Coated Fabrics
49. ASTM D 1556–Test Method for Density of Soil in Place by the Sand-Cone Method.
50. ASTM D 1557–Laboratory Compaction Characteristics of Soil using Modified Effort
51. ASTM D 1682—Ultraviolet Resistance Grab Tensile Strength Grab Tensile Elongation Toughness: Replaced by D5034 and D5035
52. ASTM D 1751–Specification for Preformed Expansion Joint Fillers for Concrete

**TECHNICAL SPECIFICATIONS
 DIVISION 01 – GENERAL REQUIREMENTS
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Paving and Structural Construction.

53. ASTM D 1752–Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
 54. ASTM D 2167–Test Method for Density of Soil in Place by the Rubber-Balloon Method.
 55. ASTM D 2216–Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock and Soil Aggregate Mixtures.
 56. ASTM D -79 (2011) Hydroxypropyl Methylcellulose
 57. ASTM D 2419–Sand Equivalent Value of Soils and Fine Aggregate.
 58. ASTM D 2487–Test Method for Classification of Soils for Engineering Purposes.
 59. ASTM D 2922—Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Method: Replaced by D6938
 60. ASTM D 3017—Test Method for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth): Replaced by D6938
 61. ASTM D 3665–Random Sampling of Paving Materials.
 62. ASTM D 4253–Test Method for Maximum Index Density of Soils Using Vibratory Table.
 63. ASTM D 4318–Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
 64. ASTM D 4397–Specification for Polyethylene Sheeting for Construction, Industrial and Agricultural Applications.
 65. ASTM D 4546–Test Method for One-Dimensional Swell or Settlement Potential of Cohesive Soils.
 66. ASTM E 329–Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
 67. ASTM F 477–Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
 68. ASTM F 758–Smooth-Wall Poly (Vinyl Chloride) (PVC) Plastic Underdrain Systems for Highway, Airport and Similar Drainage.
- D. American Welding Society (AWS), 550 NW LeJeune Road, Miami, FL 33135 AWS Code for Welding in Building Construction (Structural Welding Code).
- E. Concrete Reinforcing Steel Institute (CRSI) 933 N. Plum Grove Road, Schaumburg, IL 60195, (312) 490-1700:
1. Manual of Standard Practice.
- F. Colorado Department of Transportation (CDOT) Division of Administration, Office of Bid Plans, 4201 E. Arkansas Avenue, Denver, CO 80222:
1. Standard Specifications for Road and Bridge Construction (latest edition) Colorado Standard Plans, M&S Standards.
- G. Federal Highway Administration (FHWA) Superintendent of Documents, US Government Printing Office, Washington DC, 20402:
1. Manual of Uniform Traffic Control Devices (latest edition).

PART 2 - PRODUCTS (NOT USED)

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PART 3 - EXECUTION (NOT USED)

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 014225

SECTION 014230**DEFINITIONS AND CONVENTIONS****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section contains a list of definitions of words or phrases and grammatical or contextual conventions commonly used in these Contract Documents.

1.03 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. Alphabetical Listing of Definitions:
1. As indicated: Shown on the drawings by graphic indication, notes, or schedules, or written in the specifications or elsewhere in the Contract Documents.
 2. As directed, as approved, as requested: Unless otherwise indicated, these terms imply "by the DEN Project Manager" and require that an instruction be obtained by the Contractor from the DEN Project Manager.
 3. Concealed: Embedded in masonry, concrete, or other construction; installed in furred spaces; within double partitions or hung ceilings; in trenches; in crawl spaces or in enclosures.
 4. Ensure: To make certain in a way that eliminates the possibility of error.
 5. Exposed: Not installed underground or "concealed" as defined above.
 6. Furnish or Provide: To supply, install and connect complete and ready for safe and regular operation of particular work unless specifically otherwise noted.
 7. Indicated, Shown, or Noted: As depicted on drawings or specifications.
 8. Install: To erect, mount and connect complete with related accessories.
 9. Or equal, or approved equal: Refers to products which, in the opinion of the DEN Project Manager, are similar in all respects to products specified by proprietary brand name. Refer to Section 012510 "Substitutions" for procedures for submittal of proposed substitutions.
 10. Rework: To repair existing items or work required to be removed and replaced in order to accomplish the Work in accordance with the Contract Documents.
 11. Related Work: Includes, but not necessarily limited to, mentioned work associated with, or affected by, the Work specified.
 12. Reviewed, Satisfactory, Accepted, or Directed: Assumes by or to the DEN Project Manager.
 13. Similar, or Equal: Same in materials, weight, size, design, construction, capacity, performance, and efficiency of specified product.
 14. Supply: To purchase, procure, acquire and deliver complete with related accessories.

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15. Unless Otherwise Indicated and Unless Otherwise Noted: General note to perform work as indicated or shown on drawings or in specifications unless specifically directed otherwise elsewhere in the Contract Documents; may be abbreviated "U.O.N.", "U.O.I.", or "U.N.O."

C. BIM Model Definitions:

1. Building Information Model (BIM): BIM is a digital representation of the physical and functional characteristics of the Project and is referred as a Model(s), which term may be used to describe a Model Element, a single Model or technology used to create the Model.
2. Design Model: A Model that has reached the stage of completion that would customarily be expressed by an architect or engineer in two-dimensional Construction Documents.
3. Construction Model: The equivalent of shop drawing and other information useful to construction. A model that consists of data imported from a "Design Model or", if none exist, from a designer's "Construction Document".
4. Federated Model: Distinct component models "linked" together in such a manner that the linked data sources so not lose the indent or integrity by being so linked.
5. Level of Development (LoD): LoD describes the level of completeness to which a Model Element is developed.
6. Model Element: Is a portion of the BIM representing a component system or assembly within a building or building site.
7. Model Element Author: The party responsible for developing the content of a specific Model Element to the LoD for a particular phase of the Project.

1.04 BIM REFERENCE STANDARDS

- A. Refer to the DEN BIM Design Standard Manual (DSM) for the proposed minimum requirements of the BIM Execution Plan. The execution plan shall be further developed jointly with DEN and the Contractor to specifically address the administrative steps necessary to provide comprehensive BIM system before during and after construction.

1.05 CONVENTIONS**A. Specifications Format:**

1. In order to standardize the location of information in the Contract Documents, the specifications generally are organized in one or more of the following formats:
 - a. The "MASTERFORMAT" 2011 Edition published by the Construction Specifications Institute.
 - b. The Standard Specifications for Road and Bridge Construction published by CDOT.
 - c. The alphanumeric system as published by the FAA.

B. Organization of Drawings and Specifications:

1. Organization of the specifications into divisions and sections, and arrangement or numbering of drawings is intended solely for the convenience of the Contractor in the Contractor's responsibilities to divide the Work among subcontractors or to establish the extent of work to be performed by any trade.
2. Neither the City nor the DEN Project Manager assume any liability arising out of jurisdictional issues or claims advanced by trade organizations or other interested parties based on the arrangement or organization of drawings or specifications.

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- C. Gender and Number:
1. For convenience and uniformity, parties to the Contract, including the City, Contractor, and DEN Project Manager, and their subcontractors, suppliers, installers, consultants or other interested parties are referred to throughout the Contract Documents as if masculine in gender and singular in number. Such reference is not intended to limit the meaning of the Contract Documents to the masculine gender or singular number.
- D. Singular vs. Plural:
1. Materials, products, equipment, or other items of work referred to in the singular shall be construed as plural where applicable by the intent of the Contract Documents and shall not limit quantities to be provided by the Contractor.
- E. Imperative Mood:
1. Specifications and notes on the drawings or elsewhere in the Contract Documents are generally written in the imperative mood as instructions to the Contractor, whether the Contractor is specifically addressed or not.
- F. References to Subcontractors or Trades
1. References to subcontractors, trades or other entities, which are not parties to the Contract, shall be construed as meaning the Contractor whose responsibility it shall be to divide the Work among subcontractors or trades. Such references are used as a matter of convention, and are not intended to preclude or direct the Contractor's responsibility to divide the Work.
- G. Abbreviations
1. A list of abbreviations used in the Contract Documents is included in Technical Specifications Section 014220 "Abbreviations and Symbols"; an abridged list of abbreviations used on the drawings is included with the drawings.
 2. Abbreviations are believed to be those in general use in the construction industry. Contact the DEN Project Manager for clarification of abbreviations for which the meaning is not clear.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 014230

SECTION 014510**CONTRACTOR QUALITY CONTROL****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section identifies the Quality Control activities to be performed during all phases of the Contract by the Contractor.
- B. The Contractor shall have in place a Quality Control Program as necessary to ensure that all materials and work are completed in compliance with Contract Documents. The Contractor is solely responsible for Quality Control and shall provide the necessary quality control personnel to ensure that all materials, workmanship, and tests are in conformance with the Project documents with the exception of those tests and/or audits that may be conducted by the City as defined in the contract documents.
- C. Test schedules and/or testing requirements for materials used on this project are included in the technical specifications. Laboratory and field-testing identified in the specifications shall be conducted by a Testing Agency retained by the Contractor; hereafter is referred to as the Contractor Testing Agency (CTA).
- D. The City or the City's consultant will employ a testing agency to perform all the required Quality Assurance and Special Inspection Testing of material and Inspection of workmanship required by the Contract Documents and the Building Official to fulfill the code and the regulatory authority's requirements. The Contractor must schedule these tests and provide access to the City inspectors and testers to perform these tests and inspections on behalf of the City. The performance of the tests by the City does not relieve the Contractor of the responsibility to deliver a fully functional building meeting all the requirements of the Contract Documents and their intent. The Contractor must develop its own testing program for processing, acceptance from the subcontractor or suppliers at a frequency defined by the contractor for its own process control and to assure delivery of the intended acceptable workmanship. All time impacts of testing and retesting shall be accounted for in the updated schedule and any mitigation of time impacts shall be the responsibility of the Contractor.

1.03 SUBMITTALS

- A. Refer to Section 013300 "Submittals" and Section 013325 "Submittal Procedures" for submittal requirements.
- B. Quality Control Plan: Within ten (10) days after Notice to Proceed, the Contractor shall submit a Quality Control Plan for review and acceptance. The Quality Control Plan shall be accepted by the DEN Project Manager prior to any Work or materials being incorporated into the Project. Acceptance by the DEN Project Manager does not relieve the Contractor of its responsibility to comply with the Contract Requirements. The Contractor Quality Control Plan shall address the following as a minimum:
1. A general description of Quality Control monitoring to be performed until final acceptance by DEN. Include monitoring activities of Work and the work site during

- times that no construction activity is scheduled to take place.
- a. No work requiring QC inspection and testing shall take place without QC inspection and testing staff on site.
2. An individual designated by the Contractor and approved in writing by the DEN Project Manager whose responsibility is Quality Control Management. This individual shall be highly qualified in all phases of construction as it relates to this Project and shall have the authority to direct work changes required to bring the Work into conformance with Contract requirements, including stopping non-conforming work in progress. A detailed resume of the proposed Quality Control Manager including applicable education, experience, and certifications shall be included in the Quality Control Plan.
 - a. At the discretion of the DEN Project Manager, for Small Projects, Early Work Packages and Task Orders all of value less than \$1,000,000 or a duration which is less than three (3) months, the Contractor may assign one of the Contractor's staff, i.e. Contractor's Superintendent, Office Engineer, Field Engineer, or Contractor's Project Manager as Quality Control Manager. The assigned person must be on site while work requiring QC inspection and testing is being completed and available to discuss quality issues, manage all aspects of the Project Quality Control Plan, coordinate all required Special Inspection and Quality Assurance testing, and provide proposed solutions on all quality issues at any time as to not cause any delay to the project. Any delays caused in part or in all due to defective or no conforming work shall be borne by the Contractor.
 3. Quality Control inspection staff as needed to assist the Quality Control Manager with implementation of the Quality Control Program. Duties of the Quality Control Inspectors shall be limited strictly to inspection of the ongoing work. Sampling and testing of materials shall be performed by Quality Control personnel other than Quality Control Inspectors. Quality Control Inspectors shall inspect only those work elements for which they are qualified. Resumes of the proposed Quality Control Inspectors including applicable education, experience and certifications shall be included in the Quality Control Plan.
 4. An Organization Chart identifying all Quality Control staff by name and function. The chart shall indicate the total staff required to implement all elements of the Quality Control Program, including inspection and testing for each item of work including tests performed by the CTA or DTA. If necessary, different Quality Control staff can be utilized for specific inspection and testing functions for different items of work. The chart shall show that the Quality Control Manager, Quality Control Inspectors, and Quality Control testing personnel are outside of the production staff with clear lines of authority for Quality Control.
 5. The City will employ a DTA. If the Project Management Team for the project is a consultant of the City, then the City's consultant may employ a DTA. The Contractor's testing and inspection shall be performed for the processing, preparation and to request City's inspection and as necessary to produce the required product as specified in the Contract Documents. The Contractor shall meet the minimum inspection and testing frequencies specified in the contract documents. When the contract documents do not specify minimum inspection and testing frequencies the Contractor shall propose in writing to the DEN Project Manager a QC inspection and testing frequencies that meet or exceed industry standards for the material and work being placed or conducted.
 6. Any test performed by any agency on the Project shall be recorded and show a passing re-test of all failing tests.
 - a. All test results shall be made available for inspection by the DEN Project Manager. This includes tests that are above the QC testing frequency required.
 7. Any tests submitted by the Contractor for basis of acceptance, or payment reduction

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when performed by the Contractor or on its behalf, must meet all standards and must be certified to have followed approved procedure, processed in a certified lab by properly certified or licensed personnel by properly certified testers and on calibrated and certified equipment. Authentications of tests must be preapproved and cannot be selectively submitted. All tests shall be recorded in the field witnessed by DEN's inspector in order to be accepted as a record test of the material in question. Any failing tests could be the sole basis for rejecting the material.

8. Each technical specification division's requirements for quality control identifying each item requiring submittal and approval/acceptance prior to installation of work, all inspections to be performed during work and prior to acceptance of work, each item of work requiring testing by the independent testing agency or the City provided testing agency, and the testing frequency.
 9. The plan shall address all elements of special inspection required by the statement of special inspection as approved by the Building Official. All special inspections and tests will be performed by agencies employed by the City.
 10. The Contractor is responsible for the complete record of inspection file including but not limited to all manufacturer certificates, certificates of material compliance, Certificates of Material Testing Record, successful re-inspection of all deficiency items, proper deposition of design related Non-Conformance reports (NCR), Structural Engineers' observation reports, certification letters from the DTA, Building Inspectors' records of approvals, permit cards, fire suppression and fire- alarm tests records as witnessed by the authorities of jurisdiction and any record necessary to achieve a certificate of occupancy.
 11. The Contractor must keep track of all logs of discrepancies and submit periodic updates, as required by the DEN Project Manager, of all open issues and track the closure of open items in a timely manner.
 12. Establish controls and documentation format to ensure that items or materials that have been accepted through receiving inspection are used or installed. Identification and traceability shall be provided throughout all inspections, test activities, and records. For stored items, provisions shall be made for the control of item/material identification, consistent with the expected duration and type of storage.
 13. A methodology of monitoring, testing, and exercising of all equipment, valves, and/or assemblies to ensure the Work installed is in proper working order.
 14. A list of suppliers and subcontractors. This list shall include items to be supplied by each supplier and/or subcontractor and shall identify work to be performed by each subcontractor. The list shall be updated and resubmitted as required.
 15. All approvals related to Special Inspection are subject to the acceptance or approval of the Building Official.
 16. Emergency contact information including name, company, title, work phone number, home phone number, and other means of contact. The Emergency Contact list shall include at least four individuals. The Emergency Contact list shall be maintained on a daily basis. In the event there is any change in any of the information, the Contractor shall forward the updated list to the DEN Project Manager and to DEN Maintenance Control (303-342-2800). The Emergency Contact list shall include the project number, project title, and date of issue.
- C. The Contractor shall transmit the following daily reports to the DEN Project Manager electronically PRIOR TO THE CLOSE OF BUSINESS ON the following workday:
1. CM-13 Contractors Daily Construction Report. The Foreman may add sheets of information to this form as needed.
 2. CM-07 Daily Quality Control Inspection Report and all CTA test results performed that

day.

3. CM-08 Daily DEN Time and Materials Report

- D. Deficiency List: The Quality Control Manager shall establish a deficiency list including the minimum information for each deficiency item; description, date, location, drawings reference, detail reference, specification reference, and superseding document NCR, date of expected solution date repaired date inspected by City representative and accepted.

1.04 DOCUMENTATION

- A. The Contractor shall not change or alter approved submittals, procedures, specifications, drawings/MODELS, or other pertinent documentation without the DEN Project Manager's written authorization.
- B. All records and documents that are related to quality control or assurance shall be prepared, identified and maintained by the Contractor and shall be made available to DEN upon request. Records shall be protected from damage, deterioration, or loss. A copy of the records and documents shall be maintained at the Work site at all times unless the DEN Project Manager has approved other locations in writing. Retention time for all quality records shall be not less than six (6) years from date of Final Acceptance of the Contract.
- C. The Contractor is responsible for the complete record of inspection file including but not limited to all manufacturer certificates, certificates of material compliance, Certificates of Material Testing Record, successful re-inspection of all deficiency items, proper deposition of design related NCRs, Structural Engineers' observation reports, certification letters from the DTAs, Building Inspectors' records of approvals, permit cards, fire suppression and fire-alarm tests records as witnessed by the authorities of jurisdiction and any record necessary to achieve a Certificate of Occupancy.
- D. The Contractor shall maintain records at the actual worksite and at Contractor's office to show the inspection status of materials and items installed in order to ensure that the required inspections and tests have been performed in a timely and correct manner.
- E. The Contractor must keep a record of all deficiency issues and show positive evidence of closure (passing re-inspection or re-test) to every issue.

1.05 INSPECTIONS AND TESTS

- A. Inspections, tests and system shut down requests, conducted by persons or agencies other than the Contractor, shall not in any way relieve the Contractor of the responsibility and obligation to meet all specifications and the referenced standards. The Contractor's designated Quality Control Representative shall inspect the work and shall ensure the Work complies with the Contract requirements prior to any requests for inspection or testing.
- B. When the specifications, laws, ordinances, rules, regulations or orders of any public agency having jurisdiction require the DEN Project Manager's surveillance of inspections or tests, the Contractor shall notify the DEN Project Manager, in writing, of the place, date and time 48 hours prior to the inspection and/or test. The Contractor shall be responsible for notifying and requesting inspection by other agencies including but not limited to the Denver Building Inspection Division, Denver Fire Department, and Denver Water Department. Prior to request for other agency inspections, the Contractor shall meet and plan inspection times with the DEN Project Manager.
- C. Special inspections or tests may be required by the technical specifications, City, State and/or Federal Agencies in addition to those tests already performed. The Contractor shall notify the DEN Project Manager, in writing, at least 48 hours in advance of the additional

inspections or tests.

- D. Quantities will be verified as defined in the Pre-Work Meetings.

1.06 INSPECTION PLAN

- A. The Contractor shall utilize the following six-point inspection plan to ensure the conformance of the Work performed by the Contractor meets the requirements of the Contract Drawings and specifications, the referenced codes and standards and the approved submittals:
1. Prework Coordination: Prior to the start of construction work on the Contract and prior to the start of Work under each separate specification section and prior to the start of Work where a change in a construction operation is contemplated by the Contractor, and prior to a new subcontractor starting work, a coordination meeting to ensure that the Contractor's personnel have no misunderstandings regarding their safety and quality procedures as well as the technical requirements of the Contract will be held with the Contractor's superintendent, Quality Control and Safety representatives, and DEN Project Manager. Supervisory, Safety and Quality Control, representatives of all applicable subcontractors will also attend. Prior to the meeting, the Contractor's Quality Control Manager shall provide the DEN Project Manager with a meeting agenda for review. The Contractor's Quality Control Manager shall conduct the meeting and distribute the approved agenda. The Quality Control Manager shall develop and electronically distribute finalized meeting minutes within one business day upon completion of the meeting. The following items shall be presented and reviewed by the Contractor:
 - a. Contract requirements and specifications.
 - b. Shop drawings, certifications, submittals, models, and as-built drawings.
 - c. Testing and inspection program and procedures.
 - d. Contractor's Quality Control program.
 - e. Familiarity and proficiency of the Contractor's and subcontractor's workforce to perform the operation to required workmanship standards including certifications of installers.
 - f. Safety, security, and environmental precautions to be observed.
 - g. Any other preparatory steps dependent upon the particular operation.
 - h. The Contractor's means and methods for performing the Work.
 2. Initial Inspection: Upon completion of a representative sample of a given feature of the Work and no later than two weeks after the start of a new or changed operation, the DEN Project Manager and/or the DEN Project Manager's designated representatives will meet with the Contractor's Quality Control representative and applicable subcontractor's supervisor and their Quality Control representatives to check the following items, as a minimum:
 - a. Workmanship to established quality standards.
 - b. Conformance to Contract Drawings, specifications and the accepted shop drawings.
 - c. Adequacy of materials and articles utilized.
 - d. Results of inspection and testing methods.
 - e. Adequacy of as-built drawings/MODELS maintained daily.
 - f. Once accepted, the representative sample will become the physical baseline by which ongoing work is compared for quality and acceptability. To the maximum practical extent, approved representative samples of work elements shall remain visible until all work in the appropriate category is complete. Acceptance of a sample does not waive or alter any Contract requirements or show acceptance of any deviation from the Contract not approved in writing by the DEN Project

Manager.

3. Follow-up Inspection: The Contractor's Quality Control representative will monitor the Work to review the continuing conformance of the Work to the workmanship standards established during the preparatory and initial inspections.
4. Completion Inspection: Forty-eight (48) hours prior to the completion of an item or segment of work and prior to covering up any work, the Contractor shall notify the DEN Project Manager, in writing, who will verify that the segment of work is substantially complete, all inspections and tests have been completed and the results are acceptable. The purpose of this inspection is to allow further corrective work upon, or integral to, the completed segment of work. THIS IS NOT AN ACCEPTANCE INSPECTION. If any items are determined to be deficient, need correction or are non-conforming, a Deficiency List will be prepared and issued to the respective Contractor for correction, repair, or replacement of any deficient or non-conforming items. The DEN Project Manager and Contractor's Quality Control representative will verify the correction of the deficient and/or non-conforming items prior to the start of the next operation.
5. Pre-Final Acceptance Inspection: Prior to requesting a Pre-Final Acceptance Inspection by DEN, all work and operational systems to be inspected shall be satisfactorily completed and tested by the Contractor. The Contractor's written request for this inspection shall be made seventy-two (72) hours in advance. With the request shall come a list of any known deficiencies and when they will be corrected. If the list is too large or contains too many significant items, in the opinion of the DEN Project Manager, no inspection will be held because of the incompleteness of the Work.
6. The DEN Project Manager will schedule the Pre-Final Acceptance Inspection and will prepare a list of deficient items (punch list) discovered during the inspection. If during the inspection, the list becomes too large or too many significant items are on the list, the inspection will be canceled by the DEN Project Manager. After the inspection is completed, the Deficiency List will be transmitted to the Contractor for correction of the deficient items.
7. Final Acceptance Inspection: After the Contractor has completed all items on the Deficiency List (generated from the Pre-Final Acceptance Inspection), he shall request a Final Acceptance Inspection. The request shall be made in writing at least seventy-two (72) hours in advance of the inspection. All areas must be cleaned and ready for turnover prior to this inspection. The DEN Project Manager, the design consultant, a representative of the funding agency (if applicable) and other interested parties will inspect the subject Work to ensure that all deficiencies have been satisfactorily attended to and that no new deficiencies have appeared and that all systems are completely functional. Any outstanding or additional deficient items will be noted and handled per the requirements of the Pre-Final Acceptance Inspection noted above until the Work is acceptable to the DEN Project Manager.

1.07 CONTRACTOR SUBMITTAL OF PROPOSED CONTRACTOR'S TESTING AGENCIES

- A. Refer to Section 014525 - Material Testing Agency

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 REQUIREMENTS

- A. All materials required for the Contract shall be new except where specified otherwise. The DEN Project Manager may elect to perform additional inspections and/or tests at the place

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of the manufacture, the shipping point or at the destination to verify conformance to applicable specifications. Inspections and tests performed by DEN shall not relieve the Contractor from the responsibility to meet the specifications, nor shall such inspections/tests be considered a guarantee for acceptance of materials that will be delivered at a later time.

- B. Materials accepted based on a Certificate of Compliance may be sampled and inspected/tested by DEN or its designer at any time. The fact that the materials were accepted based on such certification shall not relieve the Contractor of the responsibility to use materials that conform to the specifications.
- C. The Contractor shall impose upon suppliers the same quality control requirements, including inspection and test procedures, as imposed upon him by the specifications and referenced standards. The Contractor shall apply appropriate controls, designed to ensure that all materials supplied meet the requirements and specifications.

3.02 NONCONFORMING WORK AND MATERIALS

- A. Non-conformance Report (NCR)
 - 1. The Project Manager will issue an NCR to the Contractor whenever there are violations of the terms of the contract that cannot be immediately brought back into conformance, including materials received and/or items of the work found not to be in conformance with contract requirements. When issued, a Non-conformance Report will preclude payment for elements noted and will remain in effect until corrective actions have been submitted, approved, and performed.
 - 2. The NCR will describe the nature and extent of nonconforming elements and will include space for the Contractor's corrective action proposal, the designer's review of the Contractor's proposal, reinspection and/or verification of approved corrective rework and a space for the Project Manager's disposition of the nonconformance matter. Copies of the NCR, at each step of its processing (i.e., initial issuance to Contractor through final disposition), will be sent to the Contractor.
 - 3. The NCR will be signed by the DEN Project Manager, and Contractor must acknowledge and sign the NCR within (10) days.
 - 4. The Project Manager will make the disposition of nonconforming items/materials.
 - 5. Failure to list any nonconforming work on an NCR does not relieve the contractor of responsibility for completing the Work in accordance with all contract requirements.
 - 6. The contractor cannot submit change requests associated with any portion of work under an NCR.
- B. The Contractor is obligated to correct any item deem deficient.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

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- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 014510

SECTION 014525**MATERIAL TESTING AGENCY****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. The Contractor shall employ the services of a Material Testing Agency; hereafter referred to as the Contractor Testing Agency (CTA). This Section identifies the requirements for the Contractor to employ a Material Testing Agency and identifies the required activities of the Material Testing Agency.
- B. Laboratory and field-testing requirements to be conducted by the CTA for materials and construction methods used on this project are included in the appropriate technical specifications. Where the Specifications reference the CDOT Standard Specifications for Road and Bridge Construction, the references shall also mean CDOT Field Materials Manual for schedule of tests unless otherwise stated. As a minimum, the CTA described in this Section shall perform all applicable tests listed in the manual including the independent assurance sampling and testing. In the event of such a conflict between the schedule and a specification in these technical provisions, the more comprehensive testing shall govern unless otherwise noted.
- C. Inspections and tests conducted by the CTA shall not in any way relieve the Contractor of the Contractor's responsibility and obligation to meet all specifications and referenced standards. Employment of the CTA does not relieve the Contractor of providing the required Quality Control program.
- D. When inspections or tests by the CTA prove that the item or material does not meet all applicable specifications and requirements, the cost incurred for the re-testing or re-inspection shall be borne by the Contractor as per this Section.
- E. Samples will only be considered if taken at random. The Contractor shall permit representatives of the City to witness the selection of samples. Inspection or tests of items or materials that fail shall be sufficient cause to terminate further inspections/tests of the same brand, make or source of that product.
- F. The Contractor is obligated to correct any item deemed deficient at no additional cost to DEN.

