



PROJECT MANUAL

Pioneer Corridor – Phase 3

Capital City Development Corporation
Boise, Idaho

Bid Documents
August 24, 2015

The Land Group, Inc.
462 E Shore Drive, Suite 100
Eagle, Idaho 83616
TLG Project No. 115016

TITLE SHEET

Project:

**Pioneer Corridor – Phase 3
Boise, Idaho**

Owner:

RMH Company
1101 W River St Suite 300
Boise, Idaho 83702
Project Contact: Michael Hormaechea

Agency:

Capital City Development Corporation (CCDC)
121 N 9th St. Suite 501
Boise, Idaho 83702
Project Manager: Matt Edmond

Landscape Architect of Record:

The Land Group, Inc.
462 E Shore Drive, Suite 100
Eagle, Idaho 83616
Project Landscape Architect: Doug Russell, PLA

Civil Engineer of Record:

The Land Group, Inc.
462 E Shore Drive, Suite 100
Eagle, Idaho 83616
Project Engineer: Jason Densmer, PE

Electrical Engineer of Record:

Electrical Engineering Company
800 S Industry Way, Suite 350
Meridian, Idaho 83642
Project Engineer: Jeff Smith, PE

**August 24, 2015
Bid Documents**

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ADVERTISEMENT FOR BIDS

Sealed proposals will be received by Capital City Development Corporation (CCDC) at 121 N. 9th St., Suite 501, Boise, Idaho, 83702 until 2 P.M., local time, on September 10, 2015 for TLG Project No 115016.

PIONEER CORRIDOR - PHASE 3

Location: Between River St. and the Boise River Greenbelt, Boise

The project consists of a new decorative paver pathway, site lighting, landscaping, and site furnishings. A description of the work of this project can be summarized to include:

- Install unit pavers, concrete curbs, and gravel base.
- Install concrete sidewalks and new curb and gutter at adjacent roadways.
- Install pedestrian lighting and associated electrical structures.
- Install landscape and irrigation improvements.

Proposals will be opened and publicly read at the above hour and date.

Plans, specifications, proposal forms, and other information are on file for examination at the following locations:

Associated General Contractors, 1649 W Shoreline Dr., Suite 100, Boise, Idaho 83702 (208) 344-2531
The Land Group, Inc., 462 E Shore Drive, Eagle, Idaho 83616 (208) 939-4041
Capital City Development Corporation, 121 N. 9th St., Suite 501, Boise, Idaho 83702 (208)384-4264 and online at www.ccdcboise.com

One set of documents may be obtained by licensed general contractors and by licensed electrical subcontractors from the Landscape Architect for a refundable deposit of \$50.00. Others may obtain documents at cost, non-refundable.

A bid bond in the amount of 5% of the total bid amount, including any add alternates, is required.

A pre-bid conference will be held at the construction site at the northwest corner of S. Pioneer St. and W. River St. Intersection, on September 1, 2015, starting at 10A.M. Bidders are encouraged to attend.

A Public Works Contractors License for the State of Idaho is required to bid on this work.

END OF ADVERTISEMENT FOR BIDS

INSTRUCTIONS TO BIDDERS

GENERAL PROVISIONS

DEFINITIONS: Terms used in these Instructions to Bidders (“Instructions”) shall have the meaning given to them in the Fixed Price Construction Contract between Agency and Contractor.

HEADINGS: Headings used in these Instructions are for convenience only.

REJECTION OF BIDS, WAIVER OF INFORMALITIES OR CANCELLATION: Prior to the effective date of a contract, the CCDC shall have the right to accept or reject all bids, to waive any minor deviations/informalities or to cancel the bid.

ORAL INFORMATION: Questions concerning a bid must be directed in writing to the designated Design Professional (architect or engineer) no less than seven (7) calendar days before bids are due unless provided otherwise via an addendum. Oral information is not binding and any reliance by a bidder on any oral information or representation is at the bidder’s sole risk. Any information given a prospective bidder in response to a written question will be provided to all prospective bidders by an addendum, if such information is necessary for purposes of submitting a bid or if failure to give such information would be prejudicial to uninformed bidders.

PUBLIC RECORDS: CCDC is a public agency. The Idaho Public Records Law, Idaho Code §§ 9-337 through 9-348, allows the open inspection and copying of public records. Public records include any writing containing information relating to the conduct or administration of the public’s business prepared, owned, used or retained by a State or local agency regardless of the physical form or character. Unless exempted by the Public Records Law, your bid will be a public record subject to disclosure under the Public Records Law. Any questions regarding the applicability of the Public Records Law should be addressed to your legal counsel prior to submission.

FORM OF AGREEMENT: Unless otherwise specified in the bid documents, the agreement between the successful bidder and the Agency shall be the Fixed Price Construction Contract Between Agency and Contractor.

PERFORMANCE AND PAYMENT BONDS: A performance bond and payment bond are required for this Project, each in an amount of not less than one hundred percent (100%) of the Contract Price. The performance and payment bonds shall be AIA Document A312, 1984 or the most recent Edition, or a standard surety form certified approved to be the same as the AIA A312 form and shall be executed by a surety or sureties reasonably acceptable to the Agency and authorized to do business in the State of Idaho. Bonds must be provided within ten (10) calendar days following receipt of a Notice of Intent to Award.

TAXES: CCDC is exempt from Federal and State taxes and will execute the required exemption certificates for items purchased and used by CCDC. Items purchased by CCDC and used by a contractor are subject to Use Tax. All other taxes are the responsibility of the Contractor and are to be included in the Contractor’s Bid pricing.

BID SUBMISSION PROCESS

BID DOCUMENTS: The bid documents are available from the Design Professional or as provided in the Invitation to Bid or advertisement for bids. The responsibility is on the bidder to use a complete set of bid documents to prepare its bid and neither the Agency nor the Design Professional shall incur any liability for the bidder's failure to do so. Bidders obtain no ownership interest or any use rights, except to use in preparation of their bid, by issuance of the bid documents.

Bidders and Sub-bidders shall field verify all dimensions pertaining to the Work and shall be responsible for the determination of all quantities of materials required for the completion of the Work. The bidder shall not rely on the scale drawings of the Bidding Documents in his determination of required materials quantities. No allowance shall be made for Bidder's failure to field-verify dimensions.

If a deposit is required, the deposit will be returned to a bidder returning the complete bid documents in good condition no more than twenty (20) days after a Notice of Intent is issued and the amount of any deposit returned may be reduced if the bid documents returned are not complete or are damaged. A bidder awarded a Contract may also keep the bid documents and any deposit will be returned.

ADDENDA: In the event it becomes necessary to revise any part of the bid documents, addenda will be issued. Information given to one bidder will be available to all other bidders if such information is necessary for purposes of submitting a bid or if failure to give such information would be prejudicial to uninformed bidders. It is the bidder's responsibility to check for addenda prior to submitting a bid. A bidder is required to acknowledge receipt of all addenda by identifying the addenda numbers in the space provided on the bid proposal form. Failure to do so may result in the bid being declared non-responsive. No addenda will be issued less than four (4) calendar days before the closing date unless the bid closing date is extended.

REVIEW: It is the bidder's responsibility to review the bid documents and compare them as needed, including with regard to any other work that is or may be under construction that might affect the bidder or its work, to examine the site and local conditions and to report, in writing, any questions, errors, inconsistencies or ambiguities to the Design Professional.

PRODUCTS SPECIFIED AND PROPOSED SUBSTITUTIONS: Materials, products or equipment, if specified by name or manufacturer, establish the standard of quality required and that must be met by any proposed substitution. Requests for substitutions must be made in writing to the Design Professional no less than ten (10) calendar days prior to the bid closing unless provided otherwise via an addendum. Such requests must provide detailed information to allow the Design Professional to determine if the proposed substitution is acceptable, including drawings or performance or test data and a detailed statement of how the substitution would change any other part of the Work. It is the bidder's obligation to satisfy this requirement and the Design Professional's decision shall be final. To be allowed, substitutions must be approved in an addendum to the bid documents.

OBJECTIONS TO SPECIFICATIONS OR PROCESS: Objections to specifications or bidding procedures must be in writing and received by CCDC, Attn: Mary Watson, Contracts Manager, at least three (3) business days before the date and time of bid opening. The objection must state the exact nature of the protest, describing the location of the protest portion or clause in the Bid documents and explaining why the provision should be struck, added, or altered, and contain suggested corrections. CCDC may deny the objection, modify the Project Manual, and/or reject all or part of the objection.

BID FORM: Bids must be submitted on the bid proposal forms, or copies of forms, furnished by the Agency or the Design Professional. Bids submitted must contain an original signature in ink on the following forms:

Bid Proposal Form
Bidder's Acknowledgment Statement
Bid Bond (bid security)

The person signing the Bid Proposal Form must initial any and all changes appearing on any bid form. If the bidder is a corporation or other legal entity, the bid form must be signed by an authorized designee. Oral, telephonic, telegraphic, facsimile or other electronically transmitted bid forms and/or signatures will not be considered.

BID PRICES: The bid form may require bidders to submit bid prices for one (1) or more items on various bases, including lump sum base bid, lump sum bid alternate prices, unit prices or any combination thereof. Bid amounts shall be expressed in words and numbers. The amount in words shall prevail if there is a discrepancy. Bids must remain open for sixty (60) days.

TIME FOR SUBMISSION: Bids must be submitted on or before the time specified in the advertisement for bids. Any bid submitted late will be rejected.

SEALED ENVELOPE: Bids shall be submitted in a sealed envelope with the following clearly printed on the outside of the envelope: the Project number and Project name; the name and address of the bidder; and a statement such as "BID ENCLOSED" to indicate that it is a bid.

MAILED BIDS: When bids are mailed or shipped, the sealed envelope containing the bid shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof. If mailed, the mailing envelope shall be addressed as follows:

Capital City Development Corporation
121 N. 9th Street, Suite 501
Boise, Idaho 83702

It is the bidder's responsibility to ensure that its bid is delivered to the place designated for receipt on or before the specified closing time. The Agency assumes no responsibility for delays in the delivery of mail by the U.S. Post Office or private couriers. Bidders should be advised the intra-state mail system may increase delivery time from arrival at Central Postal to the place designated for receipt and should plan accordingly. **LATE SUBMISSIONS WILL BE REJECTED, WILL NOT BE OPENED, AND WILL BE RETURNED TO THE BIDDER. NO DEVIATIONS WILL BE ALLOWED.**

BID CLOSING DECLARED: Immediately prior to the bid opening, the Agency's representative will declare the official bid closing. Any part of a bid not received prior to the bid closing declared by the designated representative will not be considered and will be returned to the bidder unopened. All bids shall be taken under advisement.

DRUG-FREE WORKPLACE: By submitting a bid, bidders agree to compliance with Title 72, Chapter 17, Idaho Code, requiring the Contractor and its subcontractors at the time of bid to provide a drug-free workplace program and to maintain such program throughout the duration of the Contract.

EXECUTIVE ORDER 2009-10: Bidder shall prepare and submit its bid based on compliance with Executive Order 2009-10 (http://gov.idaho.gov/mediacenter/execorders/eo09/eo_2009_10.html) and shall warrant that the bidder does not knowingly hire or engage any illegal aliens or persons not authorized to work in the United States; bidder shall take steps to verify that it does not hire or engage any illegal aliens or persons not authorized to work in the United States; and that any misrepresentation in this regard or any employment of persons not authorized to work in the United States constitutes a material breach and shall be cause for the imposition of monetary penalties and/or termination of any Contract resulting from this bid.

LEGAL RESIDENCY REQUIREMENT: By submitting a bid, the bidder attests, under penalty of perjury, that he (the bidder) is a United States citizen or legal permanent resident or that it is otherwise lawfully present in the United States pursuant to federal law. Prior to being issued a contract, the bidder will be required to submit proof of lawful presence in the United States in accordance with Idaho Code §67-7903.

BIDDER'S ACKNOWLEDGEMENT STATEMENT: The attached Bidder's Acknowledgement Statement must be completed and included or the bid may be found non-responsive.

PUBLIC WORKS CONTRACTOR'S LICENSE: This Project is not financed in whole or in part by federal funds. Bids will be accepted from those Contractors only (prime contractors, subcontractors and/or specialty contractors) who, prior to the bid opening, hold current licenses as public works contractors in the State of Idaho.

IDAHO LABOR REQUIREMENTS: This Project is subject to the provisions of Idaho Code §§ 44-1001 and 44-1002 dealing with labor preference.