1.03 SUBMITTALS

- A. All submittals shall comply with requirements of Sections 013300 "Submittal Procedures" and 013325 "Shop and Working Drawings, Product Data and Samples" for submittal requirements.

1.04 CONTRACTOR SUBMITTAL OF PROPOSED TESTING AGENCIES

- A. The Contractor shall employ the services of a CTA that has been accredited by AASHTO or CCRL or an approved equal to perform the tests required in the Contract. The CTA may

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also provide technicians to perform the required inspections. However, inspection and testing cannot be performed simultaneously by the same technician. The Contractor shall receive written acceptance from the DEN Project Manager of the CTA prior to any permanent work being installed or tested.

- B. The Contractor shall not submit for acceptance to the DEN Project Manager any testing agency or laboratory utilized in the design or construction document preparation or presently employed by DEN as part of DEN Quality Assurance, Material Testing, or special inspection agencies.
- C. For consideration of acceptance, the Contractor shall submit to the DEN Project Manager the following items received from the CTA:
 - 1. Affidavit of current accreditation from a national certification and/or accreditation program(s).
 - 2. Evidence that the CTA Laboratory is accredited to perform the testing required in the Contract Documents.
 - 3. Resumes and evidence of professional engineer registration and licensing in the State of Colorado for the personnel reviewing and signing test reports.
 - 4. Resumes and current certifications verifying that CTA management and supervisory personnel, laboratory staff, field testing technicians, and inspecting technicians are qualified in accordance with ASTM C 1077, D 3666, D 3740, and E 329 requirements to perform the Work. NICET, ACI, WAQTC, LabCAT, CDOT, NRMCA, PCA, AWS, ASNT certifications or a degree in a related engineering field with construction field experience that can demonstrate qualifications. A list summarizing all management, supervisory, laboratory, field testing, and inspection personnel assigned to the Project including the testing and/or inspection each individual will be performing, certifications held by each individual, and the expiration date of each certification.
 - 5. A matrix indicating each technical specification section, paragraph, quantity and type of sampling and/or testing required.
 - 6. Copies of all laboratory, field testing, and inspection report forms.

1.05 SUBMITTAL OF REPORTS

- A. Test results shall be submitted by the Contractor to the DEN Project Manager after completion of inspections/tests by the CTA and prior to incorporation of the items into the Work unless the test or inspection must be done during or after installation.
- B. All field test results including but not limited to fresh concrete properties and in-place moisture-density shall be reported in legible draft form to the DEN Inspector immediately at the test site. Any failing test shall be reported separately to the DEN Inspector or DEN Project Manager. The draft test results shall also be attached to the Daily Quality Control Inspection Report (reference Section 014510 "Contractor Quality Control") and transmitted to the DEN Project Manager the next workday.
- C. Typed test reports shall be provided to the DEN Project Manager as specified in the "Weekly Reports" Article in this Section. The test reports shall be numbered sequentially in chronological order. Individual tests shall be numbered sequentially. The reports and tests shall also be organized per specification section. All test results must be reviewed and signed by a registered licensed engineer in the State of Colorado. The signature represents that the test procedures used are in strict conformance with the applicable testing standard, the calculated data are true and accurate, the tools and equipment used were in calibration, the sample was not contaminated and the persons running the test were qualified.

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- D. Reports of inspections and test activities are record documents and shall be maintained in a manner that provides integrity of item identification, acceptability, and traceability. Reports shall identify the following:
1. Contractor's name.
 2. DEN Contract number and title.
 3. Material Testing Agency name.
 4. Name of items inspected/tested including a physical description and, as applicable, model and make.
 5. Quantity of items.
 6. Inspection/test procedure used. If national standards are used, any deviation from these standards.
 7. Date the sample was taken and the date the test was made.
- E. Location (by coordinates, building grid or station number and elevation) of where tests and/or samplings were performed including environmental condition where applicable. Include plan drawing indicating location of test, lot size and location and work item sampled or tested.
1. Name of inspector/tester.
 2. In the event the testing or sampling is a re-test or re-sampling, reference the previous respective testing or sampling report.
 3. Specified requirements in the Contract that the item must meet. Include reference to technical specification section and paragraphs.
 4. Acceptability.
 5. Deviations/nonconformance.
 6. Evaluation of results.
 7. All information required for the specific test as specified in the applicable ASTM standard.
 8. Signature of authorized evaluator.

1.06 WEEKLY SUMMARY REPORTS

- A. The CTA and Quality Control Manager shall prepare and submit to the DEN Project Manager a weekly summary report each week, which summarizes by specification section all work activities and results for the quality control tests and inspections conducted during that period. The weekly summary report shall be submitted within two (2) weeks from the end of the reporting period. At a minimum, the weekly summary report shall identify all inspections, test types, test locations, testers, test results, specifications, whether the test passed or failed, quantity of materials placed and the number of tests performed for each material, and the material supplier, installer and Contractor. Re-tests shall be identified in a fashion that easily correlates to the failing test. Any failed tests that have not been corrected when the report is published shall be highlighted and noted in the cover letter of the report.
- B. The weekly report shall be submitted per Sections 013300 requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 REMOVAL OF NONCONFORMING MATERIAL

- A. The Contractor is obligated to correct or remove nonconforming materials, whether in place or not. If necessary, the DEN Project Manager will send written notification to the Contractor to correct or remove the defective materials from the project. If the Contractor fails to respond, the DEN Project Manager may order correction, removal, and/or replacement of defective materials by others, in which case the Contractor shall bear all costs incurred related to correcting, removing, and/or replacing the defective materials.

3.02 PERFORMANCE

- A. If the DEN Project Manager determines that the CTA or its personnel are not effectively enforcing or performing the testing and documentation requirements specified in the Contract, the DEN Project Manager will require, in writing, the Contractor to remove and replace the CTA or such personnel at no cost to DEN.

3.03 CONTROL OF MEASURING AND TEST EQUIPMENT

- A. The CTA shall select measuring and test equipment in such a manner as to provide proper type, range, accuracy, calibration, and tolerance for determining compliance with specified requirements. Measuring and test devices shall be calibrated, adjusted and maintained at prescribed intervals prior to use based upon equipment stability and other conditions affecting measurement. Provisions shall be made for the proper handling and storage of equipment. Calibration shall be accomplished using certified standards that have a known traceable relationship to the National Institute of Standards and Technology. Every calibrated measuring and test device shall show the current status, date of last calibration and the due date for the next calibration. Calibration records shall be maintained onsite as quality records and shall be made available for inspection upon the DEN Project Manager's request.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 014525

SECTION 015050**MOBILIZATION****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Section 012910 "Schedule of Values"

1.02 SUMMARY

- A. The Work specified in this Section consists of preparatory work and operations including, but not limited to the following:
 - 1. Those necessary for the movement of personnel, equipment, supplies, and incidentals to the work site.
 - 2. For the establishment of all offices, buildings and other facilities necessary for the Work on the Project.
 - 3. For all other work and operations that must be performed or costs incurred prior to beginning work on the various Contract items on the work site.

1.03 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- B. Submit a Mobilization Schedule a minimum of fourteen (14) days prior to first billing for mobilization.

1.04 DELIVERY

- A. Delivery to the work site of construction tools, equipment, materials, and supplies shall be accomplished in conformance with all local governing regulations.

PART 2 - PRODUCTS**2.01 PRODUCTS**

- A. Provide construction tools, equipment, materials, and supplies of the type and quantities that will facilitate the timely execution of the Work.

PART 3 - EXECUTION**3.01 EXECUTION AND REMOVAL**

- A. Provide personnel, products, construction materials, equipment, tools, and supplies at the work site at the time they are required and scheduled to be installed or utilized.

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PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 015050

SECTION 015210**TEMPORARY FACILITIES****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.
 2. Section 312319 "Dewatering" for disposal of ground water at Project site.
 3. Section 321216 "Asphalt Paving" for construction and maintenance of asphalt pavement for temporary roads and paved areas.
 4. Section 321313 "Concrete Paving" for construction and maintenance of cement concrete pavement for temporary roads and paved areas.

1.03 DESCRIPTION

- A. The Work specified in this Section consists of furnishing, installing, operating, maintaining, and removing temporary construction barriers, enclosures, and field facilities including the Contractor's construction offices, staging areas, yards, storage areas, electrical power, telephone, water, fire protection, and sanitary service.
- B. Construction Offices, Construction Yards and Storage Areas:
1. The Contractor's offices, construction yards and laydown and storage areas shall be located as shown on the Contract Drawings and/or as designated by the DEN Project Manager. All construction offices, staging areas, and material storage areas are to occur within these areas. The DEN Project Manager may but is not required to approve the Contractor to use office, laydown areas and storage areas at DEN but not designated specifically for this Project.
 2. Any activity that is expected to result in disturbance of the ground surface equal to or greater than one acre or part of a larger project that is expected to disturb equal to or greater than one acre, is required to be identified in their Erosion Control permit. These areas include, but are not limited to, laydowns, borrow areas, stockpiles, and storage areas regardless of the location.
 3. All areas of ground disturbance are required to be stabilized in accordance with State, local, and airport rules and regulations prior to permit termination and/or closure of the Contract.
 4. The Contractor shall restore any area on DEN property that becomes contaminated as a result of its operations in accordance with Airport Rule and Regulation 180. Restoration shall be either to applicable standards under Federal and State law or to such other levels as may be required by the Manager of Aviation, at the Manager's sole discretion.

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5. All temporary facility sites must be inspected prior to Contract closeout.
 - a. The DEN Project Manager or authorized representative shall conduct an inspection of contractor areas used during the life of the project. These areas include but are not limited to, staging areas, laydown areas, borrow areas, and contractor yards and offices.
 6. The DEN Project Manager will ensure these areas have been properly stabilized in accordance with DEN Rules and Regulations and required permits. Site must be restored to the condition in which the City initially provided to the Contractor. A representative from DEN Environmental Services shall be present during the final walk through.
 7. Contractor materials shall be managed in accordance with all applicable Environmental Regulations.
 8. Temporary facilities which the Contractor desires to locate in secondary laydown and staging areas adjacent to the Work or within the project limits are subject to approval by the DEN Project Manager. If approved, these areas must also be included as part of the erosion control permit.
 9. Access to and security of the Contractor's construction offices, yard, temporary facilities, and storage areas shall be as shown on the Contract Drawings or as specified in the Contract Special Conditions.
 10. Contractor Field Office:
 - a. The Contractor shall acquire all necessary permits for installation and construction work related to the Contractor's field office and fencing.
 - b. The Contractor shall provide, as part of the Contractor's on-site field office, a conference room for weekly meetings. Minimum size to accommodate ten (10) people with the currently approved schedule posted on a wall. The conference room shall have a telephone with speakerphone functionality.
 - c. Jack the mobile office unit off its wheels and provide support. Enclose the underside of the trailer with weatherproof skirting.
 - d. Install tie downs in compliance with all applicable codes.
 - e. Provide access to the field office and easily accessible space for parking four (4) full size passenger automobiles as a minimum. Grade the field office site, access roadway, and parking area for drainage, and surface with gravel paving or crushed stone.
 - f. Water and sewer lines to the field office, if installed, shall be installed so they will not freeze.
 11. All Contractor Storage Yards must be fenced. Submit fencing plan and typical details to DEN Project Manager at least seven (7) days before planned execution for review and acceptance.
 12. In accordance with Denver Fire Department Requirements, all Temporary Facilities shall have signage that lists the following information:
 - a. Company Name
 - b. Contact Telephone Number
 - c. Facility Address
- C. Electrical Service
1. Provide lighting and power for field offices, storage facilities and other construction facilities and areas.
 2. Provide power centers for electrically operated and controlled construction facilities including tools, equipment, testing equipment, interior construction lighting, heating, cooling and ventilation equipment.

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3. Provide night security lighting at secured areas within construction limits at offices, storage facilities, temporary facilities and excavated areas.
 4. Provide battery operated or equivalent emergency lighting facilities at construction areas where normal light failures would cause employees to be subjected to hazardous conditions. Test such facilities monthly and maintain a record of these tests for the DEN Project Manager's review.
 5. Contractor shall bear all costs of temporary electric service permits, fees, and deposits required by the governing authorities, and connection charges and temporary easements including installation, maintenance, and removal of equipment.
- D. Telephone/Communications Service:
1. The contractor shall furnish, install, and maintain broadband telecommunications service in the contractor's main field office. Contractor shall also furnish, install, and maintain telephony service at the main field office, or cellphone(s) such that the DEN Project Manager is able to reach a contractor's representative at all times.
 2. Comply with requirements of Division 26 Sections.
- E. Water Service:
1. The Contractor shall make all connections and extensions required and shall make use of water in direct support of the Work. The Contractor shall install an approved Water Department tap at the City's water source prior to obtaining any water. The Contractor shall arrange and pay for its supply/distribution system from the City's point of connection. The location and alignment of the Contractor's temporary supply/distribution system must be approved by the DEN Project Manager prior to its installation. The Contractor shall leave in place all above ground and underground water distribution facilities unless otherwise directed by the DEN Project Manager.
 2. The Contractor shall not use in place fire hydrants or standpipes as sources for construction water or potable water.
 3. Comply with requirements of Division 22 Sections.
- F. Fire Protection:
1. Furnish, install, and maintain temporary portable fire protection equipment throughout the construction period at all buildings (including the project site), maintenance shops, and fuel storage on all large construction equipment and at the location of any flammable materials or construction materials.
 2. Comply with requirements of Division 21 Sections.
- G. Sanitary Service:
1. Furnish, install, and maintain temporary sanitary facilities and services throughout the construction period.
 2. Ensure that separate or single user toilets shall be provided to ensure privacy between the sexes.
 3. Provide general washing facilities adequate for the number of employees.
 4. Provide special washing facilities adequate for the number of employees engaged in the application of paints, coating, and other volatile or hazardous materials.

1.04 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.

- B. Submit a shop drawing within five (5) days of the Notice to Proceed that shows the following:
1. Temporary facilities equipment and materials (include manufacturer's literature).
 2. Details and layout of temporary installations including fences, roads, parking, buildings, storage areas, signage, and drainage plans.
 3. Lighting plan showing temporary lighting facilities, electrical service panel location, electrical circuit diagram, and anticipated light level on the working roadway, pathway, or construction surface.
 4. As-built description of any temporary underground utilities referenced to the Airport grid and benchmark system within five (5) days of completion of the installation.
 5. Copies of all permits for all temporary facilities.

1.05 QUALITY CONTROL

- A. Provide products for, and the execution of, the Work of this Section that will satisfy the requirements of all applicable codes. Provide products that satisfy the requirements of the applicable codes.

PART 2 - PRODUCTS**2.01 ELECTRICAL SERVICE**

- A. Provide temporary power and lighting equipment consisting of fixtures, transformers, panel boards, groundings, lamps, switches, poles, conduits and wiring sized and capable of continuous service and having adequate capacity to ensure a complete operating system. Comply with NEMA and Division 26 requirements.

2.02 TELEPHONE/COMMUNICATIONS SERVICE

- A. Provide equipment that is compatible with that of the current DEN service provider and the telephone exchange to which the Contractor connects.

2.03 POTABLE WATER SERVICE

- A. Provide sanitary materials and equipment that satisfies the requirements of codes and regulations pertaining to temporary water systems. Bottled products may be used if those products comply with codes. Clearly label portable containers having a dispensing tap and used only for drinking water. Provide single service disposable cups and a sanitary container for dispensing cups. A trash receptacle shall be provided and maintained beside each portable water supply.
- B. If paints, coatings and other volatile or hazardous materials injurious to humans will be applied as part of the Contract, provide washing facilities with warm water of approximately 120 degrees F.

2.04 FIRE PROTECTION

- A. Fire extinguishers shall be UL rated and shall comply with the International Fire Code with City of Denver amendments.

2.05 SANITARY SERVICE

- A. Provide materials and equipment adequate for the intended purposes, which will neither

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create unsanitary conditions nor violate the codes applicable to temporary sanitary facilities. Enclosures for toilet and washing facilities shall be weatherproof, sight proof, ventilated and sturdy, and shall be maintained in clean conditions.

- B. Provide portable type toilet facilities that satisfy the requirements of OSHA.
- C. Provide washing facilities as needed. Furnish soap, single-service paper towels, towel dispenser, and towel receptacle.

PART 3 - EXECUTION

3.01 ELECTRICAL SERVICE

- A. The approximate location of primary power lines is shown on the Construction Drawings. The Contractor shall locate electrical service where it will not interfere with equipment, storage spaces, traffic, and prosecution of the Work or the work of others. Installation shall present a neat and orderly appearance and shall be structurally sound. Maintain service in a manner that will ensure continuous electrical service and safe working conditions.
- B. Comply with requirements of Division 26 Sections.

3.02 TELEPHONE/COMMUNICATION SERVICE

- A. Install temporary telephone service in a neat and orderly manner, and make structurally and electrically sound to ensure continuous service. Modify, relocate, and extend, as work progress requires. Place conduit and cable where those products will not interfere with traffic, work areas, materials, handling equipment, storage areas, and the work of other contractors. Service lines may be aerial.

3.03 WATER SERVICE

- A. Install the systems in a neat and orderly manner. Make them structurally and mechanically sound. Provide continuous service. Modify, relocate, and extend the systems as the Work progresses.
- B. Comply with requirements of Division 22 Sections.
- C. Locate systems where they will be convenient to work stations, sanitary facilities, and first aid station but will not interfere with traffic, work areas, materials handling equipment, storage areas, or the work of other contractors.
- D. Provide sanitary bubbler drinking fountains if potable water service is available. Disinfect water piping before using for the potable water service.
- E. Install vacuum breakers, backflow preventers, and similar devices in a manner and location that will prevent temporary water from returning to the water mains.
- F. Do not incorporate any part of temporary water distribution system into the permanent water distribution system.

3.04 FIRE PROTECTION

- A. Install products in conformance with the requirements of the applicable Denver Fire Department and OSHA regulations.
 - 1. Provide functional, approved fire extinguishers that are clearly identified for fire and an

accessible supply of water during the period of construction. These fire extinguishers shall remain in place until permanent fire protection systems are functional.

- B. Instruct construction personnel as to location and use of temporary fire protection equipment.
- C. Comply with requirements of Division 21 Sections.

3.05 SANITARY SERVICE

- A. Place temporary sanitary and washing facilities in a neat and orderly manner within the limits of the Work and convenient to the workstations. Make these facilities structurally and mechanically sound. Modify, relocate, and extend the facilities as required by progress of the Work.
- B. Service toilets at those time intervals that will minimize the accumulation of wastes and prevent creation of unsanitary conditions, but not less than once a week.
- C. The waste from the sanitary and wash facilities shall be disposed of in accordance with all applicable rules, regulations, and laws and with the least environmental impact.

3.06 FENCING

- A. Contact all utility service companies prior to planning fence location and post locations for certification of current utilities. Locate pothole posts planned within five (5) feet of known utilities.

3.07 SIGNAGE

- A. Contractor shall not provide any signage for temporary facilities without prior approval from the DEN Project Manager.

3.08 REMOVAL

- A. The Contractor shall locate all temporary facilities including the underground utilities so they can be completely removed without damaging permanent work or the work site of other contractors.

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 015210

SECTION 015525**TRAFFIC CONTROL****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. The Work specified in this Section consists of furnishing plans and designs for traffic control and haul routes, implementing these plans with all necessary personnel and equipment. Installation may require but not be limited to signage, cones, flaggers, signal lights, lighting and temporary roads.
- B. All Work must be in conformance with the "Manual of Uniform Traffic Control Devices for Streets and Highways" (MUTCD) and CDOT Standard Plans regarding traffic control.
- C. The Contractor must coordinate the Contractor's proposed traffic control needs with the needs of other contractors on the airport construction site in writing through the DEN Project Manager.
- D. Refer to Article 805 – Protection of Street and Road System in the General Contract Conditions, Current Edition.

1.03 QUALITY CONTROL

- A. Temporary signal work shall conform to CDOT Standard Plans and the current version of the CDOT Standard Specifications.
- B. Designate a qualified person to inspect and test traffic control devices daily and to ascertain that those devices are continuously operating, serviceable, in place, and clean.
- C. Provide certified personnel who will be responsible for design, implementation, and inspection of traffic control needs.

1.04 SUBMITTALS

- A. Refer to Technical Specifications Sections 013300 "Submittals" and 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- B. Submit a Traffic Control Plan (TCP) that includes, at a minimum, the following list of items for approval before starting Work. Submit an updated TCP when necessary to modify traffic operation or undertake a construction activity that creates a different traffic pattern:
 - 1. Traffic blockade and reductions anticipated to be caused by construction operations.
 - 2. Temporary detours.
 - 3. A Method of Handling Traffic (MHT) must be submitted and approved by the DEN Project Manager, which at a minimum will show and describe proposed location, dates, hours, and duration of detours, vehicular traffic routing, and management, traffic control devices for implementing detours and details of barricades.

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- C. Submit Haul Route Plan for both on- and off-site hauls. The Haul Route Plan shall be submitted 30 days prior to hauling any permanent material. The Plan shall be updated as the Contractor's plans change.
- D. Specific Traffic Considerations: The DEN Project Manager may require the Contractor to revise the Traffic Control Plan to address traffic considerations not included in the Contractor's plan.
- E. Shutdown requests for any impact to traffic must be submitted for approval a minimum of five days before the intended shutdown. These requests will be made through the DEN Project Manager.

PART 2 - PRODUCTS**2.01 TRAFFIC CONTROL DEVICES**

- A. Devices including signs, delineators, striping, barriers, barricades, and high-level warning devices shall conform to the latest revision of the MUTCD and the latest revision of the Colorado Department of Transportation Standard Plans.

PART 3 - EXECUTION**3.01 TEMPORARY TRAFFIC CONTROL DEVICES**

- A. Place temporary control devices in a manner that allows for the smooth flow of traffic at the posted speed limit, limiting hazards or abrupt changes in direction.
- B. Place traffic cones or delineators as directed by the MUTCD. Operate warning lights between sunset and sunrise.
- C. Place control devices so that approaching traffic is alerted to hazards and variances to normal traffic patterns.
- D. Clean and repair damaged devices or replace them with new devices within 24 hours, and provide flaggers or other mitigation as required to maintain safe traffic control until devices have been replaced.

3.02 TEMPORARY TRAFFIC STRIPING AND PAVEMENT MARKINGS

- A. Full-compliance striping is required at all times per the MUTCD.
- B. Temporary signs must be replaced with permanent signing within three days per the MUTCD.

3.03 FLAGGERS

- A. Furnish flaggers where required for safety and by the MHT.

3.04 CONSTRUCTION VEHICULAR TRAFFIC

- A. Restrict construction vehicles to approved haul routes.
- B. Any contractor requests for revisions or modifications to the approved airfield haul routes in the contract documents, or for airfield haul routes not otherwise depicted in the contract documents, must follow the change management process.

3.05 CONTROLLING VEHICULAR AND PEDESTRIAN FLOW ADJACENT TO WORK SITE

- A. Ensure that construction operations will not impede normal traffic. Where work is in the area of pedestrian or occupant activity, the Contractor shall detail a plan for managing pedestrian traffic safely. Refer to Title 8 - Protection of Persons and Property, Section 801.1 in the General Contract Conditions, Current Edition.

3.06 SIGNS

- A. Refer to Title 8, Article 802 - Protective Devices and Safety Precautions in the General Contract Conditions, Current Edition.
1. The Contractor must contact the DEN Project Manager a minimum of five (5) working days in advance of construction for installation, relocation, or removal of regulatory parking signs.
- B. Coordinate and pay any expense associated with the furnishing and installation of all parking regulatory signs, such as "No Stopping Any Time," etc., at the work site.
- C. Furnish and install any necessary advance detour or guidance signing.
- D. Authorize, modify, and install regulatory parking controls and vehicle turn restrictions.
- E. Implement those traffic control modifications outside of the traffic control zone that are necessary to manage diverted traffic.
- F. Clean and repair damaged signage or replace with new signage within 24 hours, and provide mitigation as required to maintain site safety until signage has been installed.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 015525

SECTION 015719**TEMPORARY ENVIRONMENTAL CONTROLS****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Specifications Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Title 8 - Protection of Persons and Property in the General Contract Conditions, 2011 Edition, specifically the following articles:
 - 1. Article 806 - Protection of Drainage Ways
 - 2. Article 807 - Protection of Environment
 - 3. Article 808 - Hazardous and Explosive Materials or Substances
 - 4. Article 809 - Archaeological and Historical Discoveries
- C. Denver Municipal Airport System Rules and Regulations, Part 180-Environmental Management.
- D. DEN Environmental Management System (EMS)

1.02 SUMMARY

- A. The Work specified in this Section consists of identifying, and avoiding or mitigating adverse environmental impacts to air, water, soil, and other natural resources caused by construction activities.
 - 1. The Contractor, in conducting any activity on airport property or in conducting work for an airport project not on airport property, shall comply with all applicable airport, local, state, and federal rules, regulations, statutes, laws, and orders.
 - 2. Work shall not commence on any project until all FAA approvals have been received, applicable permits have been issued and signed by permittee, and all inspection requirements have been satisfied in accordance with State and local permitting requirements.

1.03 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- B. Within ten (10) days after Notice to Proceed on a task order, the Contractor shall submit the following if applicable, unless waived by the DEN Project Manager:
 - 1. Submittals pertaining to water quality management:
 - a. Construction Activities Stormwater Discharge Permit
 - 1) City and County of Denver
 - a) Sewer Use & Drainage Permit (SUDP)
 - b) Construction Activities Stormwater Discharge Permit (CASDP)
 - 2) Colorado Department of Public Health and Environment (CDPHE) Colorado Discharge Permit System (CDPS) Authorization to Discharge (Contractor need not submit a copy of the general permit or the general permit rationale)

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- a) CDPS General Permit for Stormwater Discharges Associated with Construction Activities
- b) CDPS General Permit for Associated with Non-Extractive Industrial Activity
- c) CDPS General Permit for Construction Dewatering Discharges (Prior to obtaining a CDPS General Permit for Construction Dewatering Discharges permit, the Contractor shall submit a draft permit application and the final permit application for DEN review and approval PRIOR to submittal to CDPHE. The Contractor need not submit a copy of the general permit or the general permit rationale.
- 3) Upon request the contractor shall provide the following documentation
 - a) Stormwater Management Plan (SWMP)
 - b) CASDP Inactivation Request
 - c) CDPS Notice of Termination
 - d) Permit Transfer Application
 - e) Modification Application
 - f) Discharge Monitoring Reports (DMRs)
 - g) A copy of the well permit from the state Division of Water Resources for every new well that diverts or for the monitoring of groundwater. (A draft copy of the Notice of Intent for any borehole structure filed with the state Division of Water Resources).
 - h) Section 404 related permitting (Prior to obtaining a permit issued by the US Army Corps of Engineers, the contractor shall submit a draft copy of the application and coordinate with efforts DEN Environmental Services).
- 4) Revisions or amendments to the CASMP by the Contractor: At the completion of the Project, after final stabilization has been achieved and accepted in accordance with CASDP requirements, the Contractor shall submit a copy of the CASDP Inactivation Request.
2. Submittals pertaining to sewage holding tanks associated with buildings and trailers: For purposes of this Section, the generic term “sewage holding tank” means “onsite wastewater treatment system (OWTS),” “individual sewage disposal system (ISDS),” “privy vault”, “septic tank”, or “septic system”:
 - a. Draft copy of the permit application for a sewage holding tank.
 - b. Copy of the Sewer Use & Drainage Permit issued by the Denver Department of Public Works.
 - c. Copy of the OWTS permit issued by the Denver Department of Environmental Health.
3. Submittals pertaining to air quality management:
 - a. Copy of any permit issued by the CDPHE Air Pollution Control Division (APCD)
4. Submittals pertaining to storage tanks and containers:
 - a. Copy of the approved application issued by the State of Colorado, Department of Labor and Employment, Division of Oil and Public Safety, for installation of petroleum, or other regulated substances, storage tanks located on airport property and used for the Project.
 - b. Copy of permits issued by the Denver Fire Department for storage tank installations, storage tank removals, and hazardous materials use/storage.
 - c. Copy of Spill Prevention, Control, and Countermeasure (SPCC) Plan for petroleum storage tanks and containers with capacity of 55 gallons of oil or greater located on airport property and used for the Project.
5. Copies of any other plans, permits, permit applications, correspondence with regulatory agencies, including violations, waste manifests, results of laboratory analyses, or other environmental documentation required for the Project not

previously identified herein.

1.04 RELATED DOCUMENTS

- A. Code of Federal Regulations (CFR) Publications, including, but not limited to, the following:
1. 33 CFR 323 - Permits for discharges of dredged or fill materials into waters of the United States.
 2. 40 CFR - Protection of Environment.
 3. 49 CFR 171-180 Hazardous Materials Transportation Regulations.
- B. Colorado Revised Statutes, including, but not limited to, the following:
1. Water Quality Control, Title 25, Article 8.
 2. Air Quality Control, Title 25, Article 7.
 3. Hazardous Waste, Title 25, Article 15.
 4. Noise Abatement, Title 25, Article 12.
 5. Petroleum Storage Tanks, Title 8, Article 20.5.
 6. Liquefied Petroleum Gas (LPG) Storage Tanks, Title 8, Article 20, Part 4.
 7. Solid waste regulations.
- C. City and County of Denver Executive Orders, including, but not limited to, the following:
1. Executive Order No. 115 - Required Use of Denver-Arapahoe Disposal Site (Landfill).
 2. Executive Order No. 123 - Office of Sustainability and Citywide Sustainability Policy.
 3. Denver Revised Municipal Code, Title II, Sections 48-44 and 48-93 - Solid Waste.
 4. Denver Revised Municipal Code, Title II, Section 4-43 – Idling Restriction.
- D. City and County of Denver Construction Activities Stormwater Manual.
- E. Any other applicable rules, regulations, ordinances, and guidance must be followed as applicable.
- F. Refer to Section 013300 "Submittal Procedures" and 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- G. Refer to Section 017419 "Construction Waste Management" for waste management requirements

PART 2 - PRODUCTS**2.01 PRODUCTS**

- A. Products required for the Work shall meet all Environmental Requirements.
- B. At a minimum, products for erosion and sediment control must conform to the technical requirements contained in the City and County of Denver "Construction Activities Stormwater Manual" and the current version of the "Mile High Flood District's Urban Storm Drainage Criteria Manual, Volume 3: Best Management Practices".

PART 3 - EXECUTION

3.01 AIR POLLUTION CONTROLS

- A. The Contractor shall use appropriate control measures to comply with applicable air quality permit requirements. Additionally, the Contractor must be aware of the following procedures and techniques while conducting construction activities on DEN property. NOTE: Application of dust control measures should be discussed and outlined in the Dust Control Plan.
1. Apply water as needed to the construction site haul roads, disturbed surface areas and public access roads as needed to suppress dust. The use of chemical stabilizer can be requested by the Contractor. The type of stabilizer to be used and locations of use must be included in the Dust Control Plan, which must be approved by the DEN Project Manager prior to application.
 2. The Contractor shall suspend all earthmoving activities if wind speed exceeds 30 mph. For purposes of this Section, the generic term “earthmoving” means clearing, grubbing, excavation, topsoil removal, backfilling, embankment work, grading, trenching, drilling, and installation of borings. Contractors are expected to check wind speeds with the airport’s ramp tower to demonstrate compliance with this requirement. In addition, the Project may be shut down if two of three of the Runway Visual Range (RVR) instruments read visibility of 2,400 feet or less. The instruments are used by FAA Control Tower personnel to ensure safe aircraft operations. Costs for shutdowns due to wind velocities or RVR readings shall not be grounds for delay or extra cost claims.
- B. Burning of materials is strictly prohibited on DEN property.

3.02 WATER POLLUTION CONTROLS

- A. The Contractor shall conduct construction activities in accordance with all applicable permit requirements. In addition, the Contractor shall comply with the following procedures and requirements while conducting activities on DEN property:
1. Water encountered during construction cannot be discharged to the stormwater system or placed onto the ground surface without a permit AND prior written approval by the DEN Project Manager. If groundwater or stormwater is anticipated to be encountered and the Contractor desires to discharge it to the stormwater system or onto the ground surface, then the Contractor must obtain an appropriate CDPS discharge permit in advance of the discharge unless this activity is specifically authorized under the CDPS Construction Stormwater Permit.
 2. If water is encountered and the Contractor desires to discharge these waters to the sanitary sewer system, then the Contractor must obtain approval from DEN Environmental Services in advance of the discharge.
 3. The Contractor shall ensure that stormwater that comes in contact with storage areas does not become impacted and discharged to the stormwater sewer system or to an impervious surface. Furthermore, any materials in storage areas shall not be stored directly on the ground.
 4. The Contractor shall not operate any valves, sluice gates or other drainage appurtenances related to any DEN sewer system without the prior approval of both the DEN Project Manager and DEN Environmental Services. Any violation of this directive may result in the payment of a financial penalty by the Contractor if the State of Colorado assesses such a penalty.

3.03 EROSION CONTROL AND SEDIMENTATION CONTROL

- A. This Work consists of constructing, installing, maintaining and removing, if required, temporary and permanent control measures during the life of the Contract (and possibly

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afterward) until the Contractor achieves final stabilization of the site to prevent or minimize erosion, sedimentation, and pollution of any state waters in accordance with all Environmental Requirements.

- B. The Contractor is responsible for compliance with all requirements in accordance with the CASDP, the City and County of Denver Construction Activities Stormwater Manual, the approved CASMP, and CDPS-issued permits.
- C. Temporary facilities, including but not limited to storage areas, laydowns, borrow areas, and contractor offices and work yards, shall be managed in accordance with Section 015210 "Temporary Facilities".
- D. Clean soil fill may be stockpiled in any area that has been previously approved and signed off by the DEN Section Manager of Construction, Design and Planning, and Environmental Services. Soil stockpiles are considered a potential pollutant source and must be addressed in the CASMP and/or SWMP.
- E. Make immediately available, upon the DEN Project Managers request, all labor, material, and equipment judged appropriate by the DEN Project Manager to maintain suitable erosion and sediment control features. These actions requested by the DEN Project Manager take precedence over all other aspects of project construction that have need of the same labor, material and equipment, except those aspects required to prevent loss of life or severe property damage.

3.04 CONSTRUCTION OF CONTROL MEASURES FOR EROSION AND SEDIMENTATION

- A. The Contractor must install control measures in accordance with the most recent version of the "Mile High Flood District's Urban Storm Drainage Criteria Manual, Volume 3: Best Management Practices and the City and County of Denver Construction Activities Stormwater Manual".
 - 1. Deviations from these two documents are allowed with written consent from the City and County of Denver CASDP Inspector.

3.05 STORAGE OF OIL, FUELS, OR HAZARDOUS SUBSTANCES

- A. The Contractor shall prevent oil or other hazardous substances, as defined in federal and state regulations, from entering the ground, drainage or local bodies of water, and shall provide containment, diversionary structures, or equipment to prevent discharged oil from reaching a watercourse and take immediate action to contain and clean up any spill of oily substances, petroleum products, or hazardous substances. The Contractor shall provide one or more of the following preventive systems at each petroleum storage site:
 - 1. Dikes, berms, or retaining walls capable of containing at least 100% of the volume of the largest single tank and equipped with sufficient freeboard to contain precipitation events. The secondary containment must be "sufficiently impermeable" to prevent a release to the environment.
 - 2. Culverting, curbing, guttering, or other similar structures capable of containing at least 100% of the volume of the largest single tank and freeboarding from precipitation.
- B. The provision of such preventive systems shall be subject to acceptance by the DEN Project Manager prior to tank installation and shall follow the SPCC regulations (40 CFR Part 112).
- C. Prior to bringing any containers of 55-gallon or above capacity onto DEN property for storage of oil, fuel, or other petroleum substances, the Contractor may be required to prepare an SPCC Plan that conforms to 40 CFR Part 112. The plan must include a

certification either from a Professional Engineer or self-certification, if applicable, as well as management approval from the legally responsible Contractor representative.

3.06 SPILL RESPONSE AND NOTIFICATION

- A. The Contractor is responsible for all spills that may result from its activities. For ANY suspected or confirmed release or spill of oil, fuel, solid waste, hazardous waste, unknown materials, lavatory waste, or miscellaneous chemicals, etc., that occurs as the result of the Contractor's activities on DEN property, the Contractor is required to take immediate action to mitigate the release or spill and report it to the DEN Project Manager and to the DEN Communications Center at (303) 342-4200.
- B. The Contractor is responsible for notifying the appropriate regulatory agency in the event suspected and/or confirmed releases are identified, in accordance with regulatory requirements.

3.07 SITE REMEDIATION AND RESTORATION

- A. The Contractor shall be required to perform any necessary site assessment and remediation activities required by applicable regulatory agency.
- B. During routine construction activities, the Contractor is required to manage soils using typical construction techniques. The Contractor must differentiate between soils and wastes, including contaminated soils versus clean soils, and determine those materials that can remain on DEN property and those that must be transported off site for disposal.
- C. During all construction activities that require the management of soils, the Contractor must notify the DEN Project Manager and DEN Environmental Services (ES) that soils being managed may be impacted by industrial activities conducted at the airport. "Process knowledge" pertaining to previous use and/or impact for the locations under construction can be used to determine whether impacted soils are probable. Also, common indices such as soil staining and odor can be used as a determination for the probable condition. If probable contamination conditions are suspected, the Contractor will notify the DEN Project Manager and DEN ES immediately. At that time, which may be before the Work is initiated where indicative conditions exist, all work will cease until a sampling and analysis approach is determined and implemented by the proper responder.
- D. If the site conditions warrant based on evidence of spillage or contamination, process knowledge, and/or visual or olfactory observations, the Contractor may be required to conduct sampling and analysis to confirm that no remedial action is required. Prior to conducting any removal activities, the Contractor must provide a Scope of Work to the DEN Project Manager describing the proposed site assessment activities.
- E. The impacted project will modify its operation to include a segregation area where probable impacted soils can be placed, stored, and sampled for characterization. Should the soil materials be determined to exceed the applicable standards, the DEN Project Manager, in conjunction with DEN ES, will be responsible for the proper disposal of these materials. Materials that are determined to contain contamination levels below the applicable standards can be considered clean soils and placed back into the excavation or reused elsewhere on DEN property. In accordance with Part 3 of this Section, materials removed that are suitable for recycling will be placed within areas designated on DEN to store these materials.
- F. The Contractor shall restore any area on the Airport that becomes contaminated as a result of its operations. Restoration shall be either to applicable standards under federal and state law or to such other levels as may be required by the Manager of Aviation, at the Manager's

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sole discretion. Such restoration shall be completed at the earliest possible time, and the Contractor's restoration shall be subject to inspection and approval by the Manager of Aviation or duly authorized representative. See DEN Rules & Regulations - Part 180.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 015719

SECTION 016000 - PRODUCT REQUIREMENTS**PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
1. Section 012300 "Alternates" for products selected under an alternate.
 2. Section 012510 "Substitutions" for requests for substitutions.
 3. Section 014225 "Reference Standards" for applicable industry standards for products specified.

1.03 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.04 SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number, title, and Drawing numbers and titles.
1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.

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2. DEN Project Manager's Action: If necessary, DEN Project Manager will request additional information or documentation for evaluation within one week of receipt of a comparable product request. DEN Project Manager will notify Contractor of approval or rejection of proposed comparable product request within 14 days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Section 013300 "Submittal Procedures."
 - b. Use product specified if DEN Project Manager does not issue a decision on use of a comparable product request within time allocated.

- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.05 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 2. If a dispute arises between contractors over concurrently selectable but incompatible products, DEN Project Manager will determine which products shall be used.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

- B. Delivery and Handling:
 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

- C. Storage:
 1. Store products to allow for inspection and measurement of quantity or counting of units.
 2. Store materials in a manner that will not endanger the Project, including the structure.
 3. Store products that are subject to damage by the elements under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.

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5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.07 PRODUCT WARRANTIES

- A. Refer to Title 18 - Warranties, Guarantees and Corrective Work of the General Contract Conditions, 2011 Edition.
- B. Submittal Time: Comply with requirements in Section 017720 "Contract Closeout."

PART 2 - PRODUCTS**2.01 PRODUCT SELECTION PROCEDURES**

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged, and unless otherwise indicated, are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," DEN Project Manager will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
 1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 3. Products:
 - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in

"Comparable Products" Article for consideration of an unnamed product.

4. Manufacturers:
 - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
 5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match DEN Project Manager's sample", provide a product that complies with requirements and matches DEN Project Manager's sample. DEN Project Manager's decision will be final on whether a proposed product matches.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012510 "Substitutions" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by DEN Project Manager from manufacturer's full range" or similar phrase, select a product that complies with requirements. DEN Project Manager will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.02 COMPARABLE PRODUCTS

- A. Conditions for Consideration: DEN Project Manager will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, DEN Project Manager may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.

2.03 MATERIALS

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- A. General: Comply with requirements specified in other Sections.
1. For projects requiring compliance with sustainable design and construction practices and procedures including but not limited to the requirements of Executive Order 123, use products for patching that comply with requirements in Section 018113.13 "Sustainable Design Requirements - LEED for New Construction and Major Renovations," Section 018113.16 "Sustainable Design Requirements - LEED for Commercial Interiors," Section 018113.19 "Sustainable Design Requirements - LEED for Core and Shell Development."
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to DEN Project Manager for the visual and functional performance of in-place materials.

PART 3 - EXECUTION (NOT USED)**PART 4 - MEASUREMENT****4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 016000

SECTION 016610**STORAGE AND PROTECTION****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. The Work specified in this Section consists of providing storage and protection of the materials, products and supplies which are to be incorporated into the construction and indicating such storage areas on the working drawings with the location and dates when such areas will be available for each purpose.
- B. Related Requirements:
- C. Section 015210 "Temporary Facilities" for requirements for temporary facilities.

1.03 SUBMITTALS

- A. Refer to Technical Specifications Sections 013300 "Submittal Procedures" and 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures. Submit concurrently with submittals required in Section 013223 "Construction Layout, As-built and Quantity Surveys".
- B. Submit working drawings showing locations of storage areas not indicated on the Contract Drawings.
- C. Submit descriptions of proposed methods and locations for storing and protecting products.

PART 2 - PRODUCTS**2.01 MATERIALS**

- A. Materials required for the storage and protection of the items specified shall be durable, weatherproof and either factory finished or painted to present an appearance acceptable to the DEN Project Manager and the City. Storage facilities shall be uniform in appearance with similar materials used to the maximum extent possible.

PART 3 - EXECUTION**3.01 GENERAL REQUIREMENTS OF EXECUTION**

- A. Palletize materials, products, and supplies that are to be incorporated into the construction immediately so they are stored off the ground. Material and equipment shall be stored only in those areas that are indicated as storage areas on the Contract Drawings and on the reviewed and accepted working drawings.
 - 1. Store these items in a manner which will prevent damage and facilitate inspection.

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2. Leave seals, tags, and labels intact and legible.
 3. Maintain access to products to allow inspection.
 4. Protect products that would be affected by adverse environmental conditions.
- B. Periodically inspect stored products to ensure that products are being stored as stipulated and that they are free from damage and deterioration.
1. Any damaged or deteriorated materials must be replaced immediately to avoid delays in the project schedule.
- C. Do not remove items from storage until they are to be incorporated into the Work.
- D. The Contractor shall ensure that all protective wrappings and coverings are secure and ballasted to prevent any items from deterioration and/or subsequent dislodgment. All items on the work site that are subject to becoming windborne shall be ballasted or anchored.

3.02 HANDLING AND TRANSPORTATION

- A. Handling:
1. Avoid bending, scraping, or overstressing products. Protect projecting parts by blocking with wood, by providing bracing or by other approved methods.
 2. Protect products from soiling and moisture by wrapping or by other approved means.
 3. Package small parts in containers such as boxes, crates, or barrels to avoid dispersal and loss. Firmly secure an itemized list and description of contents to each container.
- B. Transportation:
1. Conduct the loading, transporting, unloading, and storage of products so that they are kept clean and free from damage.

3.03 STORAGE

- A. Store items in a manner that shall prevent damage to DEN's property. Do not store hydraulic fluids, gasoline, liquid petroleum, gases, explosives, diesel fuel, and other flammables in excavations. Petroleum products and chemicals must be stored in closed containers within secondary containment.
- B. Provide sheltered weather-tight or heated weather-tight storage as required for products subject to weather damage.
- C. Provide blocking, platforms or skids for products subject to damage by contact with the ground.
- D. All material shall be stored according to the manufacturer's recommendations. Any material that has to be stored within specified temperature or humidity ranges shall have a 24-hour continuously written recording made of the applicable condition. Should the recording show that the material was not stored within the recommended ranges the material shall be considered defective and in nonconformance. If a certification from the manufacturer's engineering design representative is provided stating that the actual variations are acceptable and will in no way harm the material or affect warranties, then the deficiency will be considered corrected.
- E. Store hazardous material separately, with all material marked with a label showing the hazard and how to treat exposure to the material. Store incompatible materials separately.

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- F. Extra materials that are left over at the completion of the Work shall be removed from the Project site by the Contractor unless they are required to be delivered to DEN as per Contract Document requirements for maintenance stock.

3.04 LABELS

- A. Flammable and combustible substances shall be stored in flammable storage cabinets that conform to OSHA requirements and shall be labeled "FLAMMABLE - KEEP FIRE AWAY" and "NO SMOKING".

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 016610

SECTION 017330**CUTTING AND PATCHING****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Refer to Article 316, Cutting and Patching the Work in the General Contract Conditions, 2011 Edition

1.02 SUMMARY

- A. Section Includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Phased construction.
 - 4. Work by DEN.
 - 5. Work under separate contracts.
 - 6. Future work.
 - 7. Purchase contracts.
 - 8. DEN-furnished products.
 - 9. Contractor-furnished, DEN-installed products.
 - 10. Access to site.
 - 11. Coordination with occupants.
 - 12. Work restrictions.
 - 13. Specification and drawing conventions.
 - 14. Miscellaneous provisions.
- B. Related Requirements:
 - 1. Section 015210 "Temporary Facilities" for limitations and procedures governing temporary use of DEN's facilities.
 - 2. Section 015719 "Temporary Environmental Controls" for environmental control requirements.
 - 3. Section 024119 "Selective Demolition" for selective demolition of structures and other elements.
 - 4. Section 099123 "Interior Painting" for interior painting of areas of cutting and patching.
- C. Alternates: Refer to Division 01 Section 012300 "Alternates" for description of Work in this Section affected by Alternates.

1.03 DEFINITIONS

- A. Cutting: Removal of existing construction to permit installation of or to perform other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.04 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- B. Cutting and Patching Proposal: Submit a proposal describing procedures at least thirty (30) calendar days before the time cutting and patching will be performed, requesting approval to proceed. Obtain approval of the cutting and patching proposal by DEN Project Manager before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work or repair of other work damaged by unsatisfactory work. The proposal shall include at least the following information:
 - 1. Identification of the Contract and the Contractor's name.
 - 2. Description of proposed work:
 - a. Scope of cutting, patching, alteration, or excavation.
 - b. The necessity for cutting or alteration.
 - c. Drawing showing location of the requested cutting or alteration, along with radar or x-ray report.
 - d. Trades that will execute the work.
 - e. Products proposed to be used.
 - f. Extent of refinishing to be done.
 - g. Alternatives to cutting and patching.
 - 3. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
 - 4. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted and proposed dates of interruption of service. Additionally, verify and locate anything in or behind the area prior to cutting.
 - 5. Proposed Dust Control and Noise Control Measures: Submit a statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.
 - 6. Effect on the work and other surrounding work or on structural or weatherproof integrity of Project.
 - 7. Written concurrence of each contractor or entity whose work will be affected.
 - 8. Cost proposal, when applicable.

1.05 QUALITY CONTROL

- A. Operational Elements: Do not cut and patch ANY operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance, decreased operational life or safety unless approved by the DEN Project Manager. Operations elements may include, but are not limited to the following:
 - 1. Primary operational systems and equipment.

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DIVISION 01 – GENERAL REQUIREMENTS
SECTION 017330 - CUTTING AND PATCHING

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2. Air or smoke barriers.
 3. Fire protection systems.
 4. Control systems.
 5. Communication systems.
 6. Conveying systems.
 7. Electrical wiring systems.
 8. Operating systems of special construction as described in Divisions 13 and 26.
 9. HVAC systems.
- B. Miscellaneous Elements: Do not cut and patch ANY of the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or those results in increased maintenance, decreased operational life or safety unless approved by the DEN Project Manager. Miscellaneous elements may include, but are not limited to the following:
1. Water, moisture, or vapor barriers.
 2. Membranes and flashings.
 3. Exterior curtain wall construction.
 4. Equipment supports.
 5. Piping, ductwork, vessels and equipment.
 6. Noise control and vibration control elements and systems.
 7. Stud walls.
 8. Roofing system
- C. Visual Elements: Do not cut and patch ANY construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would reduce, in DEN's sole opinion, the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactorily manner.
1. If possible, retain the original installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage the original installer or fabricator, engage another recognized, experienced, and specialized firm as approved by the DEN Project Manager. Visual elements may include, but are not limited to:
 - a. Stonework and stone masonry.
 - b. Ornamental metal.
 - c. Matched-veneer woodwork.
 - d. Preformed metal panels.
 - e. Firestopping.
 - f. Window wall systems.
 - g. Terrazzo.
 - h. Flooring.
 - i. Wall coverings and finishes.
 - j. HVAC enclosures, cabinets, or covers.
- D. Cutting and Patching Conference: Before proceeding, meet at the Project site with all parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential

conflicts before proceeding.

1.06 WARRANTY

- A. Existing Warranties: Remove, replace, patch and repair materials and surfaces cut or damaged during cutting and patching operations by methods and with materials so as not to void existing warranties.
1. All effort shall be made to engage the original installer or fabricator to patch the exposed Work listed below that is damaged during selective demolition. If it is impossible to engage the original installer or fabricator, engage another recognized, experienced and specialized firm as approved by the DEN Project Manager:
 - a. Processed concrete finishes.
 - b. Stonework and stone masonry.
 - c. Ornamental metal.
 - d. Matched-veneer woodwork.
 - e. Preformed metal panels.
 - f. Firestopping.
 - g. Window wall systems.
 - h. Terrazzo.
 - i. Flooring.
 - j. Wall coverings and finishes.
 - k. HVAC enclosures, cabinets, or covers.

1.07 MATERIALS

- A. General: All patching material shall be of the type specified for the material being patched. Comply with requirements specified in other specifications Sections.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually and texturally match existing adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials as approved by the DEN Project Manager.:

PART 2 - PRODUCTS (NOT USED)**PART 3 - EXECUTION****3.01 EXAMINATION**

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers. Provide additional substrates or materials if required to achieve desired final results of patching work.
 2. Immediately notify the DEN Project Manager, in writing, of unsuitable, unsafe, or unsatisfactory conditions.
 3. Proceed with installation only after unsafe or unsatisfactory conditions have been

corrected.

4. Proceed with patching only after construction operations requiring cutting are complete and inspected by the DEN Project Manager.

3.02 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut to ensure structural value or integrity.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to avoid or minimize interruption of services to occupied areas. Do not interrupt services in without approval from the appropriate authority. Refer to the appropriate Shutdown specification/procedures for applicable services.

3.03 POLLUTION CONTROLS

- A. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations. Reference Section 015719 "Temporary Environmental Controls" for requirements.
 1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions such as ice, flooding, and pollution.
 2. Wet mop floors to eliminate trackable dirt and wipe down walls and doors of demolition enclosures. Vacuum carpeted areas. Professionally clean carpeted areas if required.
 3. For outdoor concrete saw cutting operations, slurry waste must be vacuumed up immediately to prevent migration off-site to pervious surfaces, surface waters or drains.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 1. Concrete slurry waste must be disposed of properly in accordance with applicable airport, local and state rules and regulations.
- C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to the condition existing before selective demolition operations began.

3.04 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Execute cutting and demolition by methods that will prevent damage to other work and will provide a proper surface to receive patching.
 1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

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2. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerance, and finishes.
 3. Restore work that has been cut or removed; install new products to provide complete work in accordance with requirements of the Contract Documents.
 4. Fit work airtight and fire safe to pipes, sleeves, ducts, conduit, and other penetrations through surfaces as required by the Contract Documents.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and other similar operations, including excavation, using methods least likely to damage elements retained to adjoining construction. If possible, review proposed procedures with original installer and comply with original installer's written recommendations.
1. In general, use ground fault hand or small power tools designed (to short if metal is hit) for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to the size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete: Use a cutting machine such as an abrasive saw or a diamond-core drill.
 4. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other specification Sections.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing. For continuous surfaces, refinish entire unit to the nearest break line. For an assembly, refinish entire unit.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs on a painted surface, apply primer and intermediate paint coats over the patch and apply the final coat over the entire unbroken surface containing the patch. Provide additional coats until the patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
- D. Fire Rated Construction: Where rated elements are cut, reconstruct to approved designs to provide original fire rating.

3.05 CORE DRILLING

- A. The Contractor shall execute sufficient x-rays or ground penetrating radar (GPR) at each location planned for core drilling prior to submittal to the DEN Project Manager and to utility representatives for approval for core drilling. The request for approval shall be submitted a minimum seven (7) days before Core Drilling. The request for approval shall indicate on the

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- x-ray or radar information regarding alternate locations or core drilling to avoid structural members and any embedded conduit. Embedded conduit may be metallic or plastic. The x-ray or radar system shall be capable of detecting both types of conduit.
- B. Core drilled “cores” and the core-drilled opening shall be inspected by DEN Project Manager Representatives prior to installation of any systems in new openings.
- C. The request for approval shall indicate on the x-ray or radar information regarding alternate locations or core drilling to avoid structural members and any embedded conduit. Embedded conduit may be metallic or plastic. The x-ray or radar system shall be capable of detecting both types of conduit.
- D. X-ray activities may not be performed during hours of activity or occupancy in the area of the x-ray system. The Contractor shall provide all manpower and barriers required to secure the areas affected by x-ray activities.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 017330

SECTION 017419**CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This section describes the requirements for the disposal, recovery, reuse or recycling of non-hazardous and non-asbestos containing construction and demolition waste for both LEED or Envision and non-LEED or Envision projects. Note that LEED and Envision projects may have more specific requirements than identified in this section.
- B. Waste materials shall be managed in accordance with all local, state, and federal regulations.
- C. Related Requirements:
1. Section 013300 "Submittal Procedures" for submittal procedures.
 2. Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
 3. Section 015719 "Temporary Environmental Controls" for environmental control procedures.
 4. Section 018113 "Sustainable LEED Requirements" for LEED requirements.
 5. Section 024116 "Structure Demolition" for disposition of waste resulting from demolition of buildings, structures, and site improvements, and for disposition of hazardous waste.
 6. Section 024119 "Selective Structure Demolition" for disposition of waste resulting from partial demolition of buildings, structures, and site improvements, and for disposition of hazardous waste.
 7. Section 042000 "Unit Masonry" for disposal requirements for masonry waste.
 8. Section 311000 "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

1.03 DEFINITIONS

- A. Solid Waste: means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, air pollution control facility, or other discarded material; including solid, liquid, semisolid, or contained gaseous material resulting from industrial operations, commercial operations or community activities. Solid waste does not include any solid or dissolved materials in domestic sewage, or agricultural wastes, or solid or dissolved materials in irrigation return flows, or industrial discharges which are point sources subject to permits under the provisions of the "Colorado Water Quality Control Act", Title 25, Article 8, CRS or materials handled at facilities licensed pursuant to the provisions on "Radiation Control Act" in Title 25, Article 11, CRS. Solid waste does not include:
1. Materials handled at facilities licensed pursuant to the provisions on radiation control

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in Article 11 of Title 25, C.R.S.