IDAHO PREFERENCE LAW: Idaho Code § 67-2348 requires the CCDC to apply a preference in determining which Contractor submitted the lowest responsible bid. If the Contractor who submitted the lowest dollar bid is domiciled in a state with a preference law that penalizes Idaho domiciled contractors, CCDC must apply the preference law (percentage amount) of that domiciliary state to that Contractor's bid.

NAMING OF SUBCONTRACTORS: Idaho Code § 67-2310 requires general (prime) Contractors to include in their bid the name of the subcontractors who shall, in the event the Contractor secures the Contract, subcontract the plumbing, HVAC, and electrical work under the general (prime) Contract. Failure to name subcontractors as required by this section shall render any bid submitted by a general (prime) Contractor nonresponsive and void. Subcontractors named in accordance with the provisions of this section must possess an appropriate license or certificate of competency issued by the State of Idaho covering the Contractor work classification in which the subcontractor is named.

CCDC interprets Idaho Code § 67-2310 to mean three (3) separate areas of work: plumbing work, HVAC, and electrical work. CCDC also requires that the general (prime) Contractor name the entity that will perform the Work, including if the entity is a subcontractor, a sub-subcontractor or the general (prime) Contractor submitting the bid. Failure to complete the Bid Proposal in full shall render a bid nonresponsive and void.

With regard to possessing an appropriate license or certificate of competency, all subcontractors listed by the general (prime) Contractor must have at the time of the bid opening a current license in the appropriate category (class, type and specialty category) as issued by the Public Works Contractors State License Board. In addition, plumbing, HVAC and electrical subcontractors shall have at the time of the bid opening a valid plumbing contractor's license, HVAC contractor's license or electrical contractor's license, respectively, as issued by the Idaho Division of Building Safety.

In determining if the above listed subcontractors are required on the Project, CCDC will refer to the plans and specifications. If doubt exists prior to bid closing, potential bidders should contact the CCDC and the Design Professional who prepared the plans and specifications will be requested to make the determination. If plumbing, HVAC or electrical work are not shown on the plans and specifications, but are discovered by the bidder prior to the date of bid opening, then the bidder must request clarification from the Design Professional. Absent such clarification, Work will be considered incidental and naming of a subcontractor will not be required.

BID SECURITY

AMOUNT AND FORM OF SECURITY: To be considered, bids must be accompanied by an acceptable bid security in an amount not less than five percent (5%) of the total amount of the bid, including additive alternates. The security may be in the form of cash, a bond, or a certified or cashier's check. A standard surety bid bond form meeting all the conditions of AIA Document A310 is acceptable and, if used, must include a certified and current copy of the power of attorney if the bond is executed by the attorney-in-fact on behalf of the surety.

FORFEITURE: A successful bidder who fails to sign the Contract for the Work or furnish the required bonds within ten (10) calendar days following the receipt of notice of intent to award a Contract is subject to forfeiture in accordance with Idaho Code § 54-1904E.

RETENTION OF SECURITY: Bid security shall be retained for no more than forty-five (45) calendar days after the opening of bids, so long as the bidder has not been notified of the acceptance of the bid.

BID WITHDRAWAL

PRIOR TO BID CLOSING: If a bid has been submitted, it may be withdrawn in person by a bidder's authorized representative before the opening of the bids. A bidder's representative will be required to show identification and sign on a bid summary sheet before it will be released. After bid closing, no bid may be withdrawn except in strict accordance with these Instructions or applicable law.

BID MODIFICATION

PRIOR TO BID CLOSING: If a bid has been submitted, it may be modified by the submission of a written document contained in a separate sealed envelope marked "Bid Modification from [Name of Bidder] for "Pioneer Corridor Phase 3" **THE DOCUMENT MODIFYING THE BID MUST BE SIGNED IN INK BY AN AUTHORIZED REPRESENTATIVE OF THE SUBMITTING BIDDER. CCDC WORKS RESERVES THE RIGHT TO REQUIRE PRESENTATION OF EVIDENCE SATISFACTORY TO IT TO ESTABLISH THE AUTHORITY TO ACT ON BEHALF OF THE SUBMITTING BIDDER. NO OTHER FORM OF MODIFICATION (INCLUDING TELEPHONE, FACSIMILE OR ELECTRONIC MAIL) WILL BE ACCEPTED. AFTER BID CLOSING, NO BID MAY BE MODIFIED EXCEPT IN STRICT ACCORDANCE WITH THESE INSTRUCTIONS OR APPLICABLE LAW.**

RELIEF FROM BIDS

CONDITIONS FOR RELIEF: Relief from bids is subject to Idaho Code §§ 54-1904B through 54-1904E. In the event a bidder discovers a mistake in its bid following the bid opening and wishes to withdraw its bid, the

bidder shall establish to the satisfaction of the Agency, pursuant to Idaho Code § 54-1904C, that a clerical or mathematical mistake was made; the bidder gave the public entity (Agency) written notice within five (5) calendar days after the opening of the bid of the mistake, specifying in the notice in detail how the mistake occurred; and the mistake was material.

DETERMINATION: If the Agency determines that the bidder has satisfied the requirements of Idaho Code § 54-1904C to entitle it to relief from a bid because of a mistake, it shall prepare a report in writing to document the facts establishing the existence of each required element. The report shall be available for inspection as a public record and shall be filed with the public entity soliciting bids. A bidder claiming a mistake and satisfying all the required conditions of Idaho Code § 54-1904C shall be entitled to relief from the bid and have any bid security returned by the Agency. Bidders not satisfying the conditions of Idaho Code § 54-1904C shall be subject to forfeiture in accordance with Idaho Code § 54-1904B. A bidder who claims a mistake or who forfeits its bid security shall be prohibited from participating in any re-bidding of that project on which the mistake was claimed or security forfeited and the Agency may award the Contract to the next lowest responsive and responsible bidder.

BIDDER'S REPRESENTATIONS

REPRESENTATIONS UPON SUBMITTING A BID: By submitting its bid, a bidder represents and warrants the following:

1. The person signing the bid is authorized to bind the bidder;
2. It has all required licenses, permits or other authorizations necessary to submit its bid;
3. It has taken steps necessary to ascertain the nature and location of the Work and has investigated and satisfied itself as to the general and local conditions which can affect the Work or its cost, including but not limited to: (i) conditions bearing upon transportation, disposal, handling and storage of materials; (ii) the availability of labor, water, natural gas, electric power and roads; (iii) uncertainties of weather, river stages or similar physical conditions at the site; (iv) the conformation and conditions of the ground; and (v) the character of equipment and facilities needed preliminary to and during the Work;
4. It has satisfied itself as to character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including exploratory work done by the Owner or the Agency as well as from the drawings and specifications provided as part of the bid package, and that any failure of the bidder to take such actions will not relieve the bidder from responsibility for estimating properly the difficulty and cost of successfully performing the Work;
5. It has received, read and reviewed the Contract, has submitted any questions in writing regarding the same and has received an answer to such questions;
6. Its bid is based upon the requirements of the Contract without exception;
7. It is in compliance with Title 72, Chapter 17, Idaho Code, regarding a drug-free workplace;
8. Its bid is in compliance with Executive Order 2009-10 regarding employment of persons not authorized to work in the United States;
9. It will retain bid security and hold and honor all base bid prices for forty-five (45) calendar days from the date of bid opening, and cannot be withdrawn after the bid opening;
10. Its bid prices shown for each item on the bid proposal form include all labor, material, equipment, overhead and compensation to complete all of the Work for that item; and
11. It has included in its bid amount Idaho sales and/or use taxes on all materials and equipment and all other taxes imposed by law.

BID AWARD

AWARD METHOD: Public Works Construction contracts for the Agency are awarded in accordance with Idaho Code § 67-2805. The low bidder, for purposes of award, shall be the responsible and responsive bidder offering the low aggregate amount for the base bid item, plus any additive or deductive bid alternates selected by the Agency, and within funds available as determined by the Agency. Award is also subject to the requirements of Idaho Code, including without limitation: Title 67, Chapter 28; Title 67, Chapter 23; Title 54, Chapter 19; and Title 44, Chapter 10. It is the bidder's responsibility to conform to **ALL** applicable federal, state and local statutes or other applicable legal requirements. The information provided herein is intended to assist bidders in meeting applicable requirements but is not exhaustive and the Agency will not be responsible for any failure by any bidder to meet applicable requirements.

DETERMINATION OF RESPONSIBILITY: The Agency reserves the right to make reasonable inquiry about or from the submitting bidder or from third parties to determine the responsibility of a submitting bidder. Such inquiry may include, but not be limited to, inquiry regarding experience and expertise related to the Project, manpower and other resources, financial stability, credit ratings, references, potential subcontractors and past performance. The unreasonable failure of a submitting bidder to promptly supply any requested information may result in a finding of non-responsibility.

NOTICE OF EFFECTIVENESS; COSTS: No Contract is effective until the Agency's Executive Director has signed the Contract and the Notice to Proceed has been issued. The bidder shall not provide any goods or render services until the Contract has been signed and the Contract has become effective. Furthermore, the Agency is not responsible for reimbursing the bidder for goods provided or services rendered prior to the Contract signature and the arrival of the Notice to Proceed. The Agency is not liable for any cost incurred by bidders prior to the Notice to Proceed.

PRIOR ACCEPTANCE OF DEFECTIVE BIDS OR PROPOSALS: The Agency generally will not completely review or analyze bids that appear to fail to comply with the requirements of the bid documents, nor will the Agency generally investigate the references or qualifications of those who submit such bids. Therefore, any acknowledgment that the selection is complete shall not operate as a representation by the Agency that an unsuccessful bid was responsive, complete, sufficient or lawful in any respect.

AGENCY'S RIGHT TO REJECT: Prior to execution of the Contract, the Agency or Design Professional shall provide written notice of any reasonable objection to any person or entity proposed by the bidder. Upon receipt of such notice, the bidder may withdraw its bid, without forfeiture, or propose a substitute and identify any change in any bid amount caused by such substitution. The Agency may accept or reject the substitution or the adjusted price. If the Agency rejects the substitution or the adjusted price, it will return the bidder's bid guarantee.

END OF INSTRUCTIONS

BID PROPOSAL

TO: CAPITAL CITY DEVELOPMENT CORPORATION (CCDC)

The Bidder, in compliance with your Invitation for Bids for the construction of Pioneer Corridor – Phase 3, Boise, Idaho, having examined the bidding and Contract Documents and the site of the proposed Work, and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies and to provide the service and insurance in accordance with the Contract Documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the Work required under the Contract Documents.

Bidder hereby agrees to commence Work under this Contract on a date to be specified in the written "Notice to Proceed" of the Agency and to substantially complete the Project within **71 consecutive calendar days** thereafter, as stipulated in the specifications. Bidder further agrees to pay as liquidated damages, the sum of **\$250.00** for each consecutive calendar day after the established substantial completion date or adjusted date as established by change order.

Bidder acknowledges receipt of Addenda No. _____.
(List all Addenda)

BID PROPOSAL: Bidder agrees to perform all of the Work described in the specifications and shown on the plans for the sum of: _____

(\$ _____) Dollars, lawful money of the United States.
(Amount shall be shown in both words and figures. In case of discrepancy, the amount shown in words above will govern.)

Bidder understands that the Agency reserves the right to reject any or all bids and to waive any informality in the bidding.

The bidder agrees that this bid shall be good for a period of sixty (60) calendar days after the scheduled opening time for receiving bids.

Upon receipt of written Notice of Intent to Award of this bid, Bidder will execute the formal Contract within ten (10) calendar days and deliver a Surety Bond or Bonds as required by paragraph "Performance and Payment Bonds" first page (ITB-1) of the Instructions to Bidders.

The bid security in the amount of five percent (5%) of the bid amount is to become the property of the Agency, in the event the Contract and bond are not executed within the time set forth, as liquidated damages for the delay and additional expense to the Agency caused thereby.

The names and addresses of the entities who will perform the Work identified below, subject to approval of Agency and Architect, if Undersigned is awarded the Contract, are as follows:

Electrical (PWCL Category 16000)

(Name) _____

(Address) _____

Idaho Public Works Contractors License No. _____

Idaho Electrical Contractors License No. _____

FAILURE TO NAME A PROPERLY LICENSED SUBCONTRACTOR IN EACH OF THE ABOVE CATEGORIES WILL RENDER THE BID UNRESPONSIVE AND VOID.

Should the listing of subcontractors change due to selection of alternates or other similar circumstances, attach explanation.

Bidder warrants that bid has been prepared and that any contract resulting from acceptance of this bid is subject to Executive Order 2009-10 and the Fixed Price Construction Contract.