2. Excluded scrap metal that is being recycled.
 3. Shredded circuit boards that are being recycled.
- B. Salvaged Materials: Defined as materials that exist on the site that can be reused, either on site or by another entity
- C. Recyclable Materials: Defined as materials that exist on site or are generated during the construction process that can be recycled and/or remanufactured into another material. Recyclable waste includes, but is not limited to, the following:
1. Concrete.
 2. Asphalt
 3. Ferrous and non-ferrous metals.
 4. Untreated wood, engineered wood.
 5. Gypsum wallboard.
 6. Corrugated cardboard, paper goods.
 7. Plastic.
 8. Glass, insulation.
 9. Carpet.
 10. Paints, fabric.
 11. Rubber.
 12. Stone and brick.
- D. Hazardous Waste: Per 6 CCR 1007-3, those substances and materials defined or classified as such by the Hazardous Waste Commission pursuant to 25-15-302, C.R.S., as amended. Also, see hazardous waste definition per 40 CFR 261.3.
- E. Asbestos Containing Materials: Per 5 CCR 1001-10: Regulation No. 8, The Control of Hazardous Air Pollutants, Part B The Control of Asbestos- material containing more than 1% asbestos

1.04 SUBMITTALS

- A. The Contractor shall submit a list of materials and products used with Safety Data Sheets (SDS). Examples include chemicals, solvents, fuels, building materials, etc.
1. A hardcopy or electronic link to the SDS for all materials and products used, if applicable.
 2. Identify storage methods for materials, including measures to segregate incompatible materials.
- B. The Contractor shall submit a Waste Management Plan to the DEN Project Manager and DEN Environmental Services. Minimum Waste Management Plan requirements include the following:
1. A list of all waste streams generated by the project
 - a. For each waste stream listed, the Contractor shall identify the handling/transportation method, the disposal method, and the disposal facility utilized.

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- b. If the Contractor anticipates generation of hazardous waste, the Contractor shall provide its USEPA (generator) identification number.
- 2. Pollution Prevention Measures
 - a. Describe best practices that will reduce waste. For example, waste reduction measures, requiring vendors to deliver materials in reusable packaging, etc.
- 3. Waste Management Plan Training.
- 4. Storage of materials.
- 5. Spill response.
- C. Approval of Contractor's Waste Management Plan does not relieve the contractor of responsibility for compliance with applicable environmental regulations.
 - 1. The contractor shall maintain a record of the amounts of construction and demolition waste generated, recycled, reused, salvaged, or disposed of, in pounds for review.
 - 2. Hauling manifest records shall be maintained and available for review. Manifest forms are available from the DEN Project Manager.

PART 2 - PRODUCTS**2.01 DOCUMENTS**

- A. A list of all materials and products used. Examples include chemicals, solvents, solvents, fuels, curing compounds, etc.
 - 1. A hardcopy or electronic link to SDSs for all materials and products used.
 - 2. Identify storage methods, including measures to segregate incompatible materials.
 - 3. Refer to the Waste Management Plan

PART 3 - EXECUTION**3.01 REQUIREMENTS**

- A. The Contractor shall not wash down equipment in such a manner as to flush grease, oils, detergents, and other contaminants onto the project site or onto airport property unless the waste is properly contained, treated, and disposed of.
- B. DEN maintains two dry concrete and asphalt recycling yards used for the accumulation and crushing of asphalt and concrete. The South Yard is located on 71st Ave just east of Jackson Gap Street. The North Yard is located on the south side of 110th, west of Queensburg Street.
- C. Concrete washwater cannot be discharged to surface waters or to storm sewer systems. Colorado Discharge Permit System (CDPS) coverage conditionally authorizes discharges to the ground of concrete wash water from washing of tools and concrete mixer chutes when appropriate best management practices (BMPs) are implemented.
 - 1. A bermed containment area that allows discharge water to infiltrate or evaporate;
 - a. Alternatives to bermed containment areas include portable concrete washout bins, and industrial washout containment systems where the accumulated waste is removed from the site and disposed of properly.
 - 2. Use of the washout site should be temporary (less than one year);
 - 3. The washout site should not be located in an area where shallow groundwater may be

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present, such as near natural drainages, springs, or wetlands

4. Upon termination of the washout site, accumulated solid waste, which includes concrete waste and contaminated soils, must be removed from the site and disposed of properly.
- D. Rejected loads and/or other wet concrete or asphalt materials are PROHIBITED TO BE PLACED ANYWHERE on DEN property. These materials must be returned to the facility of origination or other permitted facility for proper disposal.
- E. Concrete saw cutting slurry must be properly contained and disposed of.
- F. Unknown or questionable materials encountered during construction activities, must immediately be reported to the DEN Communications Center at (303) 342-4200 and the DEN Project Manager.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 017419

SECTION 017420**CLEANING****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. The Work specified in this section consists of maintaining a clean, orderly, hazard free work site during construction, and final cleaning for the City's Final Acceptance. Failure to maintain the work site will be grounds for withholding monthly payments until corrected to the satisfaction of the DEN Project Manager.
- B. Refer to Article 325, Cleanup During Construction in the General Contract Conditions, 2011 Edition

1.03 SUBMITTALS

- A. Washing Plan: The Contractor shall prepare a plan describing the specific procedures and materials to be utilized for any equipment, vehicle, etc., washing activities. The plan must be submitted to the DEN Project Manager and approved by the DEN Project Manager and Environmental Services.
1. Outdoor washing at DEN is not allowed unless the materials will be collected or managed in a manner to ensure that they will not enter the municipally owned separate storm sewer system (MS4). The materials can only be disposed at a location pre-approved by DEN Environmental Services (refer to DEN SWMP). Failure to comply with this requirement would result in the discharge of non-stormwater.
 - a. Outdoor wash materials that contain soaps or other cleaning chemicals must be collected and disposed of off site
 2. Indoor washing must be conducted in accordance with the Best Management Practices (BMPs) detailed in the DEN SWMP. Refer to Section 015719 "Environmental Controls". In addition, all indoor washing must be conducted in a manner that ensures that there are no prohibited discharges to the sanitary sewer system.
 - a. All wash-water that will be disposed of into the sanitary sewer must comply with City and County Denver rules and regulations pertaining to prohibited discharges.

PART 2 - PRODUCTS**2.01 CLEANING MATERIALS**

- A. Utilize the type of cleaning materials recommended by the manufacturer for the surfaces to be cleaned.
- B. Maintain current Safety Data Sheets (SDS) on site for all chemicals. DEN Environmental Services must approve the chemicals used prior to discharge to the sanitary sewer system.

- C. Ensure proper disposal of all wastes generated from the use of these materials. The Contractor must ensure compliance with all environmental regulations. No wastes can be disposed of on DEN property.

PART 3 - EXECUTION**3.01 INTERIM CLEANING**

- A. Clean only when dust and other contaminants will not precipitate upon newly painted surfaces.
- B. Cleaning shall be done in accordance with manufacturer's recommendation.
- C. Cleaning shall be done in a manner and using such materials as to not damage the Work.
- D. Clean areas prior to painting or applying adhesive.
- E. Clean all heating and cooling systems prior to operations. If the Contractor is allowed to use the heating and cooling system, it shall be cleaned prior to testing.
- F. Clean all areas that will be concealed prior to concealment.
- G. Dispose of all fluids according to the approved Washing Plan.

3.02 FINAL CLEANING

- A. Refer to Article, Clean-up Upon Completion in the General Contract Conditions, 2011 Edition. Additionally, the Contractor, shall at a minimum, complete the following:
 - 1. Inspect interior and exterior surfaces, including concealed spaces, in preparation for completion and acceptance.
 - 2. Remove dirt, dust, litter, corrosion, solvents, discursive paint, stains, and extraneous markings.
 - 3. Remove surplus materials, except those materials intended for maintenance.
 - 4. Remove all tools, appliances, equipment, and temporary facilities used in the construction.
 - 5. Remove detachable labels and tags. File them with the manufacturer's specifications for that specific material for the City's records.
 - 6. Repair damaged materials to the specified finish or remove and replace.
 - 7. After all trades have completed their work and just before Final Acceptance, all catch basins, manholes, drains, strainers and filters shall be cleaned; roadway, driveways, floors, steps and walks shall be swept. Interior building areas shall be vacuum cleaned and mopped.
 - 8. Final cleanup applies to all areas, whether previously occupied and operational or not.
 - 9. Dispose of all fluids according to the approved Washing Plan.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

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PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 017420

SECTION 017720**CONTRACT CLOSEOUT****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Special Sections, apply to this Section.

1.02 SUMMARY

- A. Work specified in this Section includes procedures required prior to Final Acceptance of the Work in addition to those specified in Title 20 – Final Completion and Acceptance of The Work in the General Contract Conditions, 2011 Edition, and Technical Specification Section 017840 "Contract Record Documents".
- B. This Section also includes procedures and penalties to ensure prompt completion of the Project Closeout.
- C. Related Sections:
1. Title 20 of the General Contract Conditions, 2011 Edition.
 2. Section 017840 "Contract Record Documents" for required record documents.
 3. Form CM-75, Closeout Checklist
- D. SUBMITTALS
1. Submit written Certification to the DEN Project Manager that, in the opinion of the Contractor, the Work is complete.
 2. Submit final survey within 60 days after issuance of Substantial Completion.
 3. Submit a Final Statement of Accounting to the DEN Project Manager.

PART 2 - PRODUCTS (NOT USED)**PART 3 - EXECUTION****3.01 PREPARATION FOR FINAL INSPECTION**

- A. Before requesting inspection for Final Acceptance of the Work by the City, the Contractor shall inspect, clean, and repair the Work as required.
- B. The Contractor shall ensure that all items on the Closeout Checklist have been addressed and accepted by the DEN Project Manager.

3.02 FINAL INSPECTION

- A. The Contractor shall submit written certification to the DEN Project Manager when, in the opinion of the Contractor, the Work is complete. Such communication shall certify that:
1. The Work has been inspected by the Contractor for conformance with the Contract Documents.

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2. The Work has been completed in conformance with the Contract Documents, including all punchlist items.
 3. The Work is ready for final inspection by the City.
 4. All as-built documents have been submitted and accepted.
 5. All damaged or destroyed real, personal, public, or private property impacted by the Work has been repaired or replaced.
 6. All Warranties and Bonds have been completed, executed, submitted, and accepted.
 7. All personnel badges and vehicle permits have been returned to DEN Airport Security.
- B. The DEN Project Manager will inspect the Work in accordance with the Section 2002.1 of the City and County of Denver's Department of Aviation's General Contract Conditions.
- C. If the DEN Project Manager finds incomplete or defective Work:
1. The DEN Project Manager may, at the DEN Project Manager's sole discretion, either terminate the inspection, or prepare a punchlist and notify the Contractor in writing, listing the incomplete or defective Work.
 2. The Contractor shall take immediate steps to remedy all identified deficiencies and resubmit a written certification to the DEN Project Manager that Work is complete.
 3. The DEN Project Manager will then re-inspect the Work.

3.03 REINSPECTION FEES

- A. Should the DEN Project Manager be required to perform re-inspections of the Work due to the Contractor prematurely claiming the status of the Work to be complete:
1. The Contractor shall compensate the City for such additional services at the per-hour rates defined below, for the time spent by the DEN Project Manager on re-inspection and related work, with a minimum charge of \$250:

Position	Rate
Project Manager	\$150
Quality Assurance Inspector	\$125
Commissioning Agent	\$125

2. The City shall deduct the amount of such compensation from the final payment to the Contractor.

3.04 FINAL SURVEY FEES

- A. The Contractor shall complete and submit the final survey within 60 days after issuance of Substantial Completion. If the Contractor fails to complete and submit the final survey within this time frame it is understood that DEN will arrange for a qualified surveying company to complete this work at the Contractor's expense. All costs associated with DEN arranging for and completing the final survey will be deducted from the final payment including compensation due the City for the DEN Project Manager's time to manage this work.
1. The DEN Project Manager's rate of compensation shall be set at \$150.00 per man-hour.
 2. Survey submittals needing to be revised may extend the 60-day time frame at the DEN Project Manager's discretion.
 3. Costs, including the DEN Project Manager's, for the review of the resubmitted survey shall be deducted from the final payment.

3.05 LATE CLOSEOUT FEES

- A. Within 100 days after issuance of substantial completion, all documentation required by this Contract to achieve Project Closeout shall be submitted. Failure to submit all required documentation shall result in fees to compensate the City for project management work while the project remains open. These shall be assessed if no liquidated damages are provided or and paid for late completion.
1. Fees at the rate of \$450 per day to compensate for additional DEN Project Manager, consultant, and other personnel's work.
 2. The resubmittal of required documents may extend the 100-day time frame at the DEN Project Manager's discretion.

3.06 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a Final Statement of Accounting to the DEN Project Manager.
- B. The Final Statement of Accounting shall reflect all adjustments to the Contract amount and shall include the following:
1. The original Contract Value.
 2. Additions and deductions resulting from the following:
 - a. Approved Change Orders.
 - b. Allowances.
 - c. Final quantities for unit price items, including required backup for the quantities.
 - d. Deductions for corrected work.
 - e. Penalties.
 - f. Deductions for liquidated damages.
 - g. Deductions for re-inspection payments.
 - h. Other adjustments.
 3. Total Contract Value, as adjusted.
 4. Previous payments.
 5. Sum remaining due.
- C. If required, the DEN Project Manager will prepare a final Change Order, reflecting the approved adjustments to the Contract Value that were not included in previously issued Change Orders.

3.07 FINAL APPLICATION FOR PAYMENT

- A. The Contractor shall submit the final application for payment in accordance with the procedures and requirements detailed in Article 2003, Final Settlement in the General Contract Conditions, 2011 Edition.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

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5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 017720

SECTION 017835**WARRANTIES AND BONDS****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. The Work specified in this Section consists of preparing and submitting warranties and bonds required by the Contract and these Specifications.

1.03 SUBMITTALS

- A. Refer to Technical Specifications Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
1. All warranties shall be executed or transmitted to the City and County of Denver.
 2. Photocopies or reproductions of stock manufacturer's warranties will not be accepted, although electronic copies are acceptable when the manufacturer's warranty is contained in the O&M manual.
- B. Submit samples of warranties and bonds for review by the City prior to execution of Work. Do not submit final warranties until sample warranties have been approved by the City.
1. Submit the warranties and bonds required by the Contract Documents.
 2. Prepare and submit a list of all warranties and bonds on the following forms:
 - a. CM-10: Contractor Warranty
 - b. CM-11: Contractor/Sub-Contractor Warranty
- C. Submit executed warranties and bonds.

PART 2 - PRODUCTS (NOT USED)**PART 3 - EXECUTION****3.01 WARRANTIES AND BONDS**

- A. Submit executed warranties and bonds required by the Contract Documents, as detailed in Title 15 - Performance and Payment Bonds and Title 18 - Warranties, Guarantees, and Corrective Work in the General Contract Conditions, 2011 Edition.
1. Prepare and submit a list of all warranties and bonds on the following forms:
 - a. CM-10, Contractor Warranty
 - b. CM-11, Contractor/Sub-Contractor Warranty

PART 4 - MEASUREMENT

4.01 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT

5.01 METHOD OF PAYMENT

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 017835

SECTION 017840**CONTRACT RECORD DOCUMENTS****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. The Work specified in this Section consists of maintaining, marking, recording, and submitting Contract Record Documents that include shop drawings, warranties, and contractor records. Creating and providing to DEN these documents are part of the Work and become part of the Contract Documents.
- B. Refer to DEN Building Information Modeling (BIM) Design Standards Manual (DSM) and Approved BIM execution for data format and file types acceptable for different type of data.
- C. Related Requirements:
1. Section 013100 "Project Management and Coordination".
 2. Section 013223 "Construction Layout, As-built and Quantity Surveys".
 3. Section 013300 "Submittal Procedures".
 4. Section 013325 "Shop and Working Drawings, Product Data and Samples".
 5. Section 017720 "Contract Closeout".
 6. Section 017825 "Operation and Maintenance Data".

1.03 SUBMITTALS

- A. Each submittal of record documents shall contain the following information:
1. Date.
 2. Project title and numbers.
 3. Contractor's name and address.
 4. Title and number of each record document.
 5. Certification that each document as submitted is complete and accurate.
 6. Signature of the Contractor or the Contractor's authorized representative.
- B. At the completion of this Contract, deliver all record documents including the following:
1. As-built shop drawings, diagrams, illustrations, schedules, charts, brochures and other similar data.
 2. Warranties, guarantees, and bonds.
 3. Contract Documents.
 4. Contractor records.

TECHNICAL SPECIFICATIONS**DIVISION 01 – GENERAL REQUIREMENTS****SECTION 017840 - CONTRACT RECORD DOCUMENTS****DENVER INTERNATIONAL AIRPORT****ECONOMY PARKING LOT PAVEMENT REHAB – PHASE 1****CONTRACT NO. 202265100**

- C. As-built Contract Drawings shall be submitted with each monthly progress payment application, and a complete set shall be submitted prior to final payment.
1. The Contractor shall provide a single electronic copy of each Contract drawing sheet which has been used to produce work during the payment period or work that payment is being requested on, which records the current as-built conditions of work, including the posting of any change orders or change directives not shown on the Contract Documents at the time of Contract signing.
 - a. The Contractor must show as-built work completed through the payment application date including but not limited to utilities, empty conduit, conduit for actual electrical lines, plumbing, HVAC, location of anchor bolts and support points for use by others.
 - b. The Contractor shall be liable for any costs incurred by the City or a third party due to errors or lack of information provided on the as-built drawings.
 - c. All markings on drawings shall be legible to identify the portion of work completed.
 - d. For projects utilizing BIM system by the Contractor or a consultant of the Contractor, all data formats shall be compatible and as approved by the BIM execution plan as required in the DEN BIM DSM.

1.04 QUALITY CONTROL

- A. Submit electronically scanned copies of all documents required by Chapter 17 “Special Inspection and Testing” of the International Building Code 2009 as amended by City and County of Denver 2011. Keep scale and clarify dimension where electronic copies are not as originally scaled and dimensioned.
- B. For projects utilizing BIM for Revit, follow approved BIM execution plan and DEN BIM DSM for record documents, formats, and quality control and assurance procedures.

PART 2 - PRODUCTS (NOT USED)**PART 3 - EXECUTION****3.01 MAINTENANCE OF DOCUMENTS**

- A. The Contractor must follow all the procedures established in the Contract Documents and DEN BIM DSM.
- B. The Contractor shall maintain at the work site on a current basis one (1) record copy of all drawings, specifications, addenda, change orders, approved shop drawings, working drawings, product data and samples in good order and marked currently to record all changes made during construction.
- C. Maintain at the field office one copy of the following record documents:
 1. Contract Documents:
 - a. Contract Drawings with all clarifications, requests for information, directives, changes, and as-built conditions clearly posted.
 - b. Contract Specifications with all clarifications, requests for information, changes, directives and record of manufacturer actually used along with product trade name.
 - c. Reference Standards in accordance with Section 014225 "Referenced Standards".
 - d. Affirmative Action Plan and documents.

TECHNICAL SPECIFICATIONS**DIVISION 01 – GENERAL REQUIREMENTS****SECTION 017840 - CONTRACT RECORD DOCUMENTS****DENVER INTERNATIONAL AIRPORT****ECONOMY PARKING LOT PAVEMENT REHAB – PHASE 1****CONTRACT NO. 202265100**

- e. One (1) set of drawings to record the following:
 - 1) Horizontal and vertical location of underground utilities affected by the Work.
 - 2) Location of internal utilities; include valves, controls, conduit, duct work, switches, pressure reducers, size reducers, transitions, crosses, tees, filters, motors, heaters, dampers, regulators, safety devices, sensors, access doors and appurtenances that are concealed in the construction shall be shown with dimensions given from a visible and recognizable reference to the item being located in all three dimensions. The drawings shall also reference the applicable submittal for the item being located.
 - 3) Field changes of dimensions and details including as-built elevations and location (station and offset).
 - 4) Details not on original Contract Drawings but obtained through requests for information or by other communications with the City.
2. Contractor Records:
 - a. Daily Quality Control Reports.
 - b. Certificates of compliance for materials used in construction.
 - c. Completed inspection list.
 - d. Inspection and test reports.
 - e. Test procedures.
 - f. Qualification of personnel.
 - g. Approved submittals.
 - h. Material and equipment storage records.
 - i. Safety Plan
 - j. Erosion, sediment, hazardous and quality plans.
 - k. Hazardous material records.
 - l. First report of injuries.

3.02 RECORDINGS

- A. Label each document page or article "PROJECT RECORD" in two-inch high letters.
- B. Keep record documents current daily.
- C. Legibly mark copies of the Contract Drawings to record actual construction.
- D. Legibly mark up each Section of the specifications and Contract Drawings to record:
 1. Manufacturer, trade name, catalog number and supplier of each product and item actually installed
 2. Changes made by change orders, requests for information, substitutions, and variations approved by submittals.

3.03 DOCUMENT MAINTENANCE

- A. Follow all the required processes of the approved BIM Execution Plan as approved by DEN for this specific project or in formats acceptable to DEN BIM management system.
- B. Do not use record documents for construction purposes.
- C. Make documents available for inspection by the DEN Project Manager and any others having jurisdiction.

3.04 MONTHLY REVIEW

TECHNICAL SPECIFICATIONS**DIVISION 01 – GENERAL REQUIREMENTS****SECTION 017840 - CONTRACT RECORD DOCUMENTS****DENVER INTERNATIONAL AIRPORT****ECONOMY PARKING LOT PAVEMENT REHAB – PHASE 1****CONTRACT NO. 202265100**

- A. Prior to any application for payment, the DEN Project Manager or the DEN Project Manager's designated representative will inspect the record documents to ensure that they are being maintained and contain the most current correct data with particular attention to as-built drawings.

- A. If, during the inspection, the DEN Project Manager determines that the documents are not being maintained and kept current so they reflect as-built conditions, an amount may be withheld from the payment request and deducted from the Contract value to cover the City's cost of collecting, creating, and recording the as-built data. This cost will be determined based on \$100.00 per man-hour of effort.

PART 4 - MEASUREMENT**4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under this Section.

PART 5 - PAYMENT**5.01 METHOD OF PAYMENT**

- A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

END OF SECTION 017840



DIVISION 02

PROJECT SPECIFICATIONS

DENVER INTERNATIONAL AIRPORT – ECONOMY PARKING LOT
PAVEMENT REHABILITATION - PHASE 1

FEBRUARY 10, 2023



PROJECT MANUAL

Economy Parking
Lot Pavement
Rehab – Phase 1

DEN Contract Number: 202265100

DIV 02

Issue for Construction
February 2023

City and County of Denver
Department of Aviation

Philip A. Washington, CEO

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Economy Parking Lot Pavement Rehabilitation – Phase 1
 DEN Project No. CE 22005
 Contract No. 202265100

Feb. 10, 2023

**DENVER INTERNATIONAL AIRPORT
 ECONOMY PARKING LOT PAVEMENT REHABILITATION – PHASE 1
 DEN PROJECT NO. CE 22005**

The 2022 Colorado Department of Transportation Standard Specifications for Road and Bridge Construction controls construction of this project. The following special provisions supplement or modify the Standard Specifications and take precedence over the Standard Specifications and plans.

DEN - PROJECT SPECIAL PROVISIONS

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CDOT - PROJECT SPECIAL PROVISIONS

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CDOT - STANDARD SPECIAL PROVISIONS

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Revision of Section 212 – Soil Amendments, Seeding, and Sodding	(Oct. 1, 2022)	18
Revision of Section 412 – Removal and Replacement of Concrete Pavement	(Oct. 1, 2022)	2
Revision of Section 412 and 705 – Preformed Compression Seals	(Oct. 1, 2022)	2
Revision of Section 601 – Concrete Mix Designs	(Oct. 1, 2022)	1
Special Construction Requirements, Fire Protection Plan	(Oct. 1, 2022)	2

Economy Parking Lot Pavement Rehabilitation – Phase 1
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DIVISION 02 – GENERAL PROVISIONS

PART 1: GENERAL

- A. **Description:** Work described in the technical specifications, contract drawings or Part I of the Contract documents shall be done in accordance with the Colorado Department of Transportation (CDOT) **2022 Standard Specifications for Road and Bridge Construction**, except as noted below, and the latest edition of the **Colorado Standard Plans (M&S Standards)**.
- B. The Colorado Department of Transportation General Provisions consisting of Section 100 through 109 of the above referenced “Standard Specifications” are NOT applicable to this Contract and are hereby deleted, except were specifically added in, these project Special Provisions. In place of the deleted, the City and County of Denver’s General Provisions, General Conditions, Special Conditions and Technical Specifications are attached to and made part of the contract.

The following sections shall apply as noted:

1. Section 101 Definitions and Terms
2. Section 105 Control of Work with the following exceptions:
 - a. If there are any conflicts with City and County of Denver’s General Provisions, General Conditions, Special Conditions or Technical Specifications and this section, those documents will take precedence.
 - b. Any reference to incentives shall be disregarded. NO incentives will be paid on this project. References to disincentives, corrective work or removal and rejection of work and/or materials shall apply.
 - c. Section 105.21 Acceptance shall not apply.
 - d. Section 105.22 through 105.24 shall not apply.
3. Section 106 Control of Material
4. Section 109.01 Measurement of Quantities

PART 2: REFERENCES

- A. All references to “CDOT or the Department” shall be changed to “City and County of Denver” unless otherwise noted.
- B. All references to the CDOT Project Engineer and CDOT Regional Transportation Director shall mean DEN Project Manager and DEN Manager of Construction.
- C. All reference to incentives or positive pay factors within any documents pertaining to this contract shall not apply. NO incentives or increase pay factors will be paid on this project. References to disincentives, negative pay factors, corrective work or removal and rejection of work and/or materials shall apply.

PART 3: APPLICABLE PUBLICATIONS

The Colorado Department of Transportation Standard Specifications and Standard Plans are available for download on the Department’s webpage.

END OF SECTION

Economy Parking Lot Pavement Rehabilitation – Phase 1
DEN Project No. CE 22005
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**REVISION OF SECTION 107
TEMPORARY PLANT SITE**

Subsection 107.02 shall include the following:

DEN will provide space for a temporary concrete batch plant site which will be located off 71st Ave near the DEN South Campus area as outlined in **Figure 1**. Delineation of exact location, orientation and size of temporary plant site will be coordinated with DEN PM and the Contractor within 14 calendar days of issuance of the Notice to Proceed (NTP). The Contractor will be responsible for the timing and coordination required for plant erection and operation. If contractor elects to erect a batch plant on site, no additional contract time will be awarded.

Figure 1



Economy Parking Lot Pavement Rehabilitation – Phase 1
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**REVISION OF SECTION 107
TEMPORARY PLANT SITE**

The Contractor will be responsible for submitting and obtaining all associated permits and requirements necessary, including but not limited to: State permitting requirements; CCD Building construction review and permits for all foundations proposed on site, and electrical permit for source to structures. Additionally:

- Engineered designs are required for all foundations, occupied structures, and stormwater control features.
- Engineered designs typically include structural calculations, site plan depicting structure locations, hydrant layout, emergency access, electrical power supply (calculations and one-lines), temporary toilet maintenance contracts.
- Denver Water requirements for water supply
- If power is being provided on site at all by generators, the generators need to be included in the electrical plans, on site-constructed structural support needs to be included in the foundation plans,
- Specifications need to be provided for fuel tank size and secondary spill containment.
- Occupied structures like office trailers and control rooms need to have foundation designs (may just be tie downs) in accordance with the temporary building policy.
- Unoccupied intermodal containers used only for nonhazardous miscellaneous storage do not need permits at this time, but their location needs to be field-approved by Denver Fire prior to installation.
- Construction permits for office (including “construction”) trailers can only be issued to Denver A- and B-licensed general contractors or a Denver “D/Temporary Prefabricated Mobile Building Installer” license holder.
- Construction permits for concrete foundations are typically only issued to Denver A- and B-licensed general contractors or a Denver “D/Concrete and Foundations” license holder. ROW license holders may also be permitted to install batch plant and control room foundations.
- Prefabricated occupied structures like trailers and modular control rooms have to be State-certified; CCD will review and permits the structural set up and electrical hookup – additional requirement applies if plumbing or sanitary service is provided for these.
- Structural observations and special inspections in accordance with IBC Chapter 17 are required but will be performed by DEN Quality Assurance at no expense to the Contractor.

At no time will the plant be allowed to be directly serviced from a fire hydrant. The plant site will have a provided backflow preventor and water meter for Contractor use.

The plant site will have a provided electrical service and meter for Contractor use.

Temporary plant site will be paid for under the Force Account “F/A Temporary Plant Site”. The Contractor shall refer to the Force Account portion of the project Special Provision for further information for payment under this item.

Economy Parking Lot Pavement Rehabilitation – Phase 1
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**REVISION OF SECTION 202
REMOVAL AND DISPOSAL OF CONCRETE AND ASPHALT**

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

Subsection 202.01 shall include the following:

Concrete and asphalt shall be disposed of at the DEN South Recycle Yard as outlined in the following paragraphs. All other material or waste shall be disposed of at the Denver Arapahoe Disposal Site (DADS) in accordance with Division 01 Section 015719, and the City and County of Denver Executive Order No. 115.

The DEN Recycle Yard is a State-permitted facility, that is under DEN's responsibility and control. The Contractor will be requested to address common erosion control measures for these facilities, depending on their usage (typically, street sweeping, vehicle tracking control, dust control), at no cost to the project.

In Subsection 202.02 delete the sixth paragraph and replace with the following:

The areas of concrete pavement to be removed shall be isolated in both the longitudinal and transverse directions by the double saw cut method of sawing in accordance with FHWA's publication entitled "Guide for Full-Depth Repairs". Sawing shall be accomplished with the use of a diamond blade saw or approved equivalent. Sawing of the concrete pavement shall be done to a true line, with a vertical face, unless otherwise specified. Sawing shall be full depth and shall go through the existing tie-bars and dowel bars, leaving free vertical edges at the limits of the removal.

After sawing has been completed, the deteriorated concrete shall be lifted vertically from its position unless otherwise approved by the Engineer. Pavement breakers or jackhammers shall be used in the removal process where lifting is not possible. All loose materials shall be removed from the repair area. Removed concrete slabs and excavated soils shall become the property of the Contractor and shall be disposed of in accordance with subsection 202.07.

After concrete pavement is removed, the underlying material will be evaluated by the Engineer. Unsuitable material shall be removed in accordance with subsection 206.03 and replaced with Aggregate Base Course Class 6 and depth specified in the Contract.

The subsequent aggregate base course Class 6 shall be placed with moisture and density control in accordance with Section 304.

Subsection 202.02 shall include the following:

The existing asphalt mat and concrete pavement sections are unknown and may vary. Removal shall be done in a manner that minimizes impact to the underlying material. The removed material shall become the property of DEN and shall be stockpiled at the Recycle Yard.

DEN South Recycle Yard

Asphalt millings, concrete pavement, and concrete slurry may be applied or disposed at the DEN South Recycle Yard at the direction of the DEN Project Manager. All disposals shall be coordinated with DEN a minimum of 48 hours in advance.

DEN Recycle Yard managers will designate an area for this Project within the Recycle Yard to stockpile concrete and asphalt disposal

Economy Parking Lot Pavement Rehabilitation – Phase 1
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**REVISION OF SECTION 202
 REMOVAL AND DISPOSAL OF CONCRETE AND ASPHALT**

All material shall be free of debris, including steel reinforcement, and shall be sized to 2-foot minus. The Contractor may size material either at the project site, or at a designated area within the Recycle Yard. All material must be sized within 30 days of its disposal, or as requested or approved by the DEN Project Manager.

DEN reserves the right to reject material that is deemed unclean, contaminated or containing debris. If after being disposed of at the Recycle Yard, material is found to be unclean, contaminated or containing debris, it will be the responsibility of the Contractor to clean and remove all debris, at the Contractor's expense.

DADS

The Contractor may also dispose of material at the DADS facility in accordance with Division 01 Section 015719, and the City and County of Denver Executive Order No. 115. DADS is located at 3500 E Gun Club Rd. in Aurora. Use of DADS shall be coordinated with the DEN Project Manager 24 hours prior to disposal to obtain DEN disposal tickets.

Subsection 202.11 shall include the following:

Removal of concrete pavement will be measured by the square yard, completed to the required depth, and accepted.

Subsection 202.12 shall include the following:

Payment will be made under:

Pay Item		Pay Unit
202-00026	Removal of Slope and Ditch Paving	Square Yard
202-00035	Removal of Pipe	Linear Feet
202-00037	Removal of End Section	Each
202-00200	Removal of Sidewalk	Square Yard
202-00203	Removal of Curb and Gutter	Linear Feet
202-00206	Removal of Concrete Curb Ramp	Square Yard
202-00207	Removal of Brick Pavers	Square Yard
202-00210	Removal of Concrete Pavement	Square Yard
202-00220	Removal of Asphalt Mat	Square yard
202-00240	Removal of Asphalt Mat (Planing)	Square yard
202-00705	Removal of Light Standard Foundation	Each
202-04005	Clean Valve Box	Each

Unless otherwise specified in the Contract, the removal, disposal, and sizing of items or their use in other locations on the project will not be measured and paid for separately but shall be included in the work.

Payment for Removal of Concrete Pavement will be full compensation for all work and materials required to complete the item, including sawing, removing, and disposal of the concrete pavement.

Structure excavation for removal of unsuitable material will be measured and paid for in accordance with subsection 206.07.

Economy Parking Lot Pavement Rehabilitation – Phase 1
 DEN Project No. CE 22005
 Contract No. 202265100

Feb. 10, 2023

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**REVISION OF SECTION 202
 REMOVAL OF BOLLARD**

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

Subsection 202.01 shall include the following:

Item 202-00039 Removal of Bollard shall include the complete removal and disposal of the existing bollards used for sign foundations and fire hydrant protections.

Subsection 202.03 shall include the following:

Bollard covers in an acceptable condition, at the discretion of the DEN PM, shall be stockpiled, protected, and returned to DEN.

Subsection 202.04 shall include the following:

Item 202-00039 Removal of Bollard shall include the complete removal and disposal of the existing bollard cover, bollard, steel, concrete, and foundation. The area shall be stabilized in such a way that a proposed bollard can be placed at the same location if needed. Backfilling of the void with an approved flow fill mix to the top of the existing surrounding pavement shall be required.

Subsection 202.08 shall include the following:

Removal of Bollard shall include the complete full depth removal and disposal of the existing steel and concrete foundations.

Subsection 202.11 shall include the following:

Removal of Bollard shall be full compensation for the complete removal and disposal of the existing bollard and the backfilling of the void with an approved flow fill mix. The flow fill mix shall not be paid for separately, but shall be included in the cost of the Removal of Bollard pay item.

Subsection 202.12 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
202-00039 Removal of Bollard	Each

Payment for Removal of Bollard will be full compensation for all work and materials required to complete the item, including sawing, removing, and disposal of the Bollard items.

Economy Parking Lot Pavement Rehabilitation – Phase 1
 DEN Project No. CE 22005
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**REVISION OF SECTION 202
 REMOVAL OF SIGN (SPECIAL) (CALL BOX POLE)**

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

Subsection 202.01 shall include the following:

The Removal of Sign (Special) (Call Box Pole) work shall consist of removing the existing call box poles, call boxes and solar equipment and delivering the equipment to the appropriate DEN facilities. Concrete shall be disposed of at the DEN South Recycle Yard as outlined in the previous paragraphs.

Subsection 202.03 shall include the following:

The call boxes and the solar equipment shall be removed without damage and delivered to the appropriate DEN facility. Coordinate with the DEN Project Manager to determine the location for the salvageable material.

Subsection 202.04 shall include the following:

The removal of the pole, footing and sign panel shall follow the requirements of section 202.04.

Subsection 202.11 shall include the following:

Removal of Sign (Special) (Call Box Pole) will be measured by each and shall include all work required to remove the pole footing, sign panel, and remove phone and solar equipment and deliver to the appropriate agency.

Subsection 202.12 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
202-00810 Removal of Ground Sign	Each
202-00815 Removal of Sign (Special) (Call Box Pole)	Each

Economy Parking Lot Pavement Rehabilitation – Phase 1
DEN Project No. CE 22005
Contract No. 202265100

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**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:

Excavated soil, aggregate base course, muck, rock, and other materials may be disposed of at the DEN South Soil Stockpile which is located south of Pike's Peak Lot on N Elk Street. The specific area for disposal will be as designated by the DEN PM. All disposals will be at the direction of the DEN PM and shall be coordinated with DEN a minimum of 48 hours in advance. All material shall be clean and free of debris and trash. DEN reserves the right to reject material that is deemed unclean, contaminated, or containing debris. If after being disposed, and material is found to be unclean, contaminated, or containing debris, it will be the responsibility of the Contractor to clean and/or remove contaminated material, at the Contractor's expense. The DEN Soil Stockpile is a State and local-permitted facility, that is under DEN's responsibility and control. The Contractor will be requested to address common erosion control measures for these facilities, depending on their usage (typically, street sweeping, vehicle tracking control, dust control), at no cost to the project.

In Subsection 203.05 (b) delete the first and second paragraphs and replace with the following:

Unclassified. Excess or unsuitable excavated material, including rock and boulders, shall become the property of the Contractor and properly disposed of outside the project limits.

Subsection 203.11 (a) shall include the following:

At sidewalks and pathways, the Contractor shall inform the Engineer of any soft or yielding areas that remain after the required moisture density treatment has been completed. The Engineer must approve all removals of soft or yielding areas. Areas that have been approved for removals shall be replaced with Aggregate Base Course (Class 6) compacted in accordance with Section 304. The volume of the removed soft or yielding material will not be measured and paid for separately, but shall be included in the work.

Subsection 203.11 (f) delete the first through third paragraphs and replace with the following:

Proof Rolling. Proof rolling will not be measured for payment but shall be included in the work.

Proof rolling shall be completed at the direction of the DEN Project Manager.

Subsection 203.11 shall include the following:

Items paid for by volume will not be re-measured but will be the quantities designated in the Contract. 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 ten percent (10%) of the plan quantity.

No additional payment will be made for material which requires more than one handling prior to final placement.

Compaction and/or re-compaction of subgrade areas shall not be measured and paid for separately but shall be included in the work.

Economy Parking Lot Pavement Rehabilitation – Phase 1
DEN Project No. CE 22005
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**REVISION OF SECTION 203
EXCAVATION AND EMBANKMENT**

Disposal of excess excavation is the responsibility of the Contractor and shall not be measured and paid for separately but shall be included in the work.

Proof rolling of all multi-use path subgrade will be required and will not be measured and paid for separately, but shall be included in the work.

Payment shall be full compensation for all work, material, equipment and labor required for a complete installation and acceptance.

Subsection 203.12 shall include the following:

Payment will be made under:

Pay Item		Pay Unit
203-00010	Unclassified Excavation (Complete in Place)	Cubic Yard
203-00050	Removal of Unsuitable Material	Cubic Yard
203-00400	Rock Excavation	Cubic Yard

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**REVISION OF SECTION 209
WATERING AND DUST PALLIATIVES**

Section 209 of the Standard Specifications is hereby revised as follows:

Subsection 209.05 shall include the following:

The contractor shall be responsible for controlling vehicle and equipment speeds within the project site to keep dust to a minimum. The Contractor shall monitor activities daily for dust. If excessive dust is being generated by construction speeding vehicles or equipment, the contractor shall immediately take corrective action to ensure operators and drivers control speeds, thereby, assisting in dust suppression.

Subsection 209.08 replace the second paragraph with the following:

Water for dust control and all other items of work shall not be paid for separately, but shall be included with the work.

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**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 Reset Structure (Bus Shelter) and Reset Structure (Shuttle Sign Structure) are located within the shuttle islands. The shuttle island reconstruction is expected to be during the second and third phase of the project. The East snow storage area constructed during the first phase of the project, may be used as the interim storage location of the reset structure items while the shuttle islands are being reconstructed.

Subsection 210.03 shall include the following:

The Reset Light Standard shall include all work necessary to remove the items from their existing location to the new final location, and shall include all mounting hardware, and all other work necessary to complete the reset item. The interim storage of the items and moving the items to and from the interim location shall not be paid for separately but shall be included as part of the Each pay item.

The contractor shall notify DEN Electrical one (1) week in advance of construction operations commencing near DEN Electrical facilities.

Subsection 210.10 shall include the following:

Manholes shall be adjusted by use of precast grade rings or concrete riser section. Adjustments by use of Brick Courses shall not be acceptable.

Modify Inlet shall include all work necessary to remove the top of the existing inlet, form and construct the additional inlet wall height, and reattach the top of the inlet at the grades shown in the plans. The work shall include the excavation for removal, form work, the dowel material and labor, and all other work necessary to complete the modify item. At some inlets, there will also be modifications for new underdrain pipe connections going into the inlets. The modifications for the underdrain pipes shall not be paid for as a separate Modify Inlet pay item but shall be included as a part of the other modification work. All modifications required at an inlet, shall be paid for as a single Modify Inlet pay item.

Subsection 202.12 shall include the following:

Reset Structure (Bus Shelter) and Reset Structure (Shuttle Sign Structure) shall include all work necessary to remove the items from their existing location to the new final location, and shall include all mounting hardware, footings, and all other work necessary to complete the reset item. The interim storage of the items and moving the items to and from the interim location shall not be paid for separately but shall be included as part of the Each pay item.

The contractor shall raise electric hand holes to the finished grade. Adjusting the electric hand holes to the finished grade shall be paid for as Each with the pay item of Reset Pull Box. Each item shall include all labor and materials to complete the work.

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**REVISION OF SECTION 210
 RESET STRUCTURES**

Subsection 210.13 shall include the following:

Payment will be made under:

Pay Item		Pay Unit
210-00001	Reset Structure (Bus Shelter)	Each
210-00001	Reset Structure (Shuttle Sign Structure)	Each
210-00050	Reset Fire Hydrant	Each
210-00750	Reset Light Standard	Each
210-00815	Reset Sign Panel	Each
210-00827	Reset Pull Box	Each
210-04010	Adjust Manhole	Each
210-04015	Modify Manhole	Each
210-04020	Modify Inlet	Each
210-04050	Adjust Valve Box	Each

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**REVISION OF SECTION 212
LANDSCAPE RESTORATION**

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

Subsection 210.01 shall include the following:

Landscape Restoration work shall include, but is not limited to, the replacement and resetting the existing gravel and pavers in the medians and islands after the sidewalk and concrete curb ramp work is completed.

Subsection 212.07 shall include the following:

The Landscape Restoration work shall be paid for as Lump Sum, and shall include all work necessary to restore the gravel and pavers around the sidewalk and concrete curb ramps to a functional, safe and astatically pleasing appearance that matches the original condition.

Subsection 212.08 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
212-01200 Landscape Restoration	Lump Sum

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**REVISION OF SECTION 304
 AGGREGATE BASE COURSE**

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

Subsection 304.02 shall include the following:

Aggregate Base Course Class 6 will be furnished for the project by DEN, located at the DEN South Recycle Yard. Stockpile of available material shall be designated by the DEN Project Manager, but shall be the Contractor's responsibility to delineate and secure upon Notice to Proceed, for exclusive use on this project. Delineation may include construction fencing, rope, signage, etc. at the Contractor's discretion.

The Contractor must supply their own means of loading and hauling the designated material from the Recycle Yard to the project site.

The Contractor must supply power to DEN's State-certified truck scale to be made fully operational. Minimum requirements for power is a 42 amp, Generac SD010 10kW generator or approved equal. All material removed from the Yard must be weighed for verification of material quantities for permitting purposes.

DEN furnished Aggregate Base Course Class 6 must adhere to all sampling and testing frequency and requirements outlined for Section 304 Aggregates, including gradation, density/compaction, resilient modulus and R-value, as specified. The Aggregate Base Course (Class 6) must have a resistance value of at least 78 when tested by the Hveem Stabilometer method.

At the completion of the Project, the Contractor shall return all areas within the DEN Recycle Yards that were disturbed to pre-Construction condition.

Subsection 304.08 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
304-06030 Aggregate Base Course (Class 6) (Install Only)	Ton

END OF SECTION

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**REVISION OF SECTION 412
 CONCRETE PAVEMENT**

Subsection 412.13 shall include the following:

Dowel bars and tie bars for replaced concrete pavement shall be placed in accordance with Standard Plan M-412-1 unless otherwise directed by the Engineer. To anchor dowel bars and tie bars, holes shall be drilled into the sawed face of the existing slab, perpendicular to the joints. All alignments shall be measured and verified prior to the placement of concrete. Dowel baskets shall be used for joints in repair areas that exceed more than one panel replacement.

Compressed air shall be used to remove dirt and debris from all drilled holes. After cleaning and prior to bar insertion, epoxy grout shall be discharged to the back of the hole to force the grout forward. Sufficient epoxy grout shall be injected into the back of the hole in order to cover the bar over the entire length of embedment. Each bar shall be twisted a minimum of one full turn during insertion.

Subsection 412.17 shall include the following:

The smoothness of the replaced concrete shall be tested in accordance with subsection 105.07(a).

In subsection 412.23, first paragraph, delete the first sentence and replace it with the following:

The quantities of Concrete Pavement (7 Inch), and Concrete Pavement (10 Inch) to be paid for under these items will be the number of square yards completed and accepted.

Subsection 412.24 shall include the following:

Payment will be made under:

PAY ITEM	PAY UNIT
Concrete Pavement (7 Inch)	Square Yard
Concrete Pavement (10 Inch)	Square Yard

Payment for Concrete Pavement will be full compensation for all work and material required to place and finish the replacement concrete pavement in accordance with the Contract.

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**REVISION OF SECTION 420
GEOTEXTILE (SEPARATOR) (CLASS 1)**

Section 420 of the Standard Specifications is hereby revised for this project as follows:

Subsection 420.01 shall include the following:

The Geotextile (Separator) (Class 1) work consists of furnishing and installing geotextiles for the 10” full depth concrete pavement section.

Subsection 420.09 shall include the following:

The Geotextile (Separator) (Class 1) will be measured by the square yard of surface area covered, complete in place.

Subsection 420.10 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
420-00132 Geotextile (Separator) (Class 1)	Square Yard

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REVISION OF SECTION 504
SOIL NAIL WALL

Section 504 of the Standard Specifications is hereby revised for this project as follows:

Subsection 504.26, Section (a) shall be replaced with the following:

- (a) *Solid Bar Soil Nail.* Bars shall conform to AASHTO M31 for Grade 60. Bars shall be threaded, continuous without splices or welds, new, straight, undamaged, epoxy-coated or encapsulated as shown on the plans. Bars shall be threaded a minimum of 6 inches on the wall anchorage end to allow proper attachment of bearing plate and nut. Threading may be continuous spiral deformed ribbing provided by the bar deformations (continuous thread bars) or may be cut into a reinforcing bar. If threads are cut into a reinforcing bar, the next larger bar number designation from that shown on the plans shall be provided at no additional cost.

Subsection 504.31 shall include the following:

Protection of Existing Large Block Wall. The existing large block gravity wall above the soil nail wall section shall be protected in place. If any of the block is damaged or the location of the block is shifted during the soil nail installation, contractor shall replace or reset the block at no cost to the owner.

Subsection 504.33, 4th paragraph shall be replaced with the following:

Excavation shall not commence until the first row of the soil nails are installed. Excavation of the next-lower lift shall not proceed until soil nail installation, initial shotcrete face placement, attachment of bearing plates and nuts, and soil nail testing have been completed and accepted per subsection 504.17 in the current lift. Soil nail grout and shotcrete shall have achieved a compressive strength of at least 1000 psi before excavation of the next underlying lift.

Subsection 504.48 shall be replaced with the following:

504.48 Soil nail walls will be measured by the quantities for the five major components of the wall: soil nail wall consists of soil nail, initial and final shotcrete facing; verification testing; excavation and underdrain.

Soil nail wall consists of soil nail, initial and final shotcrete facing will be measured by the square-foot of the soil nail wall installed and accepted.

Verification testing will be measured by the number of verification tests performed.

Subsection 504.49 shall be replaced with the following:

504.49 The accepted quantities, measured as provided above, will be paid for at the contract unit price for the pay items listed below that are shown on the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
Soil Nail Wall	Square-Foot
Verification Testing	Each

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**REVISION OF SECTION 504
SOIL NAIL WALL**

Payment for Soil Nail Wall will be full compensation for all work and materials required to complete soil nail wall. This work shall include but is not limited to soil nails, geocomposite strip drains, proof testing, drilling, grouting, bearing plates, end hardware (nuts, washers, couplers), initial and final shotcrete facing, certificates of compliance, and incidentals necessary to acceptably fabricate and construct the soil nail walls. The initial and final shotcrete facing shall include the shotcrete, steel and mesh reinforcement used for the facing.

All excavation work required to construct the soil nail wall and the initial shotcrete facing to the lines and grades indicated on the plans will be measured and paid for in accordance with Section 203 or 206. Additional earthwork outside of excavation for the wall installation and backfilling prior to or post wall construction will not be measured and paid for separately, but shall be included in the work.

Underdrain will be measured and paid for in accordance with Section 605.

Shotcrete shall not be paid for separately, but shall be included in the cost of the Square-Foot, Soil Nail Wall pay item. The 3” weep hole drains shall not be paid for separately, but shall be included in the cost of the Soil Nail Wall work.

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**REVISION OF SECTION 506
 GEOGRID REINFORCEMENT**

Section 506 of the Standard Specifications is hereby revised for this project as follows:

Subsection 506.01 shall include the following:

This work consists of furnishing and installing geogrid reinforcement material, in accordance with these specifications and in conformity with the lines and grades shown on the plans or established.

Subsection 506.02 shall include the following:

Geogrid is a polymer grid structure specifically fabricated for use as a soil reinforcement.

Geogrid reinforcement material shall conform to the following:

GEOGRID

Physical Properties	Unit	Characteristic Values	
Roll Length	Feet	240 Min.	
Roll Width	Feet	13 Min.	
Roll Weight	Lb	400 Min.	
Mass per Unit Area	oz/sq yd	12.8 Min.	
Grid Pitch, Transverse Direction	inch	0.8-2.0	
Grid Pitch, Longitudinal Direction	inch	0.9-2.0	
Mechanical Properties	Unit	Test Method	Minimum Value
Peak Tensile Strength	lb/ft	ASTM D 4595	4,800
Tensile Strength at 2% Strain, Machine Direction	lb/ft	ASTM D 4595	960
Tensile Strength at 2% Strain, Cross-Machine Direction	lb/ft	ASTM D 4595	1320
Junction Efficiency	percent	GG2	90 Min.

The geogrid reinforcement shall be composed principally of polypropylene or high density polyethylene.

The geogrid reinforcement shall contain stabilizers or inhibitors to prevent degradation of properties due to ultraviolet light exposure. The geogrid reinforcement shall be inert to all naturally occurring alkaline and acidic soil conditions.

The manufacturer shall furnish certified test reports from an independent laboratory indicating that the material meets the requirements of the specification.

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**REVISION OF SECTION 506
GEOGRID REINFORCEMENT**

Subsection 506.03 shall include the following:

Geogrid reinforcement shall be installed in accordance with the following:

- (a) Delivery, Storage, and Handling. Upon delivery, the Contractor shall check the geogrid to assure the proper material has been received. Special care shall be taken in the handling of geogrids manufactured from polypropylene at temperatures at or below 0 °F.
- (b) Geogrid Installation. Geogrid shall be laid at the proper elevation and alignment as shown on the plans or as directed by the Engineer. Geogrid shall be oriented such that the roll length runs parallel to the roadway alignment.

Parallel rolls shall be overlapped 1 foot. When a new roll is started, a 2 foot overlap shall be made over the end of the previous roll. Care shall be taken to ensure that geogrid sections do not separate at overlaps during construction.

Placement of geogrid around corners will require cutting of geogrid product and diagonal overlapping of same to ensure that excessive buckling of grid material does not occur.

Geogrid material shall be secured to the ground surface by placement of loose fill at the corners and edges or as directed by the Engineer.

- (c) Fill Placement Over Geogrid. Tracked construction equipment shall not operate directly upon the geogrid. A minimum fill thickness of 8 inches is required prior to operation of tracked vehicles over the geogrid.

Rubber-tire equipment may pass over the geogrid at slow speeds, less than 10 mph, if the underlying material is capable of supporting the loads without excessive rutting or causing damage to the mesh. Operators shall avoid sudden braking or sharp turning.

Fill material shall be back-dumped from trucks riding on top of the reinforced fill and bladed onto the geogrid in such a manner that the fill rolls onto the grid ahead, e.g., by gradually raising dozer blade while moving forward.

Material placed over the geogrid shall be compacted in accordance with the compaction requirements for embankment for this project or as directed. Care shall be taken to assure the geogrid reinforcement is not damaged.

Reinforced backfill shall be compacted to 95 percent of the maximum density as determined by AASHTO T-99. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be within two percent of optimum.

Subsection 506.04 shall include the following:

Geogrid reinforcement will be measured in place by the square yard of surface area, completed and accepted.

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**REVISION OF SECTION 506
GEOGRID REINFORCEMENT**

Subsection 506.05 shall include the following:

The accepted quantities will be paid for at the contract unit price per square yard.