The undersigned notifies that it is of this date duly licensed as an Idaho Public Works Contractor and further that it possesses Idaho Public Works Contractor's License No. _____, and is domiciled in the State of _____.

Dated this _____ day of _____, _____.
(date) (month) (year)

Respectfully submitted by:

(Company)

(Seal - if bid is by a corporation)

(Street or PO Address)

(City, State and zip code)

(Authorized Signature)

(Title)

(Telephone Number)

(FAX Number)

Execute and Submit with Bid

BIDDER'S ACKNOWLEDGMENT STATEMENT

NOTE: THE INFORMATION CONTAINED HEREIN IS A SUMMARY OF VITAL CONTRACT PROVISIONS AND DOES NOT CHANGE THE CONTRACT DOCUMENTS THAT WILL GOVERN THIS PROJECT.

Pioneer Corridor – Phase 3, Boise, Idaho.

By submitting a bid for this Project, the undersigned bidder agrees that, if awarded the Contract for construction, Contractor will conform to all conditions and requirements of the Contract, including but not limited to:

- Contractor agrees to comply with conditions pertaining to Idaho Code §§ 44-1001 and 44-1002 requiring the employment of ninety-five percent (95%) bona fide Idaho residents and providing for a preference in the employment of bona fide Idaho residents and with Executive Order 2009-10 regarding the employment of persons not authorized to work in the United States.
- Contractor will substantially complete the Work within the time stated in the Contract Documents, or as modified by Change Order(s).
- If the Contractor fails to substantially complete the Project within the time stated in the Contract Documents, or as modified by Change Order, the Contractor agrees that the Agency may deduct from the Contract amount liquidated damages in the amount of \$250 per calendar day, indicated in the Contract Documents, times the number of calendar days until the Project is Substantially Complete, as defined in the Contract Documents and as determined by the Design Professional.
- The Contractor agrees that the amount allowed for overhead and profit on any Change Order is limited to the amounts indicated in subparagraph 16.3.11 of the Fixed Price Construction Contract Between Agency and Contractor.
 1. For total changes of \$10,000 or less in direct cost, the amount allowed for overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier combined shall not exceed twenty percent (20%) of direct costs;
 2. For total changes exceeding \$10,000 in direct cost, the amount allowed for overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier combined shall not exceed fifteen percent (15%) of direct costs.
- The Contractor agrees that Change Orders are governed by the Fixed Price Construction Contract Between Agency and Contractor General Conditions of the Contract for Construction including as follows:
 1. By the execution of a Change Order, the Contractor agrees and acknowledges that it has had sufficient time and opportunity to examine the change in Work which is the subject of the Change Order and that it has undertaken all reasonable efforts to discover and disclose any concealed or unknown conditions which may, to any extent, affect the Contractor's ability to perform in accordance with the Change Order. Aside from those matters specifically set forth in the Change Order, the Agency shall not be obligated to make any adjustments to either the Contract Sum or Contract Time by reason of any conditions affecting the change in Work addressed by the Change Order that could have reasonably been discovered or disclosed by the Contractor's examination.

2. Any Change Order fully executed by the Agency, Contractor and Design Professional, including but not limited to, a Change Order arising by reason of the parties' mutual agreement or by mediation, shall constitute a final and full settlement of all matters relating to or affected by the change in the Work, including but not limited to, all direct and consequential costs associated with such change and any and all adjustments to the Contract Price and Contract Time. In the event a Change Order increases the Contract Price, the Contractor shall include the Work covered by such Change Order in the Application for Payment as if such Work was originally part of the Project and Contract Documents.

FAILURE TO EXECUTE THIS ACKNOWLEDGMENT SHALL MAKE YOUR BID NON-RESPONSIVE.

I, _____, being duly authorized to bind the
(type or print name of individual)

bidder, _____, does hereby certify that I have fully read and
(type or print name of company)
understand this document and that it highlights certain parts of the Contract that will be entered between the parties and that will govern this Project.

Authorized Signature: _____

Title: _____

Date: _____

END OF BIDDER'S ACKNOWLEDGMENT STATEMENT

**FIXED PRICE CONSTRUCTION CONTRACT
BETWEEN AGENCY AND CONTRACTOR**

**Pioneer Corridor – Phase 3
Boise, Idaho**

AGREEMENT - FIXED PRICE CONSTRUCTION CONTRACT BETWEEN AGENCY AND CONTRACTOR

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**FIXED PRICE CONSTRUCTION CONTRACT
BETWEEN AGENCY AND CONTRACTOR**

THIS FIXED PRICE CONSTRUCTION CONTRACT BETWEEN AGENCY AND CONTRACTOR (the "Contract") is made this ____ day of _____ in the year 2015, by and between the Capital City Development Corporation, a public body corporate and politic existing under the provisions of Title 50, Chapter 20 of the Idaho Code ("CCDC" or the "Agency"), and _____ (the "Contractor") and is for the construction of the project (the "Project") identified as Pioneer Corridor – Phase 3, as more fully described in Exhibit A, and incorporated herein by reference.

In consideration of the mutual promises, covenants, and agreements stated herein, and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the Agency and the Contractor agree:

**ARTICLE 1
CONTRACT DOCUMENTS**

1.1 The Contract Documents consist of this Contract, the drawings and specifications for the Project (the "Drawings and Specifications") identified in Exhibit C and any Addenda thereto issued prior to execution of this Contract, the Supplementary Conditions set forth in Exhibit I, written amendments signed by both the Agency and the Contractor, Change Orders signed by both the Agency and the Contractor, Construction Change Directives and any written orders by the Design Professional for minor changes in the Work (the "Contract Documents"). Documents not included or expressly contemplated in this Article 1 do not, and shall not, form any part of the Contract Documents.

1.2 The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations.

**ARTICLE 2
REPRESENTATIONS AND WARRANTIES OF THE CONTRACTOR**

In order to induce the Agency to execute this Contract and recognizing that the Agency is relying thereon, the Contractor, by executing this Contract, makes the following express representations to the Agency:

2.1 The Contractor is fully qualified to act as the Contractor for the Project and has, and shall maintain, any and all licenses, permits or other authorizations necessary to act as the Contractor for, and to construct, the Project.

2.2 The Contractor has become familiar with the Project site and the local conditions under which the Project is to be constructed and operated particularly in correlation to the requirements of the Contract.

2.3 The Contractor has received, reviewed, compared, studied and carefully examined all of the documents which make up the Contract Documents, including the Drawings and Specifications, and any Addenda, and has found them in all respects to be complete, accurate, adequate, consistent, coordinated and sufficient for

construction. Such review, comparison, study and examination shall be a warranty that the contractor believes that the documents are complete and the Project is buildable as described except as reported.

2.4 The Contractor warrants that the Contract Time is a reasonable period for performing the Work.

2.5 The Contractor warrants to the Agency and Design Professional that all labor furnished on this Project shall be competent to perform the tasks undertaken; materials and equipment furnished under the Contract will be new and of high quality unless otherwise required or permitted by the Contract Documents; that the Work will be complete, of high quality and free from defects not inherent in the quality required or permitted; and that the Work will strictly conform to the requirements of the Contract Documents. Any Work not strictly conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse by Agency or its representatives, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Agency, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty shall survive the completion of the Contract and final payment to the Contractor.

ARTICLE 3 INTENT AND INTERPRETATION

With respect to the intent and interpretation of this Contract, the Agency and the Contractor agree as follows:

3.1 This Contract constitutes the entire and exclusive agreement between the parties with reference to the Project, and supersedes any and all prior discussions, communications, representations, understandings, negotiations or agreements. This Contract also supersedes any bid documents.

3.2 The intent of the Contract is to include all items necessary for the proper execution and completion of the Project and anything that may be required, implied or inferred by the documents which make up this Contract, or any one or more of them, shall be provided by the Contractor for the Fixed Price Contract Amount. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

3.3 Nothing contained in this Contract shall create, nor be interpreted to create, privity or any other relationship whatsoever between the Agency and any person or entity except the Contractor; provided, however, that the Design Professional is entitled to performance and enforcement of obligations under the Contract intended or necessary to facilitate its duties. Any reference to the Agency, the Contractor or the Design Professional shall be deemed to include authorized representatives.

3.4 When a word, term or phrase is used in this Contract, it shall be interpreted or construed first as defined herein; second, if not defined, according to its generally accepted meaning in the construction industry; and third, if there is no generally accepted meaning in the construction industry, according to its common and customary usage.

3.5 The words "include," "includes," or "including," as used in this Contract, shall be deemed to be followed by the phrase "without limitation."

3.6 The specification herein of any act, failure, refusal, omission, event, occurrence or condition as constituting a material breach of this Contract shall not imply that any other, non-specified act, failure, refusal, omission, event, occurrence or condition shall be deemed not to constitute a material breach of this Contract.

3.7 The Contractor shall have a continuing duty to read, examine, review, compare and contrast each of the documents which make up this Contract, shop drawings and other submittals, and shall give timely written notice to the Agency and the Design Professional of any conflict, ambiguity, error or omission which the Contractor may find with respect to these documents before proceeding with the affected Work.

3.8 The express or implied approval by the Agency or the Design Professional of any shop drawings or other submittals shall not relieve the Contractor of the continuing duties imposed hereby, nor shall any such approval be evidence of the Contractor's compliance with this Contract. The Agency has requested that the Design Professional prepare documents for the Project, including the Drawings and Specifications for the Project, which are accurate, adequate, consistent, coordinated and sufficient for construction. HOWEVER, THE AGENCY MAKES NO REPRESENTATION OR WARRANTY OF ANY NATURE WHATSOEVER TO THE CONTRACTOR CONCERNING SUCH DOCUMENTS. The Contractor again hereby acknowledges and represents that it has received, reviewed and carefully examined such documents; has found them to be complete, accurate, adequate, consistent, coordinated and sufficient for construction; and that the Contractor has not, does not and will not rely upon any representations or warranties by the Agency concerning such documents, as no such representations or warranties have been or are hereby made.

3.9 In the event of any conflict among any of the documents which make up this Contract, the Design Professional shall interpret the documents, and the interpretation shall be binding on both the Agency and Contractor; provided, however, that this does not change the Agency's right to make decisions regarding Claims in accordance with Article 13 and Article 14. If no interpretation is provided by the Design Professional, the most stringent requirement in the Contract Documents will apply.

ARTICLE 4 OWNERSHIP OF DOCUMENTS

4.1 Unless otherwise agreed by the Design Professional and its consultants, the party that prepared the drawings, specifications and other documents is the author of such with all copyright, common law, statutory and other reserved rights. The Contractor may retain one (1) record set of the Drawings and Specifications and other documents but shall not own or claim any copyright in them.

The Drawings and Specifications and other documents, and any copies, are to be used solely for this Project, and not on any other project, or additions to this Project outside this Contract, without written consent of the Agency, the Design Professional and the Design Professional's consultants; provided, however, that copies may be made of applicable portions as necessary for completion of the Work. Such copies shall include any copyright notice on the Drawings and Specifications and other documents.

Submission to or use by a regulatory body related to this Project is an acceptable use.

ARTICLE 5 CONTRACTOR'S PERFORMANCE

The Contractor shall perform all of the Work required, implied or reasonably inferable from this Contract, including the following:

5.1 Construction of the Project.

5.2 The furnishing of any required surety bonds and insurance.

5.3 The provision or furnishing, and prompt payment therefore, of labor, supervision, services, materials, supplies, equipment, fixtures, appliances, facilities, tools, transportation, storage, power, fuel, heat, light, cooling or other utilities required for construction and all necessary permits required for the construction of the Project.

5.4 The creation and submission of a detailed and comprehensive set of marked up blue or black-lined record drawings. Said record drawings shall be submitted to and approved by the Design Professional as a condition precedent to final payment to the Contractor.

ARTICLE 6

TIME FOR CONTRACTOR'S PERFORMANCE

6.1 The Contractor shall commence the performance of this Contract in accordance with the "Notice to Proceed" (Exhibit F) issued by the Agency and shall diligently continue its performance to and until final completion of the Project. The Contractor shall accomplish Substantial Completion of the Project on or before the time indicated in Exhibit A. The period of time, including any adjustments made under this Contract, for the Contractor to reach Substantial Completion is the "Contract Time."