Payment will be made under:

Pay Item	Pay Unit
Geogrid Reinforcement	Square Yard

Payment will be full compensation for all labor, materials, equipment, and other items necessary and incidental to the completion of the work. Additional geogrid for overlaps will not be measured and paid for, but shall be included in the work.

Aggregate Base Course (Class 6) will be paid for as provided in Section 304.

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**REVISION OF SECTION 603
TRACER WIRE**

Section 603 of the Standard Specifications is hereby revised for this project as follows:

Subsection 603.01 shall include the following:

This work consists of tracer wire installation for culverts and storm sewer. Tracer wire shall be installed at all underground culvert and storm sewer locations, except as noted below.

Tracer wire does not need to be installed for the following situations:

- (a) Short pipe culverts in which a light shining through one end is visible from the other end;
- (b) Short pipe culverts in which the inlet and outlet may easily be observed/identified from the same (or nearly the same) vantage point;
- (c) Underground storm sewer pipe in which a light shining through one end, or through a manhole, is visible on either end.

Subsection 603.02 shall include the following:

The following materials shall be accepted for tracer wire installation.

- (a) *Tracer Wire*: All tracer wire shall have HDPE insulation intended for direct bury, color coded green. High Heat-resistant Nylon coated (THHN) wire is not acceptable as tracer wire.
 - (1) Open Trench. Tracer Wire shall be #14 AWG copper, high strength with minimum 450 lb. break load, with minimum 30 mil HDPE insulation thickness.
 - (2) Direction Drilling/Boring. Tracer wire shall be #14 AWG copper, extra high strength with minimum 1,150 lb. break load, with minimum 30 mil HDPE insulation thickness.
 - (3) Pipe Bursting/Slip Lining. Tracer wire shall be 7 x 7 stranded copper c, extreme strength with 4,700 lb. break load, with minimum 50 ml HDPE insulation thickness.
- (b) *Connectors*:
 - (1) Mainline. All mainline tracer wires must be interconnected in intersections, at mainline tees and mainline crosses. At tees, the three wires shall be joined using a single 3-way lockable connector. At Crosses, the four wires shall be joined using a 4-way connector. Use of two 3-way connectors with a short jumper wire between them is an acceptable alternative.

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**REVISION OF SECTION 603
 TRACER WIRE**

- (2) Direct bury wire connectors – Direct bury wire connectors shall include 3-way lockable connectors and mainline to lateral lug connectors specifically manufactured for use in underground tracer wire installation. Connectors shall be dielectric silicon-filled to seal out moisture and corrosion and shall be installed in a manner to prevent any uninsulated wire exposure.
- (3) Prohibited - Non-locking friction fit, twist on or taped connectors are prohibited.
- (c) *Termination/Access Box:*
 - (1) All tracer wire termination points must utilize an approved tracer wire access box (above ground access box or grade level/in-ground access box as applicable), specifically manufactured for this purpose.
 - (2) All grade level/in-ground access boxes shall be appropriately identified with “storm” cast into the cap and shall be color coded in green
 - (3) A minimum of two feet of excess/slack wire is required in all tracer wire access boxes after meeting final elevation.
 - (4) All tracer wire access boxes must include a manually interruptible conductive/connective link between the terminal(s) for the tracer wire connection and the terminal for the grounding anode wire connection.
 - (5) Grounding anode wire shall be connected to the identified (or bottom) terminal on all access boxes.
- (d) *Prohibited Materials:*
 - (1) Uninsulated wire insulations other than HDPE
 - (2) Non-locking, friction fit, twist on or taped connectors
 - (3) Brass or copper ground rods
 - (4) Wire connections utilizing a taping or spay-on waterproofing

Subsection 603.03A, Tracer Wire Installation, shall be added and include the following:

603.03A.01 General Construction Requirements. Tracer wire installation shall be performed in such a manner that allows proper access for connection of line tracing equipment, proper locating of wire without loss or deterioration of low frequency (512Hz) signal for distances greater than 1,000 linear feet and without distortion of signal caused by multiple wires being installed near one another. Tracer wire systems must be installed as a single continuous wire, except where using approved connectors. No looping or coiling of wire is allowed.

Tracer wire shall be installed on top of the pipe and secured (taped/tied) at five-foot intervals. Tracer wire must be properly grounded as specified.

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**REVISION OF SECTION 603
TRACER WIRE**

In occurrences where an existing tracer wire is encountered on an existing utility that is being extended or tied into, the new tracer wire and existing tracer wire shall be connected using approved splice connectors and shall be properly grounded at the splice location as specified.

Any damage occurring during installation of the tracer wire must be immediately repaired by removing the damaged wire and installing a new section of wire with approved connectors. Taping and/or spray coating shall not be allowed.

603.03A.02 Storm Sewer System Construction Requirements. A mainline tracer wire must be installed, with all interconnecting storm sewer line tracer wires properly connected to the mainline tracer wire, to ensure full tracing/locating capabilities from a single connection point. Lay mainline tracer wire continuously, by-passing around the outside of manholes/structures on the North or East side. Tracer wire on all interconnecting storm sewer line tracer wires must terminate at an approved tracer wire access box location and color-coded green.

- (a) *Storm Sewer on public property* - Tracer wire must terminate at an approved grade level/in ground tracer wire access box, located at the edge of the road right-of-way, and out of the roadway.
- (b) *Long-runs, greater than 300linear feet without manholes* - Tracer wire access must be provided utilizing an approved grade level/in-ground tracer wire access box, located at the edge of the road right-of-way, and out of the roadway. The grade level/in-ground tracer wire access box shall be delineated using a minimum 48” polyethylene marker post, color coded green.

603.03A.03 – Grounding Construction Requirements. Tracer wire must be properly grounded at all dead ends/stubs. Grounding of tracer wire shall be achieved by use of a drive-in magnesium grounding anode rod with a minimum of 20ft of #14red HDPE insulated copper wire connected to anode (minimum 1.5 lb.) specifically manufactured for this purpose and buried at the same elevation as the utility. When grounding the tracer wire at dead ends/stubs, the grounding anode shall be installed in the opposite direction to the tracer wire, at the maximum possible distance. When grounding the tracer wire in areas where the tracer wire is continuous and neither the mainline tracer wire or the grounding anode wire will be terminated at/above grade, install grounding anode directly beneath and in-line with the tracer wire. Do not coil excess wire from grounding anode. In this installation method, the grounding anode wire shall be trimmed to an appropriate length before connecting to tracer wire with a mainline to lateral lug connector. Where the anode wire will be connected to a tracer wire access box, a minimum of two (2) ft. of excess/slack wire is required after meeting final elevation.

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**REVISION OF SECTION 603
TRACER WIRE**

603A.03A.04 Prohibited Construction Methods.

- (a) Looped wire or continuous wire installations, that have multiple wires laid side-by-side or near one another;
- (b) Tracer wire wrapped around the corresponding utility;
- (c) Brass fittings with tracer wire connection lugs;
- (d) Wire terminations within the roadway, i.e. in valve boxes, cleanouts, manholes, etc.;
- (e) Connecting tracer wire to existing conductive utilities

603.03A.05 Testing Construction Requirements. All new tracer wire installations shall be located using typical low frequency (512Hz) line tracing equipment, witnessed by the contractor, engineer and facility owner as applicable, prior to acceptance of ownership.

This verification shall be performed upon completion of rough grading and again prior to final acceptance of the project.

Continuity testing in lieu of actual line tracing shall not be accepted.

Subsection 603.12 shall include the following:

Tracer wire will be measured by the linear foot complete in place and accepted.

Subsection 603.13 shall include the following:

Tracer wire, connectors, and termination/access boxes will not be measured and paid for separately but shall be included in the work for piping items, which includes items specified in Standard Specifications 603, 605, 623, and 624.

Tracer wire product data shall be submitted at least 14 days prior to installation for approval by the DEN Project Manager.

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**REVISION OF SECTION 605
SUBSURFACE DRAINS**

Section 605 of the Standard Specifications is hereby revised for this project as follows:

Subsection 605.07 shall include the following:

The Linear Feet of Pipe Underdrain work shall include all labor and materials to complete the installation of the pipe underdrains including but not limited to the Excavation, Pipe, Geotextile, Filter Material, and all item described section 605.03 of the standard specifications.

Subsection 605.08 shall include the following:

Payment will be made under:

Pay Item		Pay Unit
605-00004	4 Inch Non-Perforated Pipe Underdrain	Linear Feet
605-00040	4 Inch Perforated Pipe Underdrain	Linear Feet

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**REVISION OF SECTION 608
 CONCRETE SIDEWALK (6 INCH)**

Section 608 of the Standard Specifications is hereby revised for this project as follows:

In subsection 608.02 delete the second paragraph and replace with the following:

Concrete for Concrete Sidewalk (6 inch) shall meet the requirements of Section 601 with the following modifications: Portland Cement shall be Type I/II, and the concrete shall be Class B (with modifications below).

Concrete for Concrete Sidewalk shall be Class B, conforming to Section 601. The mix design shall be modified accordingly to include fiber mesh. Concrete reinforcing fibers shall be polypropylene, collated, fibrillated fibers and shall be incorporated into the concrete at the rate of 1.50 pounds per cubic yard of concrete. Mixing, placing and finishing shall be performed according to manufacturer's recommendations.

Subsection 608.03 (d) shall include the following:

Concrete texture and color of curing compound shall match or blend in with existing sidewalk concrete in the vicinity.

Subsection 608.03 (e) modify the first paragraph as follows:

Contraction joints shall be sawcut and sealed per Section 412, and CDOT Standard M-412-1. Expansion joints shall be spaced at not more than 250 feet.

Unless otherwise noted in the plans, at all concrete construction joints, dowels consisting of #4 rebar shall be placed at 1-foot centers along the entire cold joint and have a minimum embedment length of 6 inches, and be epoxied in place. The dowels shall be placed at construction joints on all concrete sidewalk, concrete curb ramps, pavement, curb and gutter.

Subsection 608.06 shall include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Concrete Sidewalk (6 Inch)	Square Yard
Concrete Curb Ramp	Square Yard

All labor and materials necessary and incidental to the construction of Sidewalk and Curb Ramps including but not limited to special formwork, joint material, reinforcing, saw-cutting, sealants, dowels, and construction joints will not be measured and paid for separately but shall be included in the work.

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**REVISION OF SECTION 609
 CURB AND GUTTER**

Subsection 609.03 (c) shall include the following:

The Contractor shall protect all new concrete items against defacement or other injury from any cause. If said damage cannot be adequately repaired to the satisfaction of the Engineer, the Contractor shall remove and replace the unacceptable items at Contractor's expense.

Subsection 609.03 (f) shall include the following:

The Contractor shall cure in accordance with 412.14 as required.

Subsection 609.03 (i) shall include the following:

The Contractor shall ensure that new concrete items properly drain per the plans and, as such, there are no areas of standing water on new concrete items. If said items do not drain to the satisfaction of the Engineer, the Contractor shall remove and replace the unacceptable items at Contractor's time and expense.

Subsection 609.06 shall include the following:

Along the West side of the project, the plans show the existing Curb and Gutter being overlaid with 5 inches of concrete to match the new height of the 5-inch white topping. Unless directed by the project engineer, the existing curb and gutter shall be protected in place. The work and materials to overlay the existing curb and gutter, shall be measured by the Linear Foot and paid for as Curb and Gutter Type 2 (Section II-B).

Subsection 609.07 shall include the following:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
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 I-M)	Linear Foot

All labor and materials necessary and incidental to the construction of Curb and Gutter (Barrier) and Curb and Gutter (Mountable) including but not limited to special formwork, joint material, reinforcing, saw-cutting, sealants, dowels, and construction joints will not be measured and paid for separately but shall be included in the work.

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**REVISION OF SECTION 610
 MEDIAN COVER MATERIAL (CONCRETE)**

Section 610 of the Standard Specifications is hereby revised for this project as follows:

In subsection 610.02 delete the second paragraph and replace with the following:

Concrete for Median Cover Material (Concrete) shall meet the requirements of Section 601 with the following modifications: Portland Cement shall be Type I/II, and the concrete shall be Class B (with modifications below).

Concrete for Median Cover Material (Concrete) shall be Class B, conforming to Section 601. The mix design shall be modified accordingly to include fiber mesh. Concrete reinforcing fibers shall be polypropylene, collated, fibrillated fibers and shall be incorporated into the concrete at the rate of 1.50 pounds per cubic yard of concrete. Mixing, placing and finishing shall be performed according to manufacturer's recommendations.

Subsection 610.03 (d) shall include the following:

Concrete texture and color of curing compound shall match or blend in with existing sidewalk concrete in the vicinity.

Subsection 610.03 (e) modify the first paragraph as follows:

Contraction joints shall be sawcut and sealed per Section 412, and CDOT Standard M-412-1. Expansion joints shall be spaced at not more than 250 feet.

Unless otherwise noted in the plans, at all concrete construction joints, dowels consisting of #4 rebar shall be placed at 1-foot centers along the entire cold joint and have a minimum embedment length of 6 inches, and be epoxied in place. The dowels shall be placed at construction joints on all concrete sidewalk, concrete curb ramps, pavement, curb and gutter.

Subsection 610.05 shall include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Median Cover Material (Concrete)	Square Foot

All labor and materials necessary and incidental to the construction of Median Cover Material including but not limited to special formwork, joint material, reinforcing, saw-cutting, sealants, dowels, and construction joints will not be measured and paid for separately but shall be included in the work.

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**REVISION OF SECTION 613
 LIGHTING**

Section 613 of the Standard Specifications is hereby revised for this project. Delete and replace it with the following:

DESCRIPTION

613.01 This work consists of furnishing and installing foundations, light standards, luminaires, light sources, conduit, cable, wiring, and incidental materials for parking lot lighting and electrical systems in accordance with these specifications and in conformance with the details, lines, grades, and locations shown on the plans or established.

MATERIALS

613.02 Roadway lighting materials shall conform to Section 715 and shall be compatible with the requirements of the local agency having jurisdiction.

- (a) *Foundation*. Concrete Foundation Pads and Light Standard Foundations shall be cast-in-place concrete. A complete foundation includes the concrete, reinforcing steel, grounding electrode, connector bolts, and anchor bolts.

Connector bolts and anchor bolts shall accommodate the anchorage of the light pole from its base flange to the base or transformer base, and from the base or transformer base to the light standard foundation.

- (b) *Light Standard*. A complete light standard includes the metal light pole, mast arm or arms, base or transformer base, approved breakaway device (optional), in-use receptacles (optional), grounding system, and all hardware. When a transformer base is not used, the pole shall have a handhole.
- (c) *Conduit*. Conduit includes all junction boxes, pull wire, weatherheads, adaptors, and expansion joints for conduit required to install complete runs.
- (d) *Electrical Warning Tape*. Electrical warning tape shall consist of pre-manufactured non-adhesive polyethylene material that is unaffected by acids, alkalis, and other soil components. The tape shall be detectable. The color of the tape shall be red, and it shall be a minimum 3.5 mils thick and 6 inches wide. Its tensile strength shall be 1,750 psi lengthwise.

The electrical tape shall include the following identification printed in black letters continuously along the length of the tape: “CAUTION BURIED ELECTRIC LINE BELOW”.

The identification note and color of tape shall conform to the requirements of the “American Public Works Association (APWA) Uniform Color Codes (Red) – Electrical Power Lines, Cables, Conduit and Lighting Cables”.

- (e) *Luminaire*. A complete luminaire includes the housing, lens, Light Emitting Diode (LED) board, dimming driver, slip-fitting clamp or approved manufacturer mounting, all necessary internal wiring, and 7-pin photoelectric control receptacle.

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 LIGHTING**

- (f) *Wiring*. Complete wiring includes control wiring, luminaire wiring, main circuit wiring, ground wiring, and all other wiring necessary for a complete installation.
- (g) *Materials List*. At the Pre-Construction Conference, the Contractor shall submit to the Engineer three copies of a list of all materials and equipment to be incorporated into the work. The Contractor shall include the following items on the list:
- (1) Light standard foundations.
 - (2) Foundation pads.
 - (3) All other items required for a complete installation.

The Engineer will return lists that are incomplete or that include unacceptable materials to the Contractor for correction and re-submission.

The Contractor shall not order materials or equipment until the Engineer and the party or agency responsible for maintenance have reviewed and approved the materials and equipment list. The Engineer's approval of the list shall not relieve the Contractor of responsibility for the proper functioning of the completed installation.

CONSTRUCTION REQUIREMENTS

613.03 General. All work shall conform to these specifications and the National Electric Code (NEC) and shall comply with applicable regulations as specified in subsection 107.01.

Each system shall be installed as designated. The Contractor shall furnish and install all incidentals necessary to provide a complete working unit or system.

613.04 Concrete Foundation Pads and Light Standard Foundations.

Foundations shall be installed complete with grounding electrodes. Concrete Class D shall be used for foundation pads and concrete Class BZ shall be used for the light standard foundation. Concrete Class D can be used for light standard foundation if the rebar spacing in the foundation is at least 3 inches and the slump of the concrete is 6 to 9 inches. All concrete shall meet the requirements of Section 601. The drilled shaft (caisson) of the light standard foundation shall meet the requirements of Section 503.

The Contractor shall test and report soil conditions to the Engineer if any of the following soil conditions are encountered during roadway work:

- (1) Light standards are not installed within the roadway earthwork prism.
- (2) The soil has a high organic content or consists of saturated silt and clay.
- (3) The site will not support the weight of the drilling rig.
- (4) The foundation soils are not homogenous.

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(5) Firm bedrock is encountered.

Between drilling of the shaft and placing of concrete the hole shall not be disturbed. Wet or caving holes shall be backfilled with flow-fill and re-drilled after a three-day curing period without the use of casing. If testing is required, then soil testing shall be performed at the lowest elevation light standard location for all light connected to a single electrical circuit. Foundations shall be installed at the final grade.

All anchor bolts shall be positioned by means of steel templates. The center of the template shall coincide with the center of the base.

Conduits shall be properly positioned and anchored before the concrete is placed.

All foundations shall have ground electrodes conforming to the NEC. All foundations on structures shall be bonded to the structure steel by a method that is in accordance with the NEC, and which is approved by the Engineer.

613.05 Light Standards. Poles shall be set plumb on the light standard foundation using non-corrosive metal shims or upper and lower nuts. Poles shall be level and plumb to the foundation. Defects and scratches on galvanized poles shall be given two coats of acceptable zinc-rich paint as directed. Defects and scratches on painted poles shall be primed and painted to match undamaged pole sections.

613.06 Luminaires, Light Sources, and Lamps. Roadway luminaires shall be mounted on the mast arm by a slip-fitter clamp or other approved device. Luminaires shall be adjusted vertically and horizontally to be plumb with the foundation and provide the required orientation and maximum light distribution on the roadway and meet IES TM-15 upright rating of U0 (no upright).

Luminaires are to be controlled by a centralized photoelectric control. For modified systems, individual photoelectric control may be used. The photoelectric control shall be positioned northward to minimize sun interference.

Luminaires of the specified type and initial lumen output shall be installed as specified. The type and initial lumen output shall be marked on each luminaire or pole in accordance with American National Standards Institute (ANSI) specifications. ANSI approved tags shall be provided and installed by the Contractor.

After installation and prior to acceptance, refractors and lenses shall be cleaned to provide maximum lumen output.

613.07 Conduit. The electrical conduit system shall be installed in accordance with subsection 715.07 Conduit and CDOT's "A Policy on the Accommodation of Utilities on Colorado Highways Rights-of-Way" and the following:

In the conduit system the locations of conduit, pull boxes, splice boxes and expansion joints shown on the plans are approximate. Actual locations shall be established during construction. The conduit system shall be located to avoid interference with known present or known future construction installations. All underground conduit runs and conduit risers on poles shall be installed as required for a complete installation.

All conduit installed under the roadway shall be at least 2-inch inside diameter unless otherwise designated. The Contractor may use larger conduit than specified at no additional cost to the project. If larger conduit is used, it shall be for the entire run from outlet to outlet. Reducer couplings shall not be used.

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Existing underground conduit to be incorporated into a new system shall be cleaned with a round wire brush the same size as the internal diameter of the conduit, proofed with a mandrel ¼-inch less in diameter than the conduit inner diameter size, and blown out with compressed air.

Where new conductors are to be added to existing conductors in a conduit, all conductors shall be removed, and the conduit cleaned as described above. All conductors shall be pulled into the conduit as a unit.

Conduit terminating in standards or pedestals shall extend approximately 2 inches vertically above the foundations and shall slope toward the handhole opening.

Conduit entering pull boxes shall terminate 2 inches inside the box wall and no more than 1.5 inches above the bottom and shall slope toward the top of the box to facilitate pulling of conductors. Conduit entering through the bottom of a pull box shall be located near the end walls to leave the major portion of the box clear. All conduits shall be labeled as to the direction of their run.

The ends of all conduits, whether shop or field cut, shall be reamed to remove burrs and rough edges. Cuts shall be made square and true so that the ends will butt or come together for their full circumference.

Slip joints or running threads shall not be used for coupling conduit. When a standard coupling cannot be used for coupling metal type conduit, an approved threaded union coupling shall be used. All threads on ferrous metal conduit, not previously treated with a corrosion preventative, shall be painted with rust preventive paint before couplings are connected. All couplings for metal type conduit shall be tightened providing a continuous connection throughout the entire length of the conduit run to increase raceway mechanical strength. Areas where the coating on ferrous metal conduit has been damaged shall be painted with rust preventive paint.

All metal conduit ends shall be threaded and capped until wiring is started. When caps are removed, the threaded ends shall be provided with conduit bushings.

Non-metallic conduit shall be cut with a hacksaw or other approved tool. Non-metallic conduit connections shall be solvent-weld type or approved equal. Non-metallic conduit ends shall be capped until wiring is started.

All conduit stub-outs shall include a sweeping elbow and shall terminate in the box. All conduit stub-outs shall be capped.

Surface conduit connections at junction or splice boxes shall be tightly secured and waterproofed. All conduit ends shall be sealed with duct seal after installation of wiring. The duct seal shall be rated for outdoor use and easily removable.

When specified, conduit shall be installed under existing pavement by jacking or drilling operations. Where plans show that existing pavement is to be removed, jacking the conduit is not required. Boring, jacking or drilling pits shall be kept a minimum of 2 feet clear of the edge of pavement. Water shall not be used as an aid in the jacking or drilling operations, except when required to cool the cone head for directional boring

Red, detectable electrical warning tape shall be installed between 6 inches and 12 inches below finished grade for all underground trenched conduit runs.

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Trenched PVC conduit shall use PVC-coated rigid metallic conduit for all elbows and sweeps. All rigid metallic conduit elbows and sweeps shall be a PVC-coated, galvanized rigid conduit (GRC) minimum 36-inch radius bent to shape at the factory. All connections to non-metallic conduit shall be made with threaded couplings.

When trenching is specified to place conduit under existing pavement that is not to be removed, the trench width shall be 6 inches or less. Trenches shall be filled to 2 inches below the existing grade with structure backfill (flowfill), or another material if directed. The remaining 2 inches shall be filled to existing grade with hot mix asphalt within one calendar day after the roadway is trenched, in accordance with section 403.

Trenching shall be backfilled and compacted as follows: backfill shall be deposited in uniform layers. The thickness of each layer shall be 6 inches or less prior to compaction under all hardscape. The space under the conduit shall be completely filled. The remainder of the trench and excavation shall be backfilled to the finished grade. The backfill material shall be compacted to the density of at least 95 percent of maximum dry density. The maximum dry density and optimum moisture content (OMC) for A-1, A-2-4, A-2-5 and A-3 materials will be determined in accordance with AASHTO T 180 as modified by CP 23. The maximum dry density and OMC for all other materials will determined in accordance with AASHTO T 99 as modified by CP 23. Materials shall be compacted at ± 2 percent of Optimum Moisture Content (OMC). Materials having greater than 35 percent passing the 75 μm (No. 200) sieve shall be compacted at 0 to 3 percent above OMC. Each layer shall be mechanically compacted by tamping with power tools approved by the Project Engineer. Compaction methods or equipment that damage the conduit shall not be used.

Prior to construction, the Contractor shall submit a trenching and boring plan to the Engineer for approval. The plan shall show the limits of the planned work areas and the areas of anticipated disturbance. All disturbances outside the planned work areas created by Contractor's operations shall be restored to their original condition at the Contractor's expense.

During construction operations, the contractor shall maintain boring logs that include the depth at specific distances along the bore. Boring logs shall be submitted on a weekly basis.

All trenches shall be backfilled by the end of each shift. Material from trenching operations shall be placed in a location that will not cause damage or obstruction to vehicular or pedestrian traffic or interfere with surface drainage.

The Contractor shall be responsible for damage due to over-excavating a trench and heaving damage to the existing asphalt and concrete mat, caused by equipment directly and by dislodging rocks or boulders. All damage from over-excavation and heaving shall be repaired at the Contractor's expense. The Contractor shall bear the cost of backfilling all over-excavated areas with the appropriate backfill material approved by the Engineer.

The Contractor shall restore all surface materials to their original condition or better, including but not limited to pavement, sidewalks, sprinkler systems, landscaping, shrubs, sod, and native vegetation that is disturbed by the conduit installation operation. All restoration shall be included in the cost of the conduit.

Underground conduit shall be buried a minimum of 30 inches below finished grade. There shall be no sag between boxes. Conduit under roadways shall be buried at 48 inches below finished grade. If the Contractor encounters bedrock such that the minimum conduit depths cannot be achieved, the Contractor shall be allowed to cover the conduit with 2 inches or more of concrete at a lesser burial depth.

All schedule 80 PVC conduits shall have slip fit expansion fittings at 100-foot intervals and 6 feet maximum from each elbow. Expansion fittings will be installed per the NEC requirements for 65 °F temperature change.

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REVISION OF SECTION 613 LIGHTING

Pull or splice boxes shall be installed at a maximum distance of 400 feet or less. Boxes shall be placed at conduit ends, at all wiring splices, at all conduit angle points where total conduit bends within a stretch of conduit exceeds 360 degrees, and at all other locations shown on the plans. The Contractor may install additional pull or splice boxes to facilitate the work at no additional cost to the project

Where practical, pull and splice boxes near curbs shall be placed adjacent to the back of the curb. Pull boxes adjacent to light standards shall be placed behind or along the side of foundations.

Pull and splice boxes shall be installed so that the top of the covers are flush with the sidewalk and match the sidewalk slope and grade. Covers shall be level with the surrounding ground when no grade is established.

New conduits may be installed into existing pull boxes, manholes and cabinet bases, and the Contractor shall carefully excavate around the existing facility and install the new conduit as shown on the plans. The Contractor shall not damage the existing facility or its contents. If the existing conduit, pull box, lid and concrete collars are damaged during conduit installation, the Contractor shall restore the damaged item or section to current CDOT requirements at no additional cost to the project. For locations where conduit is installed into existing pull boxes, manholes, and cabinet bases that are located in asphalt, concrete, or slope pavement, patching with asphalt, concrete or slope pavement will be required and shall be included in the cost of the conduit. The Contractor shall reseal all new conduit entries into an existing manhole with grout.

Conduit shall always enter a pull box, manhole, cabinet base and all other structure types from the direction of the run only. A conduit bell end shall be installed on each conduit in pull boxes, manholes, cabinets, and pole bases. All conduit ends shall be free from sharp edges and burrs. Conduits stubbing up through pole foundations shall be installed within 4 inches of the center of the caisson.

613.08 Wiring.

Conductors shall be sized to prevent a voltage drop of more than 3 percent per feeder run at the ambient temperature. All conductors shall be installed in conduit.

When 120-volt luminaires are installed, 120/240 VAC shall be brought to the base of each light standard, and individual luminaires shall be connected to one leg or the other in a manner that minimizes overall voltage drop.

Aluminum Conductors Prohibited: Aluminum conductors will not be permitted.

Insulation: Type THHN/THWN/THWN-2 insulation minimum unless otherwise specified or noted on the drawings.

Size: No. 10 minimum unless otherwise specified or noted on the drawings. Not less than NEC requirements for the system to be installed.

Color Coding: Phase, neutral and ground conductors color-coded in accordance with NEC. Connect all Conductors of the same color to the same phase conductor as follows:

120/208/240V-1PH-3W Color coding shall be:

1. Line 1 = Black
2. Line 2 = Red
3. Neutral = White
4. Ground = Green

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**REVISION OF SECTION 613
LIGHTING**

All power and lighting circuits shall include an insulated green grounding conductor.

Leave sufficient lengths of branch conductors to allow conductor splices to be extracted from pole base for maintenance.

Extend No. 10 AWG Type THHN/THWN/THWN-2 feeder leads to the luminaires from the cables in the pole base.

A complete grounding system shall be installed for the entire electrical installation. Grounding shall consist of:

- (1) ground cables.
- (2) conduits.
- (3) grounding electrodes.
- (4) wire or strap.
- (5) and ground fittings, as required by the NEC.

Permissible grounding electrodes shall be:

- (1) ground rods.
- (2) concrete-encased electrodes.
- (3) grounding plates and grounding rings.

A 3/4 inch by 10-foot-long copper coated steel ground rod is required at pull box locations.

A minimum of 12 inches of 3/4 inch granite-gravel shall be installed as a base for the pull box. The granite-gravel shall be free of dirt and debris and spread evenly to facilitate a level base for the pull box. The Contractor shall ensure that sufficient compacting is met prior to the installation of granite-gravel to alleviate future settling.

At pull boxes installed in dirt and landscaped areas, the Contractor shall install a concrete apron or a pre-cast polymer concrete apron around the edges of the pull box. The concrete apron shall have a 1 percent slope away from the top of pull box to allow for drainage.

All electrical conductors shall be identified and tagged as follows: electrical conductor cable tags shall be located at each splice termination. The tags shall be attached with cable ties. The information shall be written on the tag with a permanent marker. The information shall include the direction and approximate length of the cable, and the feeder or circuit destination (line and load sides). Each incoming (line side) conductor shall be individually color coded with one tape mark; each outgoing conductor (load side) shall be coded with two tape marks

Butt splices within the bases are not acceptable.

At each pole, provisions shall be made for convenient sectionalizing of the circuits. Wire nuts are not an acceptable method for splicing. Splicing shall only be performed within the pole bases and splice boxes where applicable.

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REVISION OF SECTION 613 LIGHTING

613.12 Testing. Prior to final acceptance, the Contractor shall demonstrate to the Engineer's satisfaction that all electrical and lighting equipment installations are in proper working condition. Temporary power and all cable connections required for testing shall be provided by the Contractor.

The Contractor shall operate the lighting system from sunset to sunrise for ten consecutive days. Light sources, drivers or power sources, power generators, control systems, or photoelectric control that fail shall be replaced immediately. Replacement of these items will not require a restart of the test.

The Contractor shall perform grounding tests at each grounding system location including light standards and other grounding electrode locations. Grounding tests shall show that the ground resistance is 10 ohms or less. If the measured resistance to ground exceeds 10 ohms, additional grounding electrodes shall be added to the grounding electrode system at the Contractor's cost.

The Contractor shall perform voltage drop tests at a point ~~on~~ farthest from each circuit such that voltage drop is within 3 percent of supply voltage.

The Contractor shall certify the records of all testing including grounding, voltage drop (within 3 percent) and other required tests as meeting specification requirements and submit the records to the Engineer.

METHOD OF MEASUREMENT

613.13 Concrete Foundation Pads and Light Standard Foundations will be measured by the actual number installed and accepted.

Light standards will be measured by the number of light standards installed.

Luminaires will be measured by the number of luminaires of the specified initial luminaire lumens installed and accepted.

Conduit will be measured by the linear foot in place and shall include all expansion joints, conduit bodies, and other hardware for a complete installation.

Conduit shall also include all groundwork, lubricants, anchors, bands, skids, sweeps, pull rope, pull tape, copper tracer wire, adaptors, fittings, splice couplings, conduit plugs, foam sealant, installation equipment, mounting brackets and hardware, structure anchors, adhesives, labor and all other items necessary to complete the work

All wiring necessary for the complete installation will be measured as a single lump sum.

Pull Boxes will be measured by the actual number installed and accepted, and will include base, lid, lift slots, support beam, integrated location disk, integrated test points, arrow symbols, excavation, backfill, concrete apron, ground rod, and 3/4 inch granite-gravel. Pull Boxes shall also include the removal and patching of pavement, sidewalks, curb and gutters and their replacement in kind to match existing grade

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**REVISION OF SECTION 613
 LIGHTING**

BASIS OF PAYMENT

613.14 The accepted quantities 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
613-00200 2-inch Electrical Conduit	Linear Foot
613-07002 Type 2 Pull Box	Each
613-10000 Wiring	Lump Sum
613-40010 Light Standard Foundation	Each

When the Contractor, at their option, installs larger conduit than specified, it will be paid for at the original contract price for the size specified.

The following items will not be measured and paid for separately, but shall be included in the work:

- (1) Soil testing for foundations;
- (2) Junction boxes, pull wire, weatherheads, adaptors, and expansion joints for conduit;
- (3) Additional pull and/or splice boxes installed at the Contractor's option;
- (4) Saw cutting; trenching; excavation; backfill; jacking; drilling pits; underground electrical warning tape; removal of pavement, sidewalks, gutters, and curbs and their replacement in kind to match existing grade; and all other work necessary to complete conduit installation;
- (5) Electrical conductor tagging;
- (6) Direct burial cable in conduit;
- (7) Testing of the lighting installation, and all required cable connections.

The lump sum price bid for wiring will be full compensation for all electrical circuitry necessary to complete the electrical installation. All conductors in conduit, regardless of type, are part of the wiring item and will not be measured and paid for separately.

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**REVISION OF SECTION 614
CALL BOX**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall include the following:

The Call Box work shall consist of purchasing and installing the “CASE Blue Light Emergency Phone” system, including solar panels, that has been approved by the DEN Project Manager.

Subsection 614.06 shall include the following:

The equipment specifications for the “CASE Blue Light Emergency Phone” system can be provided by DEN at request.

Subsection 614.09 shall include the following:

The Call Box work shall include the installation of the “CASE Blue Light Emergency Phone” system including the call box, the solar power equipment, CB Service Kit and all other equipment to get the system to function to the approval of the DEN Project Manager.

Subsection 614.13 shall include the following:

Call Box shall be measured by each and shall include all work required to purchase and install a working “CASE Blue Light Emergency Phone” system at each location shown in the plans.

Subsection 202.14 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
614-87500 Call Box	Each

Any testing, programming, coordination with DEN staff, or other configuration of each Call Box will not be paid for separately and shall be included in the cost of the work.

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**REVISION OF SECTION 622
 BOLLARD**

Section 622 of the Standard Specifications is hereby revised for this project as follows:

Subsection 622.01 shall include the following:

This work shall consist of furnishing and installing bollards in accordance with these specifications.

Subsection 622.27 shall be added and include the following:

6-inch Steel Bollard. 6-Inch Steel Bollards shall be installed per plan detail at locations designated in the contract plans or as directed by the Engineer. Any modification to this specification or the plan details shall be requested in writing and approved by the Engineer prior to beginning work.

Steel casings incorporated into the 6-Inch Bollards shall be one continuous piece without welds or connections and installed to the height designated in the plans. Contractor shall ensure the bollard remains plumb and to the required height until concrete has attained adequate strength to withstand external loads. All costs associated with damage, settlement, and/or out of plumb bollards shall be borne by the contractor.

All steel exposed and 6 inches below top of pavement shall be coated with zinc primer and canary yellow paint. Paint sample and product data shall be supplied and submitted to the DEN Project Manager for approval prior to coating.

Bollard covers will be installed on each bollard after paint has had adequate time to cure. Foam shall be used between the bollard and bollard cover to ensure a snug fit. Bollard cover shall be 7" x 52" (cut to 48") Post Guard cover, color yellow with red tape, or approved equal.

Concrete shall have an approved mix design from Colorado Department of Transportation's Approved Product List or approved by the DEN Project Manager prior to placement. Requirements for placing, mixing, consolidating, proportioning, batching, curing or any other work necessary for concrete placement shall be as specified in CDOT Standard Specification Section 601-Structural Concrete.

Concrete shall have a minimum compressive strength of 3000 psi at 28 days with results submitted to the DEN Project Manager promptly upon completion of laboratory results. Concrete that does not meet minimum specifications shall be subject to price reduction and/or remove and replace at the Contractor's time and expense following CDOT Specification 601.

Subsection 622.28 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
622-00270 Bollard	Each

Payment for Bollard shall be full compensation for concrete, steel casings, paint, primer, labor, installing bollard covers, and any other work necessary to complete the item.

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**REVISION OF SECTION 631
TOWING SERVICES**

Section 631 of the Standard Specifications is hereby revised for this project as follows:

Subsection 631 shall include the following:

PART 1 – GENERAL

- A. **Description:** The Contractor shall furnish all labor, equipment, material, supplies, signage, traffic control, and other incidentals necessary to provide Towing Services. Towing Services shall be limited vehicle relocation within the parking facility in association with the project, as designated in the plans.
- B. **Exclusions:**
- a. The work included in this contract is separate from the “City Towing Services,” “On-Call Towing Services,” and “DEN Standby/Contingency/Emergency Towing Services.”
 - b. This service is not applicable to City-owned vehicles.
 - c. This service is not applicable to vehicular accidents.

PART 2 – TOWING SERVICES REQUIREMENTS

- A. The Contractor shall provide towing services at the request of the DEN Project Manager to relocate vehicles within the parking facility for the purposes of opening up designated areas for construction activity.
- B. Towed vehicles shall be relocated to the Towing Depository Area as identified in the plans or as approved by the DEN Project Manager.
- C. The Contractor shall prepare a vehicle relocation report and corresponding list for each vehicle moved which shall include:
- a. Date and Time
 - b. Vehicle Year
 - c. Vehicle Make
 - d. Vehicle Model
 - e. Vehicle Identification Number (VIN)
 - f. Vehicle License Plate Number
 - g. Parking Bay and Stall Original
 - h. Parking Bay and Stall Relocated
 - i. Damage to the Vehicle
 - j. Video and/or digital image documentation on each vehicle that is towed.

This data shall be submitted to the DEN Project Manager within 24 hours of the vehicles’ relocation for documentation purposes.

- D. Towing of Vehicles shall be included in all parking facilities the work performed.

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**REVISION OF SECTION 631
TOWING SERVICES**

- E. The Contractor shall ensure that tow truck drivers carry in their truck(s), at all times, vehicle registration and proof of all required insurances. Trucks must also have current inspection stickers affixed to the windshields and drivers must carry required Identification Cards at all times when providing services under this Contract. Furthermore, each tow driver is to be clean, neat, and professional in appearance, wear a name tag, wear a company uniform (shirt with logo) and communicate courteously with the public and DEN personnel, avoiding profane or vulgar language.
- F. The Contractor shall obey all lawful orders issued by police officers from the Airport Security Office, Transportation Security Administration and by authorized DEN staff.
- G. The Contractor shall ensure that tow truck drivers do not examine or unnecessarily disturb the contents (property, documents, etc.), of any serviced vehicles or allow any unauthorized persons into serviced vehicles. Furthermore, tow truck drivers are not to inspect the interiors of serviced vehicles.
- H. The Contractor shall make certain not to attach to any vehicle which, by its size and/or weight, would make towing the vehicle an unsafe movement, and make certain that the manufacturer's gross vehicle weight rating or the manufacturer's rated capacity shall not be exceeded at any time. A tow truck and its load should never exceed the capabilities of the towing vehicle to safely accelerate, stop or maneuver.
- I. The Contractor shall make certain that stop, brake, and tail lights are affixed on each side near the rear of the vehicle to be towed. The vehicle shall not be towed without these items first being attached to the vehicle. These stop, brake, and tail lights shall operate when those of the tow truck are activated. All lighting equipment installed on the tow truck shall be maintained in good working condition.
- J. The Contractor shall make certain that all equipment such as winches, cables, clamps, thimbles, sheaves, guides, controls, blocks, slings, chains, hooks, go-jacks and hydraulic components, are assembled in accordance with factory recommendations and specifications and that all components are in good operable conditions and that the tow truck contains all of the equipment required herein.
- K. The Contractor shall maintain appropriate fire extinguisher(s) on each tow vehicle.
- L. The Contractor shall carry an electric flashlight or lantern of at least two cell capacity in good working condition on the tow vehicle, and carry adequate equipment (i.e. broom, shovel, etc.) in the event that any cleanup should be required.
- M. The Contractor shall employ adequate safety chains when towing any vehicle, and provide vehicular equipment (i.e. scotch blocks) and related hydraulic mechanisms that ensure adequate blocking needs for vehicle's towing capacity/weight designation.

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**REVISION OF SECTION 631
 TOWING SERVICES**

- N. The Contractor shall maintain signage permanently affixed and displayed on each door or side panel providing the trade name of the company in letters no less than 4 inches in height. Such letters shall be clearly defined and free of runs or spots that make them difficult to read. The letters shall be of a color contrasting to the background on which they appear.

PART 3 – PERSONNEL

Personnel supplied by the Contractor shall meet the following requirements:

- A. The Contractor shall have available sufficient qualified personnel to safely operate all specified equipment. Each driver/operator shall have a valid Colorado driver's license.
- B. All drivers shall operate the wreckers in a safe and prudent manner and shall refrain from using profane or vulgar language or being under the influence of alcohol or drugs in a public area while performing work under this agreement.
- C. Tow vehicle drivers shall be employees of the Contractor and shall be covered under all applicable insurances required.
- D. **Soliciting:** No soliciting for any purpose is allowed on the Airport premises by the Contractor's employees. The Contractor shall inform its employees of this Agreement requirement prior to the time each employee shall begin work for the Contractor at DEN.
- E. **Gratuities:** Neither the Contractor nor its employees, offices and agents shall solicit or accept gratuities for any reason whatsoever from any employee of the City or the General Public.

PART 4 – METHOD OF MEASUREMENT & PAYMENT

The Towing Services shall be measured and paid for by each vehicle relocated from the parking areas to the Towed Vehicle Depository. The price shall be full compensation for furnishing all labor, equipment, tools, cleanup, reporting and incidentals necessary to complete the work as specified herein.

Payment will be made under:

Pay Item		Pay Unit
631-A0001	Tow w/ Single Light Duty Tow Vehicle	Each
631-A0002	Tow w/ Single Medium Duty Tow Vehicle (up to 6,500 lb wheel lift)	Each

END OF SECTION

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**REVISION OF SECTION 715
LIGHTING AND ELECTRICAL MATERIALS**

Section 715 of the Standard Specifications is hereby revised for this project. Delete and replace it with the following:

715.01 General. Materials shall be of a standard line from a manufacturer that has at least three installations of the same type that have been installed and active for a minimum of one year. Electrical material shall be listed by the Underwriters' Laboratories, Inc. (UL), and shall conform to the current edition of the National Electrical Code (NEC).

Material shall be the same as, or compatible with, that used and accepted by the agency responsible for maintenance. The Contractor shall coordinate and conduct a final inspection with the Engineer and each Owner upon completion of construction. This inspection shall assure that all lighting and electrical materials are in compliance with these requirements. The Engineer will obtain the Owner's written approval before accepting the work.

The Engineer may inspect all lighting and electrical materials and accept or reject them at the project site. Samples may be taken, or manufacturer's certifications may be accepted in lieu of samples.

715.02 Light Standard Foundations and Concrete Foundation Pads. Concrete shall be Class BZ for cast-in-place concrete foundations. All concrete shall conform to Section 601.

Anchor bolts shall be designed by the Contractor's Engineer and shown on the working drawings, or as provided by the pole manufacturer. The threaded ends of the anchor bolts, the nuts, and the washers shall be galvanized in accordance with ASTM A153. Galvanizing on anchor bolts shall extend 2 to 4 inches beyond the threads.

Reinforcing steel shall conform to Section 602.

715.03 Light Standards.

(a) *General.* Structural components of light standards, bases, couplers, anchor bolts, luminaires, and other attachments to be used for lighting shall be designed for a minimum of 120 MPH wind speed, in accordance with AASHTO's LRFD Bridge Design Specifications. For special wind regions, the wind speed shall be in accordance with Section 3.8.3. The CDOT Bridge Design Manual, Section 32.3 shall be used for Owner approved wind speeds.

Breakaway bases and couplers shall meet the breakaway requirements specified in AASHTO's LRFD Bridge Design Specifications Section 12. Conformance shall be verified by crash tests reviewed and accepted by FHWA. A certificate of compliance shall be provided.

(b) *Metal Light Standards.* Metal light standards shall be fabricated of either steel or aluminum, unless otherwise specified. Whenever the light standard metal is not specified, the Contractor may furnish either steel or aluminum. Material type and shape of light standards shall be the same throughout the project, unless otherwise shown in the Contract.

Metal poles shall be tapered and shall be supplied with pole caps.

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**REVISION OF SECTION 715
 LIGHTING AND ELECTRICAL MATERIALS**

Standards shall have cable-entrance holes located in conformity with the type of arm mounting used. Metal surfaces shall be free of imperfections marring the appearance and of burrs or sharp edges that might damage the cable.

Aluminum alloys shall have a minimum yield strength of 25,000 psi. Aluminum poles, arms, and fittings shall be made of aluminum alloy conforming to the following for the material form required:

ASTM Standard	Alloy Number
B 209	6061-T6
B 211	6061-T6
B 221	6061-T6 6063-T6 6005-T5
B 241	6061-T6 6063-T6

Aluminum poles may also be made of aluminum alloy 5086-H34 conforming to ASTM B313 (excluding pressure and burst tests).

Aluminum mast arms shall be tapered unless otherwise shown on the plans.

Steel mast arms shall be made of Schedule 40 standard steel pipe conforming to ASTM A53.

Steel poles, mast arms and base flanges shall be hot-dip galvanized in accordance with ASTM A123. Units on which the spelter coating has been damaged shall be repaired as provided in AASHTO M 36, or other approved method.

Base flanges for both aluminum and steel poles shall have continuous welds both inside and outside, unless otherwise permitted. Base flanges inserted into the pole and bonded shall meet the requirements for materials and strength stated herein.

Base flanges for aluminum poles and transformer bases shall be aluminum castings of alloy ANSI 356.0-T6 or UNS A03560 T6 conforming to ASTM B26 or an acceptable equivalent.

Each metal light standard shall be wired with a breakaway, submersible fused connector of proper capacity rating. The fused connector shall be located in the transformer base. If the light standard has no transformer base, the fused connector shall be located in the pole at the hand hole.

- (c) *Hardware.* Hardware used with steel standards shall be either cadmium plated steel, hot dip galvanized steel, or stainless steel. All hardware used with aluminum standards shall be anodized aluminum or stainless steel with anti-seize compound. Bolts to be inserted in aluminum threads shall be stainless steel with an anti-seize compound.

715.07 Conduit. Unless otherwise specified, conduit shall be rigid non-metallic electrical conduit.

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REVISION OF SECTION 715 LIGHTING AND ELECTRICAL MATERIALS

Electrical conduit shall be suitable for underground use and shall be Schedule 80 in the diameters, quantities and depths shown on the plans. Electrical conduit and fittings shall be UL listed.

HDPE conduit and fittings shall be certified by the manufacturer as meeting American National Standards Institute (ANSI) ANSI/UL 651A. PVC conduit and fittings shall be certified by the manufacturer as meeting ANSI/UL 651.

All HDPE conduits shall be low-friction, high-density conduit constructed of virgin high-density polyethylene resin. HDPE conduit shall be capable of being coiled on reels in continuous lengths, transported, stored outdoors, and subsequently used for installation, without affecting its properties or performance.

Plastic conduit shall be a semirigid type currently recommended and UL listed for the proposed use. Underground plastic conduit for street lighting shall conform to ASTM-F441 schedule 80. Fittings shall be the type used outside the conduit. Fittings shall connect the conduit in a manner that makes the joints watertight.

Each conduit shall be equipped with a pull tape installed with or after all cabling for future use. The pull tape shall include a continuous 12-gauge tracer wire. Splices in the pull tape and tracer wire may occur inside manholes and pull boxes and shall not be permitted inside conduit. Pull tape shall be installed in conduits with electrical conductors carrying 50V or less.

Pull boxes and splice boxes shall be a minimum of 13 inches by 24 inches and 12 inches deep, and sized per NEC 314 and CDOT Standard S-613-3. Pull and/or splice boxes shall have heavy duty weatherproof covers rated for roadway applications. The housing shall be resistant to sunlight exposure, weathering, and chemicals; it shall be unaffected by freeze/thaw cycles. Covers shall fit flush to the sidewalk, turf area, or roadway surface. Hardware and inserts shall be stainless steel. The cover for street lighting circuits shall be marked "ELECTRICAL" The cover shall list the minimum HS load rating of 22,500 psi.

715.08 Lighting Circuitry and Wiring. All wiring shall be copper with 600-volt insulation, rated for outdoor use, type THHN/THWN/THWN-2 for underground installation in conduit and for above ground installation within light standards. Wire sizes #14 AWG through #10 AWG shall be solid copper. Wire sizes #8 AWG and larger shall be stranded copper; except, service ground conductors to grounding electrodes shall be #4 stranded, insulated copper. All conductor sizes shall be, at minimum, sized to the breaker amperage feeding the circuit per NEC Table 310.16.

A breakaway submersible, in-line fuse holder and fuse for each hot conductor and breakaway submersible connector shall be installed on the neutral if a neutral is required. The grounding wires shall not be fused or breakaway.

Fuse connectors shall be installed in the phase wires of their respective circuits at the junction box located as a back box to the luminaire or within the pole base or transformer base. The Contractor shall provide sufficient excess conductor length to allow withdrawal of the connected fuse holder from the hand hole. Fuses and fuse holders shall be UL listed and shall be installed in such a manner that the fuse stays with the load side when holder is separated. The Contractor shall form loops in the leads on each side of the fuse holders and so position the fuse holders that they may be easily removed or inserted through the opening of hand hole. All electrical apparatus used in the lighting system shall be rated to adequately handle the necessary loads and shall conform to power source requirements.

Bonding and grounding electrodes shall conform to the requirements of subsection 613.08.

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CDOT PROJECT SPECIAL PROVISIONS

**REVISION OF SECTION 102
PROJECT PLANS AND OTHER DATA**

Section 102 of the Standard Specifications is hereby revised for this project as follows:

Subsection 102.05 shall include the following:

3D modeling data will be made available in Land XML format to the awarded bidder. These documents may be obtained by contacting the DEN Project Manager. Available 3D modeling data consists of:

- Existing Surface
- Proposed Surface
- Alignments and Profiles

The Department does not warrant the 3D modeling data and this information is not considered to be a part of the Contract. If bidders use the 3D modeling data in preparing a proposal or planning and prosecuting the work, it is used at their own risk, and bidders are responsible for all conclusions, deductions, and inferences drawn from the 3D modeling data.

After the proposals have been opened, the low responsible bidder may obtain an electronic set of plans and special provisions from the DEN Project Manager's office.

Survey information is available at the DEN Project Manager's office for review.

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**REVISION OF SECTIONS 105 AND 608
DETECTABLE WARNINGS**

Sections 105 and 608 of the Standard Specifications are hereby revised for this project as follows:

Subsection 105.03 shall include the following:

When corrective work is required for curb ramps, the Contractor shall submit a method statement in writing outlining the work to be performed. Corrective work for curb ramps shall not be performed until written approval has been received from the Engineer. All corrective work for curb ramps shall be at the Contractor's expense.

Subsection 608.01 shall include the following:

This work includes the installation of detectable warnings on concrete curb ramps as shown on the plans.

Subsection 608.02 shall include the following:

Detectable warnings on curb ramps shall be truncated domes of the dimensions shown on the plans or on Standard Plan M-608-1 Curb Ramps.

The final surface shall meet the requirements given in R305 of the PROWAG.

The domes and their underlying surface shall contrast visually with adjacent gutter, street or highway, or pedestrian access route surface, either light-on-dark or dark-on light, per R305.1.3 of the PROWAG. The contrasting colors shall not be black and white. Unless specified otherwise in the Contract, the color of the domes and their underlying surface shall be yellow conforming to Federal Color Standard 33538. Material for the truncated domes shall be one of the following:

- (1) Embeddable Concrete or Masonry Pavers. The Contractor may use pavers upon written approval by the Engineer and with a signed maintenance agreement. Domes shall be prefabricated by the manufacturer as a pattern on concrete or masonry pavers. Pavers shall meet the requirements of ASTM C 902 or ASTM C 936. The paver contrast shall be achieved by adding pigment during the fabrication of the paver. Prior to the start of work, the Contractor shall submit appropriate documentation from the manufacturer verifying that the required contrast has been met, along with a sample plate to the Engineer for approval.

Bedding and joint sand for pavers shall be free of deleterious or foreign matter. The sand shall be natural or manufactured from crushed rock. Limestone screenings or stone dust shall not be used. Sand for bedding material shall conform to ASTM C 33. Sand that is to be placed between joints shall conform to ASTM C 144.

- (2) Embeddable Surface Plates. The domes shall be prefabricated by the manufacturer as a pattern on embeddable surface plates. Plates shall be one of the plates allowed for use as detectable warnings listed on CDOT's Approved Products List. Prior to the start of work, the Contractor shall submit appropriate documentation from the manufacturer verifying that the required contrast has been met, along with a sample plate to the Engineer for approval.
- (3) Detectable Warnings Fabricated On Site. Material for on-site fabrication of detectable warnings shall be a liquid-applied epoxy composed of resins, reactive monomers, pigments, glass beads, and fillers. The material shall be low-VOC compliant. The installed product shall have the following properties:

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**REVISION OF SECTIONS 105 AND 608
 DETECTABLE WARNINGS**

DETECTABLE WARNINGS FABRICATED ON SITE

Property	Test	Requirement
Hardness	ASTM D 2240, Shore A	80 minimum after 24 hours
Tensile Strength	ASTM D 638	125 psi minimum at break
Adhesion	ASTM C 482	Concrete: 200 psi Asphalt: Cohesive failure of substrate
Skid Resistance		Shall remain Firm, Stable , and Slip-Resistant regardless of weather conditions

The color shall be integral to the material and shall be uniform throughout the domes and the underlying surface.

Subsection 608.03 shall include the following:

(g) Detectable Warnings for curbs ramps.

1. Pavers. Pre-fabricated pavers for detectable warnings shall be brought to the site in steel banded, plastic banded or plastic wrapped cubes capable of being transported by a fork lift or clamp lift. Pavers shall be carefully removed and stacked in a manner which results in the least amount of damage. All pavers that are damaged during transport or delivery will be rejected and shall be replaced at the Contractor's expense. Minor cracks or chipping due to transport and handling that do not interfere with the structural integrity of the paver or the overall pattern of truncated domes will not be deemed as grounds for rejection.