6.2 The Contractor may be assessed by and be responsible to the Agency for the amount indicated in Exhibit A per day for each and every calendar day of unexcused delay in achieving Substantial Completion beyond the date set forth for Substantial Completion. Any sums owed hereunder by the Contractor shall be payable not as a penalty but as liquidated damages, representing an estimate of delay damages likely to be sustained by the Agency estimated at the time of this Contract. When the Agency reasonably believes that Substantial Completion will be inexcusably delayed, the Agency shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the Agency to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving Substantial Completion, or any part thereof, for which the Agency has withheld payment, the Agency shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages. The Agency's right to liquidated damages is not, and shall not be deemed to be, an exclusive remedy for delay and the Agency shall retain all remedies at law or in equity for delay or other breach.

6.3 The term "Substantial Completion," as used herein, shall mean that point at which, as certified in writing by the Design Professional, or if there is no Design Professional, as certified by the Agency, the entire Project is at a level of completion in strict compliance with the Contract Documents, such that the Agency or its designee can enjoy beneficial use or occupancy and can use or operate it in all respects for its intended purpose. If, in the reasonable determination of the Agency, receipt of operation and maintenance manuals or completion of training is necessary for such beneficial use or occupancy, then there shall be no Substantial Completion until such manuals are provided or such training is completed. Partial use or occupancy of the Project shall not result in the Project being deemed substantially complete, or accepted as substantially complete, and such partial use or occupancy shall not be evidence of Substantial Completion. The Project shall not be deemed accepted until it is finally complete.

6.4 Any request by the Contractor for an extension of the Contract Time must be made in accordance with, and is subject to, Article 13 and Article 14 related to Claims.

6.5 The Agency shall have no liability of any kind to the Contractor if a schedule or other document submitted by the Contractor shows an intention to complete the Work prior to the scheduled completion date and for any reason other than Agency caused delay, the Contractor is not able to achieve such early completion.

ARTICLE 7
FIXED PRICE AND CONTRACT PAYMENTS

7.1 The Agency shall pay, and the Contractor shall accept, as full and complete payment for the Contractor's timely performance of its obligations hereunder, the Fixed Price Contract Amount indicated in Exhibit A. The Fixed Price Contract Amount shall not be modified except as provided in this Contract.

7.2 Prior to submitting its first pay application, the Contractor shall prepare and present to the Agency and the Design Professional the Contractor's Schedule of Values apportioning the Fixed Price Contract Amount among the different elements of the Project for purposes of periodic and final payment. The Contractor's Schedule of Values shall be presented in whatever format, with such detail, and backed up with whatever supporting information the Design Professional or the Agency reasonably requests. The Contractor shall not imbalance its Schedule of Values nor artificially inflate any element thereof. The violation of this provision by the Contractor shall constitute a material breach of this Contract. The Contractor's Schedule of Values will be utilized for the Contractor's requests for payment but shall only be so utilized after it has been approved in writing by the Design Professional.

7.3 The Agency shall pay the Fixed Price Contract Amount to the Contractor in accordance with the procedures set forth in this Article. The Contractor shall submit a Contractor's Request for Payment, on or before the day of each month indicated in Exhibit A or otherwise agreed to, after commencement of performance, but no more frequently than once monthly. Said payment request shall be on Agency's standard form, or an alternate form approved by the Agency, and shall include whatever supporting information as may be required by the Design Professional, the Agency or both. Therein, the Contractor may request payment for one hundred percent (100%) of the Work satisfactorily completed to the date of the Contractor's Request for Payment, less five percent (5%) retainage, based on the Fixed Price Contract Amount allocated on the Schedule of Values. The Contractor's Request for Payment may include only: properly provided labor, materials or equipment properly incorporated into the Project, and time and materials or equipment necessary for the Project or that will be incorporated into the Project and are properly stored at the Project site (or elsewhere if off-site storage is approved in writing by the Agency). The Contractor's Request for Payment must exclude the total amount of previous payments received from the Agency. Any payment on account of stored materials or equipment will be subject to the Contractor providing written proof that the Agency has title to such materials or equipment and that they are fully insured against loss or damage. Each such Contractor's Request for Payment shall be signed by the Contractor and its submission shall constitute the Contractor's affirmative representation that the quantity of Work has reached the level for which payment is requested; that the Work has been properly installed or performed in strict compliance with the Contract; that all Work for which the Agency has previously paid is free and clear of any lien, claim or other encumbrance of any person whatsoever; and that the Contractor knows of no reason why payment should not be made as requested. As a condition precedent to payment, the Contractor shall, if required by the Agency, furnish to the Agency properly executed waivers or releases, in a form acceptable to the Agency, from all subcontractors, materialmen, suppliers or others having any claims or alleged claims, wherein said subcontractors, materialmen, suppliers or others shall acknowledge receipt of all sums due pursuant to all prior Contractor's Requests for Payment, and waive and relinquish any rights or other claims relating to the Project or Project site. The submission by the Contractor of the Contractor's Request for Payment also constitutes the Contractor's affirmative representation that, upon payment of the Contractor's Request for Payment submitted, title to all Work included in such payment shall be vested in the Agency.

Thereafter, the Design Professional shall review the Contractor's Request for Payment and may also review the Work at the Project site or elsewhere to determine whether the quantity and quality of the Work are as represented in the Contractor's Request for Payment and as required by this Contract. The Design Professional

shall approve in writing the amount which, in the opinion of the Design Professional, is properly owing to the Contractor and such approval is required before the Agency shall have any payment obligation. The Design Professional may withhold such approval, in whole or in part, as necessary to protect the Agency if it reasonably believes that the quantity or quality of the Work is not as represented in the Contractor's Request for Payment or is not in strict conformance to the Contract Documents.

7.4 The Agency shall make payment to the Contractor no more than thirty (30) days following receipt by the Agency of the Design Professional's written approval of each Contractor's Request for Payment. The amount of each such payment shall be the amount approved for payment by the Design Professional less such amounts, if any, otherwise owing by the Contractor to the Agency or which the Agency shall have the right to withhold as authorized by this Contract. The Design Professional's approval of the Contractor's Request for Payment shall not preclude the Agency from the exercise of any of its rights it may have in this Contract, at law or in equity, as set forth in Paragraph 7.8 hereinafter.

7.5 Off-site storage will not be approved at locations more than thirty (30) miles from the Project site or outside the State of Idaho and any payment for any off-site storage is subject to the following:

- .1** The Contractor must provide at least thirty (30) days' advance written notice of its request to store off-site. Such notice must include a description of the type, quantities, locations and values of materials involved for the next billing cycle. All invoices must indicate the type, quantities and value of materials or equipment for which payment is requested;
- .2** All materials stored off-site must be segregated and clearly marked.
- .3** The Design Professional and/or the Agency's Field Representative must have unrestricted access to the stored materials during all business hours and may physically inventory all invoiced materials and equipment and may physically inspect the storage conditions;
- .4** The Contractor must provide written Consent of Surety to off-site storage of materials and equipment and to payment for such materials and equipment prior to incorporation in the Work. Consent must be from the Surety. Consent of local broker or agent is not acceptable;
- .5** The Contractor must maintain and must provide to the Design Professional, upon request, a current log of stored materials and equipment, which reflects when materials and equipment are used or added; and
- .6** The Contractor must obtain and maintain all risk property insurance at replacement cost, with the State of Idaho listed as loss payee on all materials and equipment stored off-site and in transit.

7.6 When payment is received from the Agency, the Contractor shall immediately pay all subcontractors, materialmen, laborer and suppliers the amounts they are due for the Work covered by such payment. The Contractor shall not withhold from a subcontractor or supplier more than the percentage withheld from a payment certificate for the subcontractor's or supplier's portion of the Work. In the event the Agency becomes informed that the Contractor has not paid a subcontractor, materialmen, laborer or supplier as provided herein, the Agency shall have the right, but not the duty, to issue future checks and payment to the Contractor of amounts otherwise due hereunder naming the Contractor and any such subcontractor, materialmen, laborer or supplier as joint payees. Such joint check procedure, if employed by the Agency, shall create no rights in favor of any person or entity beyond the right of the named payees to payment of the check and shall not be deemed to commit the Agency to repeat the procedure in the future.

7.7 Payment to the Contractor, utilization of the Project for any purpose by the Agency, or any other act or omission by the Agency shall not be interpreted or construed as an acceptance of any Work of the Contractor not strictly in compliance with this Contract.

7.8 The Agency shall have and be entitled to the right to refuse to make any payment, including by reducing payment under any Contractor's Request for Payment, and, if necessary, may demand the return of a portion or all of an amount previously paid to the Contractor for reasons that include the following:

- .1** The quality of the Contractor's work, in whole or part, is not in strict accordance with the requirements of this Contract or identified defective work, including punch list work, is not remedied as required by the Contract Documents;
- .2** The quantity of the Contractor's work, in whole or in part, is not as represented in the Contractor's Request for Payment or otherwise;
- .3** The Contractor's rate of progress is such that, in the Agency's opinion, Substantial Completion or final completion, or both, may be inexcusably delayed or that the Agency will incur additional costs or expense related to repeated Substantial Completion or final completion inspections through no fault of the Agency;
- .4** The Agency reasonably believes that the Contractor has failed to use Contract funds, previously paid the Contractor by the Agency, to pay Contractor's project-related obligations, including subcontractors, laborers and material and equipment suppliers;
- .5** There are claims made or it seems reasonably likely that claims will be made, against the Agency;
- .6** The Contractor has caused a loss or damage to the Agency, the Design Professional or another contractor;
- .7** The Agency reasonably believes that the Project cannot be completed for the unpaid balance of the Fixed Price Contract Amount or the Agency reasonably believes that the Project cannot be completed within the Contract Time and that the unpaid balance of the Fixed Price Contract Amount would be inadequate to cover the cost of actual or liquidated damages for the anticipated delay;
- .8** The Contractor fails or refuses to perform any of its obligations to the Agency; or
- .9** The Contractor fails to pay taxes as required by Title 63, Chapter 15, Idaho Code.

In the event that the Agency makes written demand upon the Contractor for amounts previously paid by the Agency as contemplated in Paragraph 7.8, the Contractor shall promptly comply with such demand.

7.9 If the Agency, without cause, fails to pay the Contractor any amounts due and payable thirty (30) days after those amounts are due pursuant to Paragraph 7.4, the Contractor shall have the right to cease the Work until receipt of proper payment. Contractor must first provide written notice to the Agency of the Contractor's intent to cease the Work ten (10) days prior to stopping the Work under this Paragraph. If any amounts remain unpaid after fifty-one (51) days after the Design Professional approves the Contractor's Request for Payment under Paragraph 7.4, interest at the rate of four percent (4%) per annum shall accrue on those unpaid amounts.

7.10 When Contractor considers Substantial Completion has been achieved, the Contractor shall notify the Agency and the Design Professional in writing and shall furnish to the Design Professional a listing of those matters yet to be finished. The Design Professional will thereupon conduct an inspection to confirm that the Work is, in fact, substantially complete. Upon its confirmation that the Contractor's work is substantially complete, the Design Professional will so notify the Agency and Contractor in writing and will therein set forth the date of

Substantial Completion. The Agency and the Contractor must accept the date of Substantial Completion in writing. Guarantees and warranties required by this Contract shall commence on the date of Substantial Completion. At the Contractor's Request for Payment following Substantial Completion, the Agency shall pay the Contractor an amount sufficient to increase total payments to the Contractor to ninety-five percent (95%) of the Fixed Price Contract Amount, less any liquidated damages, less the reasonable costs as determined by the Design Professional for completing all incomplete work, correcting and bringing into conformance all defective and nonconforming work, and handling any outstanding or potential claims. If the Design Professional determines that the Contractor has made or is making satisfactory progress on any uncompleted portions of the Work, the Agency may, at its discretion, release a portion of the retainage to the Contractor prior to the actual final completion of the conditions set forth in Paragraph 7.13. It is the intent of the parties that the Project will be accepted only in total (at Substantial Completion and final completion) and not in phases unless provided for in Exhibit A. Any acceptance other than in total shall require written agreement of Agency and Design Professional.

7.11 When Contractor considers the Project is at final completion, it shall notify the Agency and the Design Professional thereof in writing. Thereupon, the Design Professional will perform a final inspection of the Project. If the Design Professional confirms that the Project is complete in full accordance with the Contract Documents and that the Contractor has performed all of its obligations to the Agency, the Design Professional will furnish a final approval for payment to the Agency certifying to the Agency that the Project is complete and the Contractor is entitled to the remainder of the unpaid Fixed Price Contract Amount, less any amount withheld pursuant to this Contract.

7.12 If the Contractor fails to achieve final completion within a reasonable number of days as established by the Design Professional from the date of Substantial Completion, the Contractor may be assessed and be responsible to the Agency for fifty percent (50%) of the daily amount of liquidated damages as established pursuant to Paragraph 6.2 and Exhibit A, per day for each and every calendar day of unexcused delay in achieving final completion beyond the date established for final completion of the Work. Any sums due and payable hereunder by the Contractor shall be payable not as a penalty but as liquidated damages representing an estimate of delay damages likely to be sustained by the Agency, estimated at or before the time of executing this Contract. When the Agency reasonably believes that final completion will be inexcusably delayed, the Agency may withhold from any amounts otherwise due the Contractor an amount then believed by the Agency to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving final completion, or any part thereof, for which the Agency has withheld payment, the Agency shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages. The Agency's right to liquidated damages is not, and shall not be deemed to be, an exclusive remedy for delay and the Agency shall retain all remedies at law or in equity for delay or other breach.

7.13 As a condition precedent to final payment, the Contractor must furnish the Agency, in the form and manner required by Agency, and with a copy to the Design Professional of the following:

- .1** An affidavit that all of the Contractor's obligations to subcontractors, laborers, equipment or material suppliers or other third parties in connection with the Project have been paid or otherwise satisfied;
- .2** A release by the Contractor of all Claims it has or might have against the Agency or the Owner's property (CCDC's form, Exhibit H);
- .3** Contractor's Affidavit of Debts and Claims (AIA Document G706);
- .4** Consent of Surety to final payment (AIA Document G707);
- .5** Confirmation of all required training, product warranties, operating manuals, instruction manuals and other record documents, drawings and things customarily required of the Contractor; and

.6 A Public Works Contract Tax Release issued by the Idaho Tax Commission (See “Request for Tax Release” form, Exhibit G, to be submitted by Contractor to the Idaho Tax Commission).

7.14 The Agency shall, subject to its rights set forth in this Contract, make final payment of all sums due the Contractor within thirty (30) days of the Design Professional's execution of a final approval for payment and receipt of documentation required by Paragraph 7.13, whichever is received later.

ARTICLE 8

INFORMATION AND MATERIAL SUPPLIED BY THE AGENCY

8.1 The Executive Director of CCDC or his designee shall be the sole representative of the Agency. The Design Professional shall have authority to bind Agency only as specifically set forth in this Contract.

8.2 The Agency will assign a Project Manager to represent the Agency, identified in Exhibit B. The Agency's Project Manager's duties, responsibilities, and limitations of authority are in accordance with CCDC's policies and procedures.

8.4 The Agency will secure and pay for all required easements.

8.5 The Agency will provide the Contractor one (1) copy of this complete Contract and the number of sets of Drawings and Project Manuals (including Specifications) as indicated in Exhibit A. The Contractor may purchase additional copies, at its expense, from the Design Professional.

ARTICLE 9

STOP WORK ORDER

9.1 In the event the Contractor fails or refuses to perform the Work as required or fails or refuses to correct nonconforming Work, the Agency may instruct the Contractor to stop Work in whole or in part. Upon receipt of such instruction, the Contractor shall immediately stop as instructed by the Agency and shall not proceed further until the cause for the Agency's instructions has been corrected, no longer exists or the Agency instructs that the Work may resume. In the event the Agency issues such instructions to stop, and in the further event that the Contractor fails and refuses within seven (7) days of receipt of same to provide adequate assurance to the Agency that the cause of such instructions will be eliminated or corrected, then the Agency shall have the right, but not the obligation, to carry out the Work with its own forces or with the forces of another contractor, and the Contractor shall be fully responsible and liable for the costs of performing such Work by the Agency. Without limiting what else might constitute nonconforming Work, the existence of a gross safety violation or other situation or condition that creates, or could imminently create, a threat of serious harm to persons or property, shall constitute nonconforming Work and any order to stop the Work issued for such reason shall not be considered an interference with the Contractor's performance of the Work or its means and methods. The rights set forth herein are in addition to, and without prejudice to, any other rights or remedies the Agency may have against the Contractor.

9.2 Any order to stop the Work issued pursuant to Paragraph 9.1 shall not be used to justify any Claim by the Contractor for additional time or money.

ARTICLE 10
DUTIES, OBLIGATIONS AND RESPONSIBILITIES OF THE CONTRACTOR

In addition to any and all other duties, obligations and responsibilities of the Contractor set forth in this Contract, the Contractor shall have and perform the following duties, obligations and responsibilities to the Agency:

10.1 The Contractor's continuing duties set forth in Paragraph 3.7 are by reference hereby incorporated in this Paragraph 10.1. The Contractor shall not perform Work without adequate plans and specifications or, as appropriate, approved shop drawings or other submittals. If the Contractor performs Work knowing or believing it involves an error, inconsistency or omission in the Contract without first providing written notice to the Design Professional and Agency, the Contractor shall be responsible for such Work and shall pay the cost of correcting same.

10.2 The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing Work. Errors, inconsistencies or omissions discovered shall be reported to the Design Professional, the Agency and the Agency's Field Representative immediately. Such examination, review and comparison shall be a warranty that the Contract Documents are complete and the Project is buildable as described except as reported. Reported errors, inconsistencies or omissions will constitute a request for an interpretation by the Design Professional and may constitute a claim pursuant to Article 13 hereof where appropriate.

10.3 The Contractor shall ensure that all Work shall strictly conform to the requirements of this Contract.

10.4 The Work shall be strictly supervised, the Contractor bearing full responsibility for any and all acts or omissions of those engaged in the Work on behalf of the Contractor.

10.5 All labor furnished on this Project shall be competent to perform the tasks undertaken; materials and equipment furnished under the Contract will be new and of high quality unless otherwise required or permitted by the Contract Documents; the Work will be complete, of high quality and free from defects not inherent in the quality required or permitted; and the Work will strictly conform to the requirements of the Contract Documents. Any Work not strictly conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective.

10.6 Except as provided in Paragraph 8.4, the Contractor shall secure or provide and pay for all licenses, permits, governmental approvals and inspections, connections for outside services for the use of municipal or private property for storage of materials, parking, utility services, temporary obstructions, enclosures or opening and patching of streets, and for all other facilities and services necessary for proper execution and completion of the Project.

10.7 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities bearing on performance of the Work.

10.8 The Contractor shall employ and maintain at the Project site only competent supervisory personnel. Key supervisory personnel assigned by the Contractor to this Project are as listed in Exhibit B.

10.9 The Contractor shall employ a competent superintendent and necessary assistants, as needed, to oversee execution of the Work. The superintendent shall be in attendance at the Project site during the progress of the Work. The superintendent and any project manager, if the Contractor utilizes a project manager, shall be

reviewed and must be approved by the Design Professional and Agency, and neither shall be changed except with the consent of the Design Professional and Agency, unless the superintendent and/or project manager cease to be employed by the Contractor. Under this circumstance, any new superintendent or new project manager must be satisfactory to the Design Professional and Agency. Such approval shall not be unreasonably withheld. The superintendent and any project manager shall represent the Contractor and all communications given to the superintendent or project manager are deemed given to the Contractor.

10.10 So long as the individuals named above remain actively employed or retained by the Contractor, they shall perform the functions indicated next to their names unless the Agency agrees to the contrary in writing. In the event one or more individuals not listed in Paragraph 10.9 subsequently assumes one or more of those functions listed in Paragraph 10.9, the Contractor shall be bound by the provisions of this paragraph as though such individuals had been listed in Paragraph 10.9.

10.11 The Contractor shall provide to the Agency and the Design Professional a milestone schedule for completing the Work within the Contract Time. Such schedule shall be in a form specified in Division 1 of the Specifications and be acceptable to the Agency and to the Design Professional. The schedule must be submitted to and accepted by the Design Professional prior to the first request for payment unless required earlier by Division 1 of the Specifications. The Contractor's milestone schedule must be updated as required by the Design Professional and/or the Agency to reflect conditions encountered and shall apply to the total Project. The Contractor's revisions to the schedule shall not constitute a waiver of the requirement to complete the Project in the time allowed by the Contract, unless additional time for performance has been allowed pursuant to a Change Order. Any changes in milestone begin or end dates must be furnished to the Agency and the Design Professional. Strict compliance with the requirements of this Paragraph shall be a condition precedent to the payment to the Contractor and failure by the Contractor to strictly comply with said requirements shall constitute a material breach of this Contract.

10.12 Unless otherwise provided in the Construction Documents, on all projects where the Fixed Price Contract Amount is over \$1,000,000, the Contractor shall schedule and perform the Work in accordance with a Critical Path Method ("CPM") to indicate the rate of progress and practical order of the Project. The purpose of this scheduling requirement is to assure adequate planning, coordination and execution of the Work. The schedule shall indicate the dates for starting and completing major work activities, project events, major equipment, material and equipment submittals and delivery of major items. Project activities having critical time restraints on action, required by the Agency, shall be shown as scheduled milestones. The Contractor's schedule shall demonstrate the order, interdependence and sequence of activities. Critical paths shall be highlighted or distinguished. The schedule shall include all the dates specified in the Contract for Substantial Completion and final completion of the Work. The time limit set forth in the Contract for Substantial Completion and final completion must govern; the schedule must be adjusted to meet these dates. Schedule float shall belong to the Project. The Contractor shall submit to the Agency and Design Professional a CPM schedule within three (3) weeks after award of the Contract and maintain such schedule on a current basis in accordance with the Contract Documents.

10.13 Once a month, or at intervals as required by the Design Professional, the Contractor shall advise the Agency and the Design Professional of the status of the Work (in duplicate) on the current milestone schedule. If any project milestone dates are not met on schedule, the Contractor shall immediately advise the Agency and Design Professional in writing of the proposed action to bring the Work on schedule. The Contractor shall also submit a detailed short term schedule, as required by Division 1 of the Specifications, each month. This short term schedule shall include a description of current and anticipated problem areas, delaying factors and their impact, and explanation of corrective action taken or proposed. If the Work is behind schedule, the Contractor shall indicate what measures it will take to put the Work back on schedule.

10.14 If the Work is not progressing through no fault of the Agency or the Design Professional, as shown on the milestone schedule, as determined by the Design Professional, and the Agency and the Design Professional do not believe the Contractor's proposed action to bring the Work on schedule is adequate, then the Contractor shall be deemed in default under this Contract and the progress of the Work shall be deemed unsatisfactory. In such event, the Agency, at its discretion, may require the Contractor to work such additional time over regular hours, including Saturdays, Sundays and holidays, without additional cost to the Agency to bring the Work on schedule.

10.15 The Contractor shall keep an updated copy of the Drawings and Project Manual (including Specifications) and Addenda at the site. Additionally, the Contractor shall keep a current submittal schedule and a copy of approved shop drawings and other submittals. All of these items shall be available to the Agency and the Design Professional at all regular business hours. Upon final completion of the Work, all of these items must be updated by the Contractor and provided to the Design Professional and shall become the property of the Agency.

10.16 The Contractor shall carefully review and inspect for compliance with the Contract Documents, the shop drawings and other submittals (including product data and samples) required by the Contract Documents and shall submit to the Design Professional only submittals approved in accordance with this section. Such review and submittal shall be done promptly and in a sequence that will not delay its Work under this Contract or the activities of the Agency or of separate contractors. Shop drawings and other submittals from the Contractor do not constitute a part of the Contract. The Contractor shall not do any work requiring shop drawings or other submittals unless the Design Professional has verified compliance in writing. All Work requiring verified shop drawings or other submittals shall be done in strict compliance with such approved documents. However, verification of compliance by the Design Professional shall not be evidence that Work installed pursuant thereto conforms with the requirements of this Contract. The Design Professional shall have no duty to review submittals that are not Contractor approved, partial submittals or incomplete submittals. The Contractor shall maintain a submittal log which shall include, at a minimum, the date of each submittal, the date of any re-submittal, the date of any approval or rejection and the reason for any rejection.

10.17 The Contractor shall maintain the Project site in a reasonably clean condition during performance of the Work. Upon final completion, the Contractor shall thoroughly clean the Project site of all debris, trash and excess materials or equipment.

10.18 At all times relevant to this Contract, the Agency and the Design Professional shall have a right to enter the Project site and the Contractor shall allow the Agency and/or the Design Professional to review or inspect the work without formality or other procedure.

10.19 The presence or duties of the Design Professional's or the Agency's personnel or representatives at the construction site, does not make any of them responsible for those duties that belong to the Contractor or other entities and does not relieve the Contractor or any other entities of their obligations, duties and responsibilities, including any obligation or requirement to have or to implement any health or safety plans or precautions. Except as provided in Paragraph 10.9, Design Professional's and Agency's personnel have no authority to exercise any control over any Contractor or other entities or their employees in connection with their work or any health or safety precautions and have no duty for inspecting, noting, observing, correcting or reporting on health or safety deficiencies of the Contractor or other entities or any other persons at the site except their own personnel. The presence of Design Professional's or Agency's personnel at a construction site is for the purpose of providing to Agency a greater degree of confidence that the completed Work will conform to the Contract Documents and that the integrity of the design concept as reflected in the Contract Documents has been implemented and preserved by the Contractor. For this Contract only, construction sites include places of manufacture for materials incorporated into the construction Work and Contractor includes manufacturers of materials incorporated into the construction Work.

ARTICLE 11

INDEMNITY

11.1 The Contractor shall defend, indemnify and hold harmless the Agency, Design Professional, and their employees, officers and agents harmless from any and all claims, liabilities, damages, losses, costs and expenses of every type whatsoever, including attorney fees and expenses, arising out of or resulting from the Contractor's work, acts or omissions under or related to the Contract Documents, to the extent caused by the Contractor, or anyone for whose acts the Contractor may be liable, regardless of whether such liability, claim, damage, loss, cost or expense is caused in part by the Agency.

11.2 The limits of any insurance of the Contractor shall not be, and shall not be deemed to be, a limitation of the Contractor's defense and indemnity obligations contained in this Article.

11.3 In claims against any person or entity indemnified under this Article by an employee of the Contractor, a subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under this Article shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 12

THE DESIGN PROFESSIONAL

The Design Professional for this Project is identified in Exhibit B, incorporated herein by reference, along with any authorized representatives and any limitations of responsibility. For the purpose of this Contract, the "Design Professional" means the properly licensed architect, properly registered professional engineer or other professional licensed in the State of Idaho who prepared the Drawings and Specifications for this Project. If the employment of the Design Professional is terminated, the Agency may retain a replacement professional and the role of the replacement professional shall be the same as the role of the Design Professional. Unless otherwise directed by the Agency in writing, the Design Professional will perform those duties and discharge those responsibilities allocated to the Design Professional in this Contract. The duties, obligations and responsibilities of the Design Professional shall for contract administration and include the following:

12.1 Unless otherwise directed by the Agency in writing, the Design Professional shall not act as the Agency's agent.

12.2 Unless otherwise directed by the Agency in writing, the Agency and the Contractor shall communicate with each other through the Design Professional.

12.3 When requested by the Agency or Contractor in writing, the Design Professional shall within seven (7) days render written interpretations necessary for the proper execution or progress of the Work or shall provide a written explanation as to why more time is needed and provide a date by which it will be provided.

12.4 The Design Professional shall draft proposed change authorization(s).

12.5 The Design Professional shall review and verify compliance or respond otherwise as necessary concerning shop drawings or other submittals received from the Contractor.

12.6 The Design Professional shall be authorized to refuse to accept Work that is defective or otherwise fails to comply with the requirements of this Contract. If the Design Professional deems it appropriate, the Design

Professional may, with the Agency's consent, require extra inspections or testing of the Work for compliance with the requirements of this Contract.

12.7 The Design Professional shall review the Contractor's Request for Payment and shall verify in writing those amounts which, in the opinion of the Design Professional, are properly owing to the Contractor as provided in this Contract.

12.8 The Design Professional shall, upon written request from the Contractor, perform Substantial Completion and final completion inspections contemplated by Article 6.

12.9 The Design Professional may require the Contractor to make changes which do not involve a change in the Fixed Price Contract Amount or in the Contract Time consistent with the intent of this Contract. Such changes shall be given to the Contractor in writing under signature of the Design Professional, with a copy to the Agency, and may be in the form of a supplemental instruction.

12.10 The Design Professional shall review and evaluate Claims and take other actions related to Claims in accordance with Articles 13 and 14.

12.11 The duties, obligations and responsibilities of the Contractor under this Contract shall in no manner whatsoever be changed, altered, discharged, released or satisfied by any duty, obligation or responsibility of the Design Professional. The Contractor is not a third-party beneficiary of any Contract by and between the Agency and the Design Professional. It is expressly acknowledged and agreed that the duties of the Contractor to the Agency are independent of, and are not diminished by, any duties of the Design Professional to the Agency.

ARTICLE 13

CLAIMS

13.1 For purposes of this Contract, a "Claim" means a demand by the Contractor to the Agency, or by the Agency to the Contractor, for a change in the Fixed Price Contract Amount, an extension of the Contract Time, an adjustment to or interpretation of the Contract terms, or other relief with respect to the terms of the Contract, which demand the Contractor or Agency asserts is required or allowed under the Contract Documents and which the Contractor and the Agency have previously discussed and failed to agree upon.

13.2 For the Claim to be considered, it must meet the following requirements:

- .1** The Claim must be in writing;
- .2** The Claim by the Contractor must be signed by an authorized representative of the Contractor, and the Claim by the Agency must be signed by an authorized representative of the Agency;
- .3** The Claim by the Contractor must be provided to the Agency and to the Design Professional and the Claim by the Agency must be provided to the Contractor and to the Design Professional;
- .4** The Claim must be made no later than ten (10) days after the event or first appearance of the circumstance giving rise to the Claim;
- .5** The Claim must describe in detail all known facts and circumstances that the Contractor or Agency asserts support the Claim;
- .6** The Claim must refer to the provision(s) of the Contract Documents that the Contractor or Agency asserts support the Claim;

.7 The Contractor or Agency must provide all documentation or other information to substantiate the Claim; and

.8 The Contractor or Agency must continue its performance under this Contract pending the resolution of any Claim; provided, however, that the Contractor shall not perform any additional or changed work not otherwise authorized in accordance with the Contract Documents.

13.3 The failure by the Contractor to meet any of the requirements of Paragraph 13.2 shall constitute a complete waiver by the Contractor of any rights arising from or related to the Claim. Similarly, the failure by the Agency to meet any of the requirements of Paragraph 13.2 shall constitute a complete waiver by the Agency of any rights arising from or related to the Claim.

13.4 If the Claim is made based on concealed or unknown site conditions, the following shall apply in addition to all other provisions applicable to the Claim:

.1 The condition must have been previously concealed and unknown or of a type not ordinarily encountered in the general geographic location of the Project and must not have been reasonably susceptible to discovery; and

.2 The Contractor shall notify the Design Professional and the Agency of the condition and shall not disturb the condition until the Design Professional and Agency have observed it or have waived in writing the right to observe it.

13.5 If the Claim by the Contractor is for an increase in the Fixed Price Contract Amount, the following shall apply in addition to all other provisions applicable to the Claim:

.1 Any increase in the Fixed Price Contract Amount shall be strictly limited to the direct costs incurred by the Contractor and shall not include any other costs, indirect or other, including any costs for or related to lost productivity, profit, home office overhead and any other overhead, legal fees, claim preparation, any matter previously resolved by a change order, equipment costs, costs related to the services of a project manager unless the project manager was required full time by the Agency or the Contract Documents, any costs associated with the failure to complete the Work early or in advance of the date required by the Contract Documents, it being specifically agreed to by the parties that there is no intention to have the Eichleay or other similar formula applicable to this Contract nor shall this Contract be deemed to be subject to any such formula; and

.2 The Agency shall have no liability for, and the Fixed Price Contract Amount shall not be increased related to, any claims of third parties, including subcontractors, unless and until the liability of the Contractor for such has been established in a court of competent jurisdiction and any such liability of the Agency shall be limited in the same manner as described in subparagraph 13.5.1.

13.6 If the Claim by the Agency is for a change in the Fixed Price Contract Amount, all other applicable provisions to the Claim apply.

13.7 If the Claim by the Contractor is for an extension of the Contract Time, the following shall apply in addition to all other provisions applicable to the Claim:

.1 The Contractor has been delayed in its performance by an act or omission of the Agency and through no fault of the Contractor;

.2 The Contractor has been delayed in its performance by unusually severe weather that could not reasonably have been anticipated or by another event not within its reasonable control;

.3 At the time it occurs or during its occurrence, the delay will preclude completion of the Project in the time required by the Contract Documents; and

.4 Any extension of the Contract Time shall be the Contractor's sole and exclusive remedy for any delay except a delay caused by the active interference of the Agency with the Contractor's performance which active interference continues after written notice to the Agency. The Agency's exercise of any of its rights or remedies under this Contract, including ordering changes in the Work, directing suspension, rescheduling or correction of the Work, do not constitute active interference.

13.8 If a Claim is made based on an error, inconsistency or omission in the Contract that was reasonably susceptible to discovery by the Contractor and was not reported in accordance with Paragraph 2.3, that Claim shall be denied.

ARTICLE 14 RESOLUTION OF CLAIMS

14.1 All Claims made in accordance with Article 13 shall be reviewed and evaluated by the Design Professional. If the Claim is not made in strict accordance with Article 13, it shall be rejected as waived. Any failure by the Design Professional to reject the Claim for failure to meet the requirements of Article 13 is not binding on the Agency and the Agency may reject the Claim for such failure.

14.2 No later than seven (7) days from receipt of the Claim by the Design Professional, it shall:

.1 Make a written request to the Contractor or Agency for more data to support the Claim;

.2 Attempt to facilitate resolution of the Claim through informal negotiations; or

.3 If the Claim is by the Contractor, make a written recommendation to the Agency, with a copy to the Contractor, that the Agency reject or approve all or part of the Claim and state the reasons for the Design Professional's recommendation. If the Claim is by the Agency, make a written recommendation to the Contractor, with a copy to the Agency, that the Contractor reject or approve all or part of the Claim and state the reasons for the Design Professional's recommendation.

14.3 If the Design Professional requests more data from the Contractor or the Agency under subparagraph 14.2.1, the Contractor or Agency shall respond no later than seven (7) days from receipt of such request, and provide additional data, provide a date certain by which additional data will be provided, or state that it will not provide additional data. Upon receipt of data, if any, in accordance with this section, the Design Professional will complete the evaluation of the Claim. Failure to respond at all or failure to provide data by the date specified in the response to the request shall result in the Claim being evaluated based on the information in the Design Professional's possession.

14.4 In evaluating the Claim, the Design Professional may consult with the Contractor, the Agency or other persons with knowledge or expertise that may assist the Design Professional in its evaluation.

14.5 No later than fourteen (14) days after receipt by the Agency of the Design Professional's recommendation regarding the Contractor's Claim, the Agency shall, in writing, notify the Contractor and the Design Professional of its decision regarding the Claim. No later than fourteen (14) days after receipt by the Contractor of the Design Professional's recommendation regarding the Agency's Claim, the Contractor shall, in writing, notify the Agency and the Design Professional of its decision regarding the Claim.

14.6 The Agency's decision regarding the Contractor's Claim is binding on the Agency and the Contractor but is subject to mediation in accordance with this Contract, and the Contractor's decision regarding the Agency's Claim is binding on the Agency and the Contractor but is subject to mediation in accordance with this Contract.

ARTICLE 15 SUBCONTRACTORS

15.1 A document in the form of Exhibit E shall be completed and submitted upon execution of this Contract and those subcontractors named therein shall match those subcontractors named in the Contractor's bid unless otherwise agreed to in writing by the Agency. Also upon execution of this Contract by the Contractor, the Contractor shall identify to the Agency and the Design Professional, in writing, those parties intended as subcontractors on the Project not otherwise named in Exhibit E. The Agency shall, in writing, state any objections the Agency may have to one or more of such subcontractors. The Contractor shall not enter into a subcontract with an intended subcontractor with reference to whom the Agency objects. All subcontracts shall afford the Contractor rights against the subcontractor which correspond to those rights afforded to the Agency against the Contractor herein, including those rights of Contract Termination as set forth in this Contract. All subcontractors shall, throughout the duration of this Contract, be properly licensed as Idaho Public Works Contractors.

15.2 The Contractor conditionally assigns each of its subcontracts related to the Project to the Agency. All subcontracts between the Contractor and the subcontractors shall obligate the subcontractor to such conditional assignment. Upon a Termination by the Agency for cause under Paragraph 20.1, the Agency may accept such conditional assignment by written notification to the applicable subcontractor and to the Contractor. Such acceptance is subject to the rights of the Surety, if any, relating to the Contract.

ARTICLE 16 CHANGES IN THE WORK

16.1 General

.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article and elsewhere in the Contract Documents; and

.2 Changes in the Work shall be performed under applicable provisions of the Contract Documents and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

16.2 Change Orders

.1 A "Change Order" is a written instrument prepared by the Design Professional and signed by the Agency, Contractor and Design Professional, stating their agreement upon: a change in the work, any adjustment in the Fixed Price Contract Amount and any adjustment in the Contract Time;

.2 Methods used in determining adjustments to the Fixed Price Contract Amount may include those listed in subparagraph 16.3.4;

.3 The amount allowed for overhead and profit on any Change Order is limited to the amounts indicated in subparagraph 16.3.11;

.4 Any Change Order prepared, including those arising by reason of the parties' mutual agreement or by mediation, shall constitute a final and full settlement of all matters relating to or affected by the change in the Work, including all direct, indirect and consequential costs associated with such change and any and all adjustments to the Fixed Price Contract Amount and Contract Time. In the event a Change Order increases the Fixed Price Contract Amount, the Contractor shall include the Work covered by such Change Order in the Contractor's Request for Payment as if such Work were originally part of the Project and Contract Documents; and

.5 By the execution of a Change Order, the Contractor agrees and acknowledges that it has had sufficient time and opportunity to examine the change in Work which is the subject of the Change Order and that it has undertaken all reasonable efforts to discover and disclose any concealed or unknown conditions which may to any extent affect the Contractor's ability to perform in accordance with the Change Order. Aside from those matters specifically set forth in the Change Order, the Agency shall not be obligated to make any adjustments to either the Fixed Price Contract Amount or Contract Time by reason of any conditions affecting the change in Work addressed by the Change Order, which could have reasonably been discovered or disclosed by the Contractor's examination.

16.3 Construction Change Directive (CCD)

.1 A "Construction Change Directive" is a written order prepared by the Design Professional and signed by the Agency and Design Professional directing a change in the Work prior to agreement on adjustment, if any, in the Fixed Price Contract Amount or Contract Time or both. The Agency may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract, consisting of additions, deletions or other revisions, the Fixed Price Contract Amount and Contract Time being adjusted accordingly;

.2 A Construction Change Directive, within limitations, may also be used to incorporate minor changes in the Work agreed to by the Design Professional's representative, the Agency's Field Representative and the Contractor's superintendent or project manager. The limits of these representatives' authority with regard to Construction Change Directives shall be documented in writing by the Design Professional, Agency and Contractor;

.3 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order;

.4 If the Construction Change Directive provides for an adjustment to the Fixed Price Contract Amount, the adjustment shall be based on one (1) of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

.2 Unit prices stated in the Contract Documents or subsequently agreed upon;

.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in subparagraph 16.3.7;

.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Design Professional in writing within forty-eight (48) hours of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Fixed Price Contract Amount or Contract Time;

.6 A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Fixed Price Contract Amount and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be incorporated into a future Change Order;

.7 If the Contractor does not respond promptly or disagrees with the method for adjustments in the Fixed Price Contract Amount or Contract Time, the method and the adjustment shall be determined by the Design Professional on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Fixed Price Contract Amount, an allowance for overhead and profit in accordance with subparagraph 16.3.11. In such case of an increase in Fixed Price Contract Amount, and also under subparagraph 16.3.4, the Contractor shall keep and present, in such form as the Design Professional may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this subsection shall be limited to the following:

.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom and workers' compensation insurance;

.2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of permit fees and sales, use or similar taxes related to the Work; and

.5 Additional costs of supervision and field office personnel directly attributable to the change;

.8 The amount of credit to be allowed by the Contractor to the Agency for a deletion or change which results in a net decrease in the Fixed Price Contract Amount shall be for the actual net cost of the decrease, confirmed by the Design Professional. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change;

.9 Pending final determination of the total cost of a Construction Change Directive to the Agency, amounts not in dispute for such changes in the Work shall be included in the Contractor's Request for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs;

.10 When the Agency and Contractor agree with the determination by the Design Professional concerning the adjustments in the Fixed Price Contract Amount and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order; and

.11 For purposes of subparagraphs 16.2.3 and 16.3.7, the allowance for combined overhead, profit, bonds and insurance shall be limited as follows, unless otherwise provided in the Contract Documents:

.1 For total changes of \$10,000 or less in direct cost, the amount of overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier combined shall not exceed twenty percent (20%) of direct costs;

.2 For total changes exceeding \$10,000 in direct cost, the amount allowed for overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier combined shall not exceed fifteen percent (15%) of direct costs.

16.4 The Design Professional will have authority to order minor changes in the Work not involving adjustment in the Fixed Price Contract Amount or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Agency and Contractor. The Contractor shall carry out such written orders promptly.

ARTICLE 17

DISCOVERING AND CORRECTING DEFECTIVE OR INCOMPLETE WORK

17.1 If the Contractor covers, conceals or obscures its Work in violation of this Contract or in violation of a directive or request from the Agency or the Design Professional, such Work shall be uncovered and displayed for the Agency's or Design Professional's inspection upon request and shall be reworked at no cost in time or money to the Agency.

17.2 If any of the Work is covered, concealed or obscured in a manner not addressed by Paragraph 17.1, it shall, if directed by the Agency or the Design Professional, be uncovered and displayed for the Agency's or Design Professional's inspection. If the uncovered Work conforms strictly with this Contract, the costs incurred by the Contractor to uncover and subsequently replace such Work shall be borne by the Agency. Otherwise, such costs shall be borne by the Contractor.

17.3 The Contractor shall, at no cost in time or money to the Agency, promptly correct Work (fabricated, installed or completed) rejected by the Agency or by the Design Professional as defective or that fails to conform to this Contract whether discovered before or after Substantial Completion. Additionally, the Contractor shall reimburse the Agency for all testing, inspections and other expenses incurred as a result thereof.

17.4 In addition to any other warranty obligations in this Contract, the Contractor shall be specifically obligated to correct, upon written direction from the Agency, any and all defective or nonconforming Work for a period of two (2) years following Substantial Completion.

17.5 The Agency may, but shall in no event be required to, choose to accept defective or nonconforming Work. In such event, the Fixed Price Contract Amount shall be reduced by the lesser of: (i) the reasonable costs of removing and correcting the defective or nonconforming Work; or (ii) the difference between the fair market value of the Project as constructed and the fair market value of the Project had it not been constructed in such a manner as to include defective or nonconforming Work. If the remaining portion of the unpaid Fixed Price Contract Amount, if any, is insufficient to compensate the Agency for the acceptance of defective or nonconforming Work, the Contractor shall, upon written demand from the Agency, pay the Agency such remaining compensation for accepting defective or nonconforming work.

ARTICLE 18

TERMINATION BY THE CONTRACTOR

18.1 The Contractor may terminate the Contract if the Work is stopped for a period of ninety (90) consecutive days through no act or fault of the Contractor or a subcontractor, sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1** Issuance of an order by a court or by another public authority having jurisdiction and authority which requires all Work to be stopped; or

.2 An act of government, such as a declaration of national emergency, which requires all Work to be stopped.

18.2 In such event, the Contractor shall be entitled to recover from the Agency as though the Agency had terminated the Contractor's performance under this Contract pursuant to Paragraph 20.3.

ARTICLE 19

AGENCY'S RIGHT TO SUSPEND CONTRACTOR'S PERFORMANCE

19.1 The Agency may, at any time and without cause, order the Contractor, in writing, to suspend, delay or interrupt the Work in whole or in part for such period of time as the Agency may determine. If the Agency directs any such suspension, the Contractor must immediately comply with same.

19.2 In the event the Agency directs a suspension of performance under this Article, and such suspension is through no fault of the Contractor, the Fixed Price Contract Amount and Contract Time shall be adjusted for increases in the cost and time caused by such suspension, delay or interruption to cover the Contractor's reasonable costs, actually incurred and paid, of:

- .1 Demobilization and remobilization, including such costs paid to subcontractors;
- .2 Preserving and protecting Work in place;
- .3 Storage of materials or equipment purchased for the Project, including insurance thereon; and
- .4 Performing in a later, or during a longer, time frame than that provided by this Contract.

19.3 The adjustment of the Fixed Price Contract Amount shall include an amount for a reasonable profit. The adjustment of the Fixed Price Contract Amount shall not include any amount not otherwise allowed under this Contract, including any limitations applicable to Claims. The Contractor shall provide supporting documentation related to any increase upon request of the Agency. No adjustment shall be made to the extent:

- .1 That performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 That an equitable adjustment is made or denied under another provision of the Contract.

ARTICLE 20

TERMINATION BY THE AGENCY

The Agency may terminate this Contract in accordance with the following terms and conditions:

20.1 If the Contractor does not perform the Work, or any part thereof, in accordance with the Contract Documents, or in a timely manner; does not supply adequate labor, supervisory personnel, or proper equipment or materials; fails to pay subcontractors; fails to timely discharge its obligations for labor, equipment, and materials; proceeds to disobey applicable law; or otherwise breaches this Contract, then the Agency, in addition to any other rights it may have against the Contractor, may terminate the Contract and assume control of the Project site and of all materials and equipment at the site and may complete the Work. In such case, the Contractor shall not be paid further until the Work is complete. Upon such Termination, the Agency may, subject to any superior rights of the Surety, take possession of the site and of all materials, equipment, tools and construction equipment and machinery thereon owned by the Contractor; accept assignment of those

subcontracts conditionally assigned under Paragraph 15.2; and finish the Work by whatever reasonable method the Agency may deem expedient.

20.2 When the Agency terminates the Contract for cause as provided in Paragraph 20.1, the Contractor shall not be entitled to receive further payment until the Work is finished and shall only be entitled to payment for Work satisfactorily performed by the Contractor in accordance with the Contract Documents. If the costs of finishing the Work, including compensation for the Design Professional's services and expenses made necessary thereby, exceed the unpaid balance, the Contractor shall pay the difference to the Agency. This obligation for payment shall survive termination of the Contract. The Contractor shall also terminate outstanding orders and subcontracts. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders. In the event the employment of the Contractor is terminated by the Agency for cause pursuant to Paragraph 20.1 and it is subsequently determined by a court of competent jurisdiction that such termination was without cause, such termination shall thereupon be deemed a Termination under Paragraph 20.3 and the provisions of Paragraph 20.3 shall apply.

20.3 The Agency may, at any time and for any reason, terminate this Contract. The Agency shall give no less than seven (7) days' written notice of such Termination to the Contractor specifying when termination becomes effective. The Contractor shall incur no further obligations in connection with the Work and the Contractor shall stop Work when such Termination becomes effective. The Contractor shall also terminate outstanding orders and subcontracts. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders. The Agency may direct the Contractor to assign the Contractor's right, title and interest under termination orders or subcontracts to the Agency or its designee. The Contractor shall transfer title and deliver to the Agency such completed or partially completed Work and materials, equipment, parts, fixtures, information and Contract rights as the Contractor has. When terminated pursuant to this section, the following shall apply:

.1 The Contractor shall submit a Termination Claim to the Agency and the Design Professional specifying the amounts claimed due because of the Termination, together with costs, pricing or other supporting data required by the Agency or the Design Professional. Failure by the Contractor to file a Termination Claim within ninety (90) days from the effective date of termination shall be deemed a complete waiver by the Contractor of any right to any payment;

.2 Before or after receipt of the Termination Claim, the Agency and the Contractor may agree to the compensation, if any, due to the Contractor hereunder; and

.3 If the Contractor has filed the Termination Claim but the Contractor and the Agency do not agree on an amount due to the Contractor, the Agency shall pay the Contractor the following amounts:

.1 Unpaid Contract prices for labor, materials, equipment and other services provided or perfected prior to termination and acceptable to or accepted by the Agency;

.2 Reasonable costs incurred in preparing to perform the terminated portion of the Work, and in terminating the Contractor's performance, plus a fair and reasonable allowance for direct job-site overhead and profit related to such preparation (such profit shall not include anticipated profit or consequential damages); provided, however, that if it appears that the Contractor would have not profited or would have sustained a loss if the entire Contract would have been completed, no profit shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated loss, if any; and

.3 Reasonable costs of settling and paying claims arising out of the Termination of subcontracts or orders pursuant to this Paragraph 20.3.

20.4 Costs described in subparagraphs 20.3.3.2 or 20.3.3.3 above shall not include amounts paid in accordance with other provisions hereof. In no event shall the total sum to be paid the Contractor under subparagraph 20.3.3 exceed the total Fixed Price Contract Amount, as properly adjusted, reduced by the amount of payments previously or otherwise made and by any other deductions permitted under this Contract and shall in no event include duplication of payment.

ARTICLE 21

CONTRACTOR'S LIABILITY INSURANCE

21.1 The Contractor, subcontractor and sub-subcontractor shall purchase and maintain in full force and effect from a company or companies lawfully authorized to do business in the State of Idaho such insurance as will protect the Contractor, subcontractor and sub-subcontractor from claims set forth below which may arise out of or result from the Contractor's or subcontractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable:

- .1** Claims under workers' or workmen's compensation, disability benefits and other similar employee benefit acts which are applicable to the work to be performed;
- .2** Claims for damages because of bodily injury, occupational sickness or disease or death of the Contractor's employees;
- .3** Claims for damages because of bodily injury, sickness or disease or death of any person other than the Contractor's employees;
- .4** Claims for damages insured by usual personal injury liability coverage which are sustained: (i) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor; or (ii) by another person;
- .5** Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting there from;
- .6** Claims for damages because of bodily injury, death of a person or property damage arising out of Agency ship, maintenance or use of a motor vehicle;
- .7** Claims for bodily injury or property damage arising out of completed operations; and
- .8** Claims involving contractual liability insurance applicable to the Contractor's obligations under Article 11.

21.2 The insurance required by Paragraph 21.1 above shall be written for not less than limits of liability specified in this Contract or as required by law, whichever is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment. In addition, for any insurance required that is obtained on a claims-made basis, "tail coverage" is required at the completion of the Work for twenty-four (24) months. Continuous claims-made coverage will be acceptable in lieu of "tail coverage" provided the retroactive date is on or before the effective date of this Contract or twenty-four (24) months "prior acts" coverage is provided.

- .1** The insurance required by Paragraph 21.1 above shall be written for not less than the following limits:

.1 Workers' Compensation and Employer's Liability

- (a) State Workers Compensation: Statutory
- (b) Employer's Liability: \$100,000 per Accident
\$500,000 Disease, Policy Limit
\$100,000 Disease, Each Employee

.2 Comprehensive Commercial General Liability and Umbrella Liability Insurance. Contractor shall maintain Commercial General Liability ("CGL") and, if necessary, commercial umbrella insurance with a limit of not less than \$1,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it shall apply separately to this project location;

CGL insurance shall be written on Insurance Services Office ("ISO") occurrence form CG 00 01 12 04 (or a substitute form providing equivalent coverage) and shall cover liability arising from premises, operation, independent contractors, products-completed operations, personal (including employee acts) and advertising injury and liability assumed under an insured contract (including the tort liability of another assumed in a business contract). As applicable, coverage must also include a broad form CGL endorsement if the substitute insurance is a 1973 edition CGL or its equivalent;

Agency shall be included as an additional insured under the CGL, using ISO additional insured endorsement CG 20 10 and CG 20 37 or their equivalent, which endorsement shall include coverage for the Agency with respect to liability arising out of the Work, including completed operations of Contractor, and which coverage shall be maintained in effect for the benefit of Agency for a period of two (2) years following the completion of the work specified in this Contract. Additional insured coverage as required in this subparagraph shall apply as primary insurance with respect to any other insurance or self-insurance programs afforded to the Agency;

- (a) For the hazards of explosion, collapse, and damage to underground property, commonly referred to as XCU, coverage shall be required if the exposures exist; and

This coverage may be provided by the subcontractor if the Agency and prime Contractor are named as additional insureds;

.3 Business Auto and Umbrella Liability Insurance: Contractor shall maintain business, auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than \$1,000,000 each accident;

Such insurance shall cover liability arising out of any auto (including owned, hired, and non-owned autos);

Business auto coverage shall be written on ISO form CA 00 01, CA 00 05, CA 00 12, CA 00 20 or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to that provided in the 1990 and later editions of CA 00 01;

If hazardous waste will be hauled, Contractor shall obtain pollution liability coverage equivalent to that provided under the ISO pollution liability-broadened coverage for covered autos endorsement (CA 99 48) and the Motor Carrier Act endorsement (MCS 90) shall be attached;

- .4** If the General Liability coverages are provided by Commercial Liability policies the:
- .1** General Aggregate shall be not less than \$2,000,000; and
 - .2** Fire legal liability shall be provided in an amount not less than \$100,000 per occurrence; and
 - .5** Umbrella Excess Liability. An umbrella policy may be used in combination with other policies to provide the required coverage.

21.3 The Agency shall be named as additional insured or loss payee, as applicable, on the insurance required in subparagraphs 21.2.1.2, 21.2.1.3 and 21.2.1.5 above, and the insurance shall contain the severability of interest clause as follows:

"The insurance afforded herein applies separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the company's 'liability.' "

21.4 The Contractor may include all subcontractors as insureds under the Contractor's policies in lieu of separate policies by each subcontractor. The Contractor must furnish the State of Idaho, Division of Public Works, with the required endorsements or certificates of insurance from each subcontractor which names the subcontractor, its officials, employees and volunteers as insureds.

21.5 Certificates of Insurance for Workers' Compensation shall be on the standard form. Certificates of Insurance for Commercial or Comprehensive General Liability shall be the most current ACORD Form 25 or 28, must be acceptable to the Agency and shall be filed with the Agency prior to commencement of the Work. The Agency may require proof of coverage by an endorsement. The certificates, or endorsements if required, and the insurance policies required by this Article shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least thirty (30) days' prior written notice has been given to the Agency. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final Contractor's Request for Payment as required by Article 7. Information concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

ARTICLE 22

AGENCY'S LIABILITY INSURANCE

The Agency, at its option, may purchase or maintain insurance for protection against claims which may arise from operations under the Contract.

ARTICLE 23

PROPERTY INSURANCE

23.1 Unless otherwise provided, the Agency shall purchase or maintain, from a company or companies lawfully authorized to do business in the State of Idaho, property insurance written on a builders risk "all-risk" or equivalent policy form in an amount not less than the initial Fixed Price Contract Amount. Such property insurance shall be maintained until final payment to the Contractor has been made. This insurance shall include interests of the Agency, the Contractor, subcontractors and sub-subcontractors.

23.2 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, but not necessarily be limited to insurance against the perils of fire (with extended coverage) and mischief, collapse, earthquake, flood, windstorm, temporary buildings and debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and shall cover necessary and reasonable expenses for the Design Professional's expenses required as a result of such insured loss.

23.3 If the property insurance requires deductibles, the Agency shall pay costs of such deductibles.

23.4 Boiler and Machinery Insurance. The Agency will purchase and maintain boiler and machinery insurance, which shall specifically cover such insured objects during installation and testing.

23.5 Loss of Use Insurance. The Agency, at the Agency's option, may purchase and maintain such insurance as will insure the Agency against loss of the Agency's property due to fire or other hazards, however caused.

23.6 Waivers of Subrogation. The Agency and Contractor waive all rights against: (i) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other; and (ii) the Design Professional, Design Professional's consultants, separate contractors, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages to the Work caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Article or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Agency. The Agency or Contractor, as appropriate, shall require of the Design Professional, Design Professional's consultants, separate contractors, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, 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. 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. The Agency does not waive its subrogation rights to the extent of its property insurance on structures or portions of structures that do not comprise the Work.

23.7 The Contractor authorizes the Agency to negotiate and agree on the value and extent of, and to collect the proceeds payable with respect to, any loss under a policy of insurance carried by the Agency pursuant to any of the provisions of this Article. The Agency shall have full right and authority to compromise any claim, or to enforce any claim by legal action or otherwise, or to release and discharge any insurer, by and on behalf of the Agency and Contractor. The Agency shall provide written notice to Contractor of: (i) its having reached any such settlement or adjustment with an insurer; and (ii) the receipt of any funds pursuant to this Article. Any objection by the Contractor to a settlement or adjustment made under this Article must be made in writing to the Agency within five (5) business days of the notice from the Agency. The Agency and the Contractor agree to attempt to resolve the dispute by mutual agreement.

23.8 A loss under the Agency's property insurance shall be adjusted by the Agency and made payable to the Agency for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause.

23.9 The Agency shall deposit proceeds so received, in a manner in which such proceeds can be separately accounted for, which proceeds the Agency shall distribute in accordance with such agreement as the parties in interest may reach. If after such loss no other special agreement is made and unless the Agency terminates the Contract pursuant to Article 20, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 16.

23.10 The Contractor shall pay subcontractors their shares of the insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require subcontractors to acknowledge the Agency's authority under this Article 23 and make payments to their sub-subcontractors in similar manner.

23.11 Nothing contained in this Article 23 shall preclude the Contractor from obtaining, solely at its own expense, additional insurance not otherwise required.

ARTICLE 24

PERFORMANCE AND PAYMENT BONDS

24.1 The Contractor shall furnish separate performance and payment bonds to the Agency. Each bond shall set forth a penal sum in an amount not less than the Fixed Price Contract Amount and shall include a power of attorney attached to each bond. The signature of both the Contractor (principal) and the Surety are required. If the Surety is incorporated, both bonds must have the corporate seal. Each bond furnished by the Contractor shall incorporate by reference the terms of this Contract as fully as though they were set forth verbatim in such bonds. In the event the Fixed Price Contract Amount is adjusted by Change Order executed by the Contractor, the penal sum of both the performance bond and the payment bond shall be deemed increased by like amount. The performance and payment bonds furnished by the Contractor shall be AIA Document A312, or a standard surety form certified approved to be the same as the AIA Document A312, and shall be executed by a Surety, or Sureties, reasonably acceptable to the Agency and authorized to do business in the State of Idaho.

24.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

24.3 It is the Contractor's obligation to notify the Surety in the event of changes in the Contract Documents, which in the absence of notification might serve to discharge the Surety's obligations, duties or liability under bonds or the Contract.

ARTICLE 25

PROJECT RECORDS

25.1 All documents relating in any manner whatsoever to the Project, or any designated portion thereof, which are in the possession of the Contractor or any subcontractor of the Contractor, shall be made available to the Agency or the Design Professional for inspection and copying upon written request. Furthermore, said documents shall be made available, upon request by the Agency, to any state, federal or other regulatory authority and any such authority may review, inspect and copy such records. Said records include all drawings, plans, specifications, submittals, correspondence, minutes, memoranda, tape recordings, videos or other writings or things which document the Project, its design and its construction. Said records expressly include those documents reflecting the cost of construction to the Contractor. The Contractor shall maintain and protect these documents for no less than four (4) years after final completion or termination of the Contract or for any longer period of time as may be required by law or good construction practice.

ARTICLE 26
MISCELLANEOUS PROVISIONS

26.1 The law is hereby agreed to be the law of the State of Idaho. The parties further agree that venue for any proceeding related to this Contract shall be in Boise, Ada County, Idaho, unless otherwise mutually agreed by the parties.

26.2 Pursuant to Idaho Code § 54-1904A, within thirty (30) days after award of this Contract, the Contractor shall file with the Idaho State Tax Commission, with a copy to the Agency, a signed statement showing the date of Contract award, the names and addresses of the home offices of contracting parties, including all subcontractors, the state of incorporation, the Project Number and a general description of the type and location of the Work, the amount of the prime contracts and all subcontracts and all other relevant information which may be required on forms which may be prescribed by the Idaho State Tax Commission.

26.3 The Contractor, in consideration of securing the business of erecting or constructing public works in the State of Idaho, recognizing that the business in which it is engaged is of a transitory character, and that in the pursuit thereof, its property used therein may be without the state when taxes, excises or license fees to which it is liable become payable, agrees:

.1 To pay promptly when due all taxes (other than on real property), excises and license fees due to the State of Idaho, its sub-divisions, and municipal and quasi-municipal corporations therein, accrued or accruing during the term of this Contract, whether or not the same shall be payable at the end of such term;

.2 That if the said taxes, excises and license fees are not payable at the end of said term, but liability for the payment thereof exists even though the same constitute liens upon its property, to secure the same to the satisfaction of the respective officers charged with the collection thereof; and

.3 That, in the event of its default in the payment or securing of such taxes, excises and license fees, to consent that the department, officer, board or taxing unit entering into this Contract may withhold from any payment due it hereunder the estimated amount of such accrued and accruing taxes, excises and license fees for the benefit of all taxing units to which said Contractor is liable.

26.4 Before entering into a Contract, the Contractor shall be authorized to do business in the State of Idaho and shall submit a properly executed Contractor's Affidavit Concerning Taxes (Exhibit D).

26.5 Pursuant to Idaho Code § 44-1002, it is provided that each Contractor "must employ ninety-five percent (95%) bona fide Idaho residents as employees on any job under any such contract except where under such contracts fifty (50) or less persons are employed the contractor may employ ten percent (10%) nonresidents, provided, however, in all cases employers must give preference to the employment of bona fide residents in the performance of said work, and no contract shall be let to any person, firm, association, or corporation refusing to execute an agreement with the above mentioned provisions in it; provided, that, in contracts involving the expenditure of federal aid funds this act shall not be enforced in such a manner