The Contractor shall spread the bedding sand evenly in the area shown on the plans and shall screed the sand to an appropriate embedment depth as shown on the plans or as directed by the Engineer. Sufficient sand shall be placed to stay ahead of laid pavers.

Pavers shall be placed in a running bond pattern. Pavers shall be installed such that the base of the truncated dome is at the same elevation as the adjoining surface, allowing for a smooth transition between the curb ramp and the detectable warning.

When cut pavers are required to fill gaps between the pavers and the edge of concrete, the Contractor shall bevel portions of the truncated domes at a 45-degree angle to create a smooth transition between the partial dome and the curb ramp surface. Unless otherwise directed by the Engineer, pavers shall be cut and installed in such a manner that the domes on the cut sections will not significantly impact the overall pattern of the truncated domes.

The Contractor shall use a plate vibrator to embed the pavers into the sand. The size and type of plate vibrator shall be in accordance with manufacturer's recommendations, or as directed by the Engineer. All pavers that are damaged during embedment shall be replaced at the Contractor's expense.

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**REVISION OF SECTIONS 105 AND 608
DETECTABLE WARNINGS**

Joint spacing between paver units shall be in accordance with the manufacturer's recommendations, or as approved by the Engineer. Joints shall be filled completely with joint sand. Excess sand shall be removed by sweeping.

2. Plates. Prior to installation of the plates, concrete conforming to subsection 608.02 shall be installed and consolidated as a base for the plates. The concrete shall be placed to a thickness that will allow the base surface of the plates to be at the same elevation as the adjacent concrete. The plates shall be embedded into the plastic concrete in accordance with the manufacturer's specifications.
3. Detectable Warnings Fabricated On Site. The detectable warnings shall be installed by a trained installer approved by the manufacturer. The detectable warnings shall be installed in accordance with the manufacturer's specifications. The general installation procedure shall be as follows:
 - (1) Prepare the surface to receive the detectable warnings.
 - (2) Apply the liquid material to the surface.
 - (3) Apply the template for the truncated domes.
 - (4) Apply the liquid material to the template.
 - (5) Remove the template.

If the manufacturer of the detectable warnings fabricated on site provides a standard warranty, the Contractor shall obtain that warranty and submit it to the Engineer.

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**REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)**

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

Delete subsection 202.09, and replace it with the following:

202.09 Removal of Asphalt Mat (Planing). Prior to beginning planing operations, the Contractor shall submit a planing plan and a Process Control Plan (PCP) for approval by the Engineer. The planing plan shall include at a minimum:

- (1) The number, types and sizes of planers to be used.
- (2) The width and location of each planing pass.
- (3) The number and types of brooms to be used and their locations with respect to the planers.
- (4) The proposed method for planing and wedging around existing structures such as manholes, valve boxes, and inlets.
- (5) The longitudinal and transverse typical sections for tie-ins at the end of the day.
- (6) If requested by the Engineer, a plan sheet showing the milling passes.

The PCP shall include as a minimum:

- (1) The schedule for replacing the cutting teeth.
- (2) The daily preventive maintenance schedule and checklist.
- (3) Proposed use of automatic grade controls.
- (4) The surface testing schedule for smoothness.
- (5) The process for filling distressed areas.
- (6) The schedule for testing macrotexture of the milled surface.
- (7) Corrective procedures if the milled surface does not meet the minimum macrotexture specification.
- (8) Corrective procedures if the milled surface does not meet the minimum transverse or longitudinal surface finish when measured with a 10 foot straightedge.

The Contractor shall not start the planing operation until the hot mix asphalt (HMA) mix design has been approved and a Form 43 has been signed by the Engineer.

The existing pavement shall be milled to the cross-slope as shown on the plans, and shall have a surface finish that does not vary longitudinally or transversely more than $\frac{3}{8}$ inch from a 10 foot straightedge. A 10 foot straightedge shall be supplied by the Contractor.

All milled surfaces shall be broomed with a pick-up broom, unless otherwise specified, before being opened to traffic. A sufficient number of brooms shall be used immediately after planing to remove all milled material remaining in the roadway.

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**REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)**

If the Contractor fails to adequately clean the roadway, work shall cease until the Engineer has approved the Contractor's revised written proposal to adequately clean the roadway.

The milled surface shall have a macrotexture equal to or less than 0.170 inches for single-lift overlays and 0.215 inches for multiple-lift overlays as tested in accordance with CP 77. Milled surfaces that do not meet these criteria shall require corrective action in accordance with the PCP. The Contractor shall be responsible for testing the macrotexture of the milled surface at the location directed by the Engineer in accordance with CP 77 at a stratified random frequency of one test per 10,000 square yards or a minimum of once per work day.

At the completion of each day's work, longitudinal vertical edges greater than 1 inch shall be tapered. No transverse vertical edges will be allowed. Longitudinal milled surface tie-ins to existing pavement shall be tapered to not less than a 3:1 slope, transverse milled surface tie-ins to existing pavement shall be tapered to not less than a 50:1 slope. Transverse tapered joints may be tapered with the planing machine, a temporary asphalt ramp, or other methods approved by the Engineer. No longitudinal joint between the milled and existing surfaces shall fall between 1 to 5 feet of any lane line.

If the transverse joint is tapered with a temporary asphalt ramp, the milled surface at the joint shall be constructed as a butt joint the full depth of the lift of asphalt to be placed on the milled surface. The Contractor shall be responsible for maintaining this asphalt ramp until all corresponding HMA is placed. All work associated with this joint will not be paid for separately, but shall be included in the cost of planing.

If the transverse joint is tapered with a planing machine, a butt joint shall be cut into the taper the full depth of the lift of asphalt to be placed on the milled surface prior to commencement of resurfacing. All work associated with this joint will not be paid for separately, but shall be included in the cost of planing.

Other approved transverse joint tapers shall be maintained at the expense of the Contractor, and at a minimum shall incorporate a butt joint the full depth of the lift of asphalt to be placed on the milled surface prior to commencement of resurfacing.

Distressed or irregular areas identified in the planed surface by the Engineer shall be patched.

The roadway shall be left in a safe and usable condition at the end of each work day. The Contractor shall take appropriate measures to ensure that the milled surface does not trap or hold water. All required pavement markings removed by the planing shall be restored before the roadway is opened to traffic.

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**REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)**

All planing shall be completed full width and parallel to the travel lanes before resurfacing commences unless otherwise directed by the Engineer.

All material generated by the planing operation shall become the property of the Contractor unless otherwise noted in the Contract.

Each planer shall conform to the following:

The planer shall have sufficient power, traction and stability to maintain an accurate depth of cut. The propulsion and guidance system of the planer shall be maintained in such condition that the planer may be operated to straight and true lines.

The planer shall be capable of operating with automatic grade controls (contact or non-contact) on both sides of the machine using a 30 foot averaging system or other approved grade control systems. The use of such controls shall be described in the Contractor's PCP.

The planer shall be capable of picking up the removed material in a single operation. A self-loading conveyor shall be an integral part of the planer. Windrows will not be allowed.

Subsection 202.12 shall include the following:

Macrottexture testing, macrottexture corrective actions, planers, brooms, and all other work necessary to complete the item, Removal of Asphalt Mat (Planing), will not be measured and paid for separately, but shall be included in the work.

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**REVISION OF SECTION 412
 THIN WHITETOPPING**

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

Subsection 412.10 shall include the following.

- (a) *Surface Milling.* If HMA is needed on the project to prepare the surface for PCCP, the HMA shall be milled to a minimal depth in order to roughen the surface texture.
- (b) *Surface Cleaning.* Cleaning of the surface shall be accomplished by sweeping the surface using a pickup mechanical broom. The surface shall be further cleaned by the use of pressure cleaning with air or water to ensure all dust, grit, and foreign material is removed from the surface. The area shall be protected as necessary to prevent contamination until concrete placement. When areas are not adequately protected, the Contractor shall perform additional cleaning prior to placement of concrete overlay as directed.
- (c) *Surface Preparation.* After the surface has been milled, cleaned, and accepted, a moisture coat shall be placed on the prepared surface. The Contractor shall spray a light mist of water in a manner that does not cause excessive ponding. The concrete overlay shall be placed while the surface is still wet.
- (d) *Surface Temperature.* Concrete pavement shall not be placed when the surface temperature of the HMA is 120 °F or greater.

The concrete pavement overlay shall be placed with a minimum thickness of 5 inches, unless otherwise approved by the DEN PM. If milling is performed by the Contractor at locations not specified in the Contract, the Contractor shall supply a detailed milling plan that insures a minimum HMA depth of 6 inches after milling and the data shall be approved by the Engineer prior to placing concrete pavement. In the areas where the plans call for the thickened edge transition with more than 5 inches of whitetopping, the HMA depth after milling may be less than 6 inches.

The contractor shall supply a detailed paving plan, and means and methods of paving work that ensures a concrete overlay thickness of 5 inches minimum and at the correct grades and elevations of the existing HMA, unless otherwise noted in the plans or approved by the DEN PM. The data shall be approved by the Engineer prior to placing concrete pavement.

In subsection 412.23, first paragraph, delete the first sentence and replace it with the following:

The quantities of Place Concrete Pavement to be paid for under these items will be measured by the square yard completed and accepted.

Subsection 412.23, second paragraph, shall include the following.

The quantity of Furnish Concrete Pavement to be paid for under this item will be the number of cubic yards of concrete delivered and accepted. Unless otherwise approved by the DEN PM, the acceptable variance of Thin Whitetopping depth, from what is shown in the plans, shall be plus or minus ½ inch.

For the thickened edge transition shown in the plans, the additional volume of “Furnish Concrete Pavement Thin Whitetopping” required for the additional concrete thickness, shall be measured, and paid for in addition to the 5-Inch thickness. The placement of the thickened edge shall be measured and paid for as “Place Concrete Pavement Whitetopping (5 Inch)”. The variable depth milling shall be paid for as “Removal of Asphalt Mat (Planing)”.

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**REVISION OF SECTION 412
 THIN WHITETOPPING**

Subsection 412.24 shall include the following:

Pay Item		Pay Unit
412-06000	Furnish Concrete Pavement Thin Whitetopping	Cubic Yard
412-06050	Place Concrete Pavement Thin Whitetopping (5 Inch)	Square Yard

The price per square yard of Place Concrete Pavement Thin Whitetopping and price per cubic yard of Furnish Concrete Pavement Thin Whitetopping, shall be full compensation for furnishing and placing all materials, including but not limited to any brooming, cleaning, dowels, tie bars, joint materials, texturing, sawing, sealing, slurry removal, finishing, curing compound and rumble strips. This price per square yard and price per cubic yard, includes any additional concrete for paving irregularities, cross-slope or profile corrections along with any milling of the existing HMA performed by the discretion of the Contractor.

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**REVISION OF SECTION 630
PORTABLE MESSAGE SIGN PANEL**

Section 630 of the Standard Specifications is hereby revised for this project as follows:

Subsection 630.01 shall include the following:

This work includes furnishing, operating, and maintaining a portable message sign panel.

Add subsection 630.031 immediately following subsection 630.03 as follows:

630.031 Portable Message Sign Panel. Portable message sign panel shall be furnished as a device fully self-contained on a portable trailer, capable of being licensed for normal highway travel, and shall include leveling and stabilization jacks. The panel shall display a minimum of three - eight character lines. The panel shall be a dot-matrix type with an LED legend on a flat black background. LED signs shall have a pre-default message that activates before a power failure. The sign shall be solar powered with independent back-up battery power. The sign shall be capable of 360 degrees rotation and shall be able to be elevated to a height of at least five feet above the ground measured at the bottom of the sign. The sign shall be visible from one-half mile under both day and night conditions. The message shall be legible from a minimum of 750 feet. The sign shall automatically adjust its light source to meet the legibility requirements during the hours of darkness. The sign enclosure shall be weather tight and provide a clear polycarbonate front cover.

Solar powered message signs shall be capable of operating continuously for 10 days without any sun. All instrumentation and controls shall be contained in a lockable enclosure. The sign shall be capable of changing and displaying sign messages and other sign features such as flash rates, moving arrows, etc.

Each sign shall also conform to the following:

- (1) In addition to the onboard solar power operation with battery back-up, each sign shall be capable of operating on a hard wire, 100-110 VAC, external power source.
- (2) All electrical wiring, including connectors and switch controls necessary to enable all required sign functions shall be provided with each sign.
- (3) Each sign shall be furnished with an operating and parts manual, wiring diagrams, and trouble-shooting guide.
- (4) The portable message sign shall be capable of maintaining all required operations under Colorado mountain-winter weather conditions.
- (5) Each sign shall be furnished with an attached license plate and mounting bracket.
- (6) Each sign shall be wired with a 7-prong male electric plug for the brake light wiring system.

Subsection 630.13 shall include the following:

The portable message sign panel shall be on the project site at least 30 calendar days prior to the start of active roadway construction. Maintenance, storage, operation, relocation to different sites during the project, and all repairs of portable message sign panels shall be the responsibility of the Contractor.

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**REVISION OF SECTION 630
PORTABLE MESSAGE SIGN PANEL**

Subsection 630.18 shall include the following:

Portable message sign panels will be measured by the maximum number of approved units in use on the project at any one time.

Subsection 630.19 shall include the following:

Pay Item	Pay Unit
Portable Message Sign Panel	Each

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FORCE ACCOUNT ITEMS

DESCRIPTION

This special provision contains DIA Landside Engineering’s estimate for force account items included in the Contract. The estimated amounts marked 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 DEN Project Manager.

BASIS OF PAYMENT

Payment will be made in accordance with City and County of Denver Standard Specifications for Construction General Contract Conditions section 1102.5. Payment will constitute full compensation for all work necessary to complete the item.

<u>Force Account Item</u>	<u>Quantity</u>	<u>Estimated Amount</u>
F/A Temporary Plant Site	F.A.	\$75,000

Force Account Descriptions

F/A Temporary Plant Site – Consists of the work to establish a temporary concrete batch plant at the site proved by DEN. Refer to Project Special Provisions of Section 107 - Temporary Plant Site for further information of the location. The amount is to not exceed the amount provided in the Force Account pay item. The Contractor will be responsible for the timing and coordination required for plant erection and operation. If contractor elects to erect a batch plant on site, no additional contract time will be awarded.

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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, Case 11 and Standard Plan S-630-2.
- (3) Signing Plans.
- (4) Construction phasing details.
- (5) Detour Details.

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.

DEN may have entered into operating agreements with one or more law enforcement organizations for cooperative activities. Under such agreements, at the sole discretion of DEN, 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 hire local law enforcement or if DEN is contracting 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 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 pre-approved by the Engineer.

At least one week prior to starting construction, the Contractor shall notify the City Engineer of the date the Contractor intends to start construction.

All costs incidental to the foregoing requirements shall be included in the original contract prices for the project.

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UTILITIES

Known utilities within the limits of this project are:

UTILITY COMPANY ADDRESS	CONTACT NAME EMAIL	TELEPHONE
DEN Communications	Nicholas Sears Nicholas.sears@flydenver.com	303-941-1597
DEN Electrical	Shaune Taylor Shaune.Taylor@flydenver.com	720-693-4925
DEN Sanitary	Catherine Rafferty Catherine.Rafferty@flydenver.com	303-342-4461
DEN Storm	Matthew Love Matthew.Love@flydenver.com	720-837-9514
Denver Water 1600 W 12 th Ave. Denver, CO 80204	Paul Peloquin Paul.Peloquin@denverwater.org	303-628-6620
Lumen (CenturyLink) 931 14 th Street Denver, CO 80202	Rob McLeod RMcleod@terratechllc.net	303-949-2187
Xcel Energy – Gas and Electric 1123 W 3 rd Ave. Denver, CO 80223	Denise Gabaldon Denise.Cartahena@xcelenergy.com	303-671-3830

The work described in these plans and specifications requires full cooperation between the Contractor and the utility owners in accordance with Subsection 105.11 in conducting their respective operations, to complete the utility work with minimum delay to the project.

PART 1 CONTRACTOR SHALL PERFORM THE WORK LISTED BELOW:

Coordinate project construction with the performance by the utility owner of each utility work element listed in Part 2 below. Perform preparatory work specified in Part 2 for each utility work element. Provide an accurate construction schedule that includes all utility work elements to the owner of each impacted utility.

Provide each utility owner with weekly updates to the schedule. Conduct detailed utility coordination meetings prior to each construction phase to coordinate all requirements and schedules, and provide other necessary accommodations as directed by the Engineer. Notify each utility owner in writing, with a copy to the Engineer, prior to the time each utility work element is to be performed by the utility owner. Provide the notice with the number of days specified below prior to the time the utility work must begin in order to meet the project schedule.

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UTILITIES

Provide traffic control, as directed by the Engineer, for any utility work by the utility owner expected to be coordinated with construction. However, traffic control for utility work outside of typical project work hours shall be the responsibility of the utility owner.

Perform each utility work element for every utility owner listed here in Part 1. Notify each utility owner in advance of any work being done by the Contractor to its facility, so that the utility owner can coordinate its inspections for final acceptance of the work with the Engineer.

Project Limits – All Utility Owners

Prior to excavating, the Contractor shall positively locate (through potholing if necessary) 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 Colorado811 notifies member utilities, who are then responsible for marking their own facilities – Other facilities, such as ditches and drainage pipes may exist, and it is the Contractor's responsibility to investigate, locate and avoid such facilities.

DEN Communications

The Contractor shall notify DEN Communications one (1) week in advance of construction operations commencing near DEN Communications facilities.

The contractor shall protect the existing direct buried communication line in place crossing through the southwest snow storage area. Minor adjustment, temporary support, and/or sleeving of the line may be required to facilitate the installation of the proposed storm drain.

The contractor shall protect DEN Communication facilities in place unless otherwise indicated on the plans.

DEN - Electrical

The Contractor shall notify DEN Electrical one (1) week in advance of construction operations commencing near DEN Electrical facilities.

The contractor shall raise DEN owned electric hand holes to finished grade.

The contractor shall remove and install new conduit, electrical cable, pull boxes, and reset the existing area light in the southeast snow storage area as shown on the plans and in accordance with the applicable lighting and electrical specifications.

The contractor shall protect DEN Electrical facilities in place unless otherwise indicated on the plans.

DEN - Sanitary

The Contractor shall notify the DEN Sanitary one (1) week in advance of construction operations commencing near City facilities. The Contractor shall maintain access to existing sanitary manholes at all times during construction.

No Sanitary facilities are anticipated to be impacted by the project.

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UTILITIES**

DEN - Storm

The Contractor shall notify DEN Storm one (1) week in advance of construction operations commencing near Comcast facilities.

Denver Water

No work shall commence on Denver Water facilities until a pre-construction meeting is held with a Denver Water inspector.

All work shall be done by a contractor who has been pre-qualified by Denver Water. A list of pre-qualified contractors for the installation of water mains is available from Denver Water. The Contractor shall refer to the Denver Water Engineering Standards 15th Edition for standard Material Specifications for all facilities used in this construction.

The Contractor shall relocate, adjust, or support the Denver Water facilities per the Water Construction Plans and outlined below:

- The Contractor shall adjust Denver Water manholes and valve boxes up to ¼” to ½” below finished roadway elevation as shown on the plans.
- All Valve Boxes will be cleaned per CDOT 202 Specification, Clean VB.

The Contractor shall arrange for a Pre-Construction conference with Denver Water Department forces. The Contractor shall coordinate inspections and outages with Denver Water Department forces. All isolation during the outage period(s) shall be coordinated by a Denver Water Department inspector. The Contractor shall provide Denver Water written notice forty-eight (48) hours immediately prior to required inspections.

The Contractor shall coordinate with Denver Water if any water facility is found to be in conflict. If a relocation, support, or adjustment is necessary, the Contractor shall coordinate with Denver Water to schedule and facilitate the work.

The Contractor shall maintain access to existing water manholes and valves at all times during construction.

All work shall include all items necessary to complete the work, and materials necessary to provide a complete functional installation of the water facilities. All waterline work performed by the Contractor shall conform to the Denver Water Standards and Specifications. The Contractor shall coordinate inspections with Denver Water.

Xcel Energy – Electric Distribution/Lighting

The Contractor shall notify Xcel Energy one (1) week in advance of construction operations commencing near Xcel Energy electric facilities.

The Contractor shall coordinate with Xcel Energy by submitting a Builder’s Call Line (BCL) service request to Xcel Energy regarding any unidentified conflicts in the project limits.

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UTILITIES

The Contractor shall be responsible for the coordination of work to be performed by Xcel Energy. The Contractor shall complete and submit a Builder's Call Line (BCL) service request for electrical services for every Xcel Energy work element that is to be coordinated with the project a minimum of ninety (90) days prior to the required in-service date for each location. A separate application is required for each electrical service, demolition work, relocation of existing lighting, and meter installation. The service request is to be processed through Xcel Energy's Builder's Call Line at 1-800-628-2121 or online at <https://my.xcelenergy.com/BuildingRemodeling/s/>. The name of the owner for each meter service shall be the owner's name and billing address responsible for paying the utility bill and shall be listed on the BCL application. The Contractor shall be listed as the Builder and the contact during construction on the BCL application. The Contractor shall perform all work necessary to maintain existing or establish new power sources to the devices called for in the plans and per the standard for any services. The Xcel Energy portion of this work shall be completed within the time frames set forth in the franchise agreement in a manner that does not interfere with the project construction activities, and the Contractor shall include the time frames in the project schedule.

The Contractor shall protect in place the Xcel Energy electric facilities in East Economy Lot as indicated on the plans. The Contractor shall coordinate with Xcel Energy if any facility is found to be in conflict, including the cost and schedule for the work dependent upon the utility conflict. If a relocation, support, or adjustment is necessary, the Contractor shall submit a BCL service request ninety (90) days prior to the need date for the relocation. The Contractor shall coordinate with Xcel Energy to schedule and facilitate the work by Xcel Energy forces.

Xcel Energy – Gas Distribution

The Contractor shall notify Xcel Energy one (1) week in advance of construction operations commencing near Xcel Energy gas facilities.

The contractor shall protect existing gas facilities in place where present within the project site.

PART 2 - UTILITY OWNERS SHALL PERFORM THE WORK LISTED BELOW:

Although the Contractor shall provide traffic control for utility work expected to be coordinated with construction, traffic control for utility work outside of typical project work hours or outside of project limits shall be the responsibility of the utility owner. The utility owner shall prepare and submit to the Engineer a Method of Handling Traffic for utility work to be performed outside typical project work hours or outside of project limits. The utility owner shall obtain acceptance of the Method of Handling Traffic from the Engineer prior to beginning the utility work to be performed outside typical project work hours or outside of project limits.

This work will be performed by the utility owners as necessary to avoid conflicts with construction activities. New locations shall be as indicated in the plans. Utility owners shall comply with schedule requirements of the Contractor and make every effort not to impact the overall construction schedule. Unless otherwise approved by the Engineer, abandoned aboveground appurtenances such as pedestals shall be removed and abandoned underground utilities and manholes/handholes shall be abandoned in place.

Utility owners are responsible for obtaining all necessary permits from the City and/or County of record, as required.

DEN - Communications

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UTILITIES

DEN - Communications shall inspect utility work performed by the Contractor listed in Part 1 above. The Contractor shall provide the utility owner written notice five (5) days immediately prior to each required inspection.

DEN - Electrical

DEN - Electrical shall inspect utility work performed by the Contractor listed in Part 1 above. The Contractor shall provide the utility owner written notice five (5) days immediately prior to each required inspection.

Inspection by DEN shall not take the place of electrical inspections required as a condition for acceptance of permitted work.

DEN - Sanitary

DEN - Sanitary shall inspect utility work performed by the Contractor listed in Part 1 above. The Contractor shall provide the utility owner written notice five (5) days immediately prior to each required inspection.

DEN – Storm

DEN - Storm shall inspect utility work performed by the Contractor listed in Part 1 above. The Contractor shall provide the utility owner written notice five (5) days immediately prior to each required inspection.

Denver Water

Denver Water shall inspect utility work performed by the Contractor listed in Part 1 above. The Contractor shall provide the utility owner written notice five (5) days immediately prior to each required inspection.

Denver Water forces shall adjust the existing fire hydrant in the east half of the east economy lot as required prior to construction activities.

Xcel Energy – Electric Distribution/Lighting

Xcel Energy shall coordinate with the Contractor regarding Xcel's electric facilities in the project limits and shall adjust or relocate the facilities as needed.

Xcel Energy forces shall lower the existing duct bank in snow storage area to not conflict with proposed storm crossing. This work is expected to take four (4) weeks to complete. This work is anticipated to be completed prior to construction activities.

Xcel Energy forces shall raise manhole rim and covers to final grade. This work is expected to take two (2) working days to complete and be coordinated with the contractor's construction activities.

Xcel Energy – Gas Distribution

Xcel Energy shall coordinate with the Contractor regarding the Xcel gas lines within the project limits and shall adjust or relocate the gas lines as needed. No Xcel gas facilities are anticipated to be impacted by the project.

The above work items are expected to be coordinated with construction.

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UTILITIES

GENERAL:

The Contractor shall comply with Article 1.5 of Title 9, CRS ("Excavation Requirements") when excavating 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 actual day of notice, prior to commencing such operations. The Contractor shall contact Colorado811 at phone no. **811**, to have locations of Colorado811 registered lines marked by member companies. All other underground facilities shall be located by contacting the respective owner. Utility service laterals shall also be located prior to beginning excavation or grading.

The location of utility facilities as shown on the plan and profile sheets, and herein described, are depicted in accordance with their achieved Quality Level as defined in the American Society of Civil Engineer's document ASCE 38, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data. It is Contractor's responsibility to verify such information and to locate, preserve, and coordinate the relocation (if required) of all existing utilities, whether shown in the contract documents or not. If utility conflicts, beyond those described in the contract documents, are encountered by Contractor during construction, Contractor shall file prompt, sufficient notice to the owner of the utility so that it may make the necessary adjustments, as well as the Engineer.

Unless otherwise noted in the contract documents, Contractor may relocate or adjust the utility lines or service connections for its convenience with the permission of the owner of the utility and the Engineer, at no increase in contract price or contract time.

At all times, Contractor shall take reasonable steps to protect the utilities and prevent service disruption. Whenever Contractor damages a utility or causes any interruption to any utility service, Contractor shall promptly notify the Engineer, the affected utility owner, and the appropriate governmental authorities. Contractor shall cooperate with the affected utility owner and the appropriate governmental authorities in the restoration of service. If the damage is to a utility that is known or should have been discovered before damage occurred, Contractor shall be responsible for all costs associated with its repair and restoration of service, at no increase in contract price or contract time.

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 propose modifications to construction plans to avoid existing underground facilities as needed, and as approved by the Engineer.

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

Coordination with utility owners includes, but is not limited to, the Contractor 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, and all other necessary accommodations as required for the project to continue per the schedule. Surveying or staking of utility relocations to be performed by the utility owner shall be the responsibility of the utility owner.

Contractor hereby holds DEN harmless against all risks arising from acts or omissions of utility owners that damage the work or generate delays, disruptions, or additional cost to Contractor in performance of the work. Subject to subsection 108.08, contract time may be extended on account of acts and omissions of utility owners that delay the work without fault of the Contractor.

EXHIBIT J

CONTRACT DRAWINGS

202265100, IHC Scott, Inc.

**Incorporated by Reference as found in File #20230014
At the Denver Office of the Clerk and Recorder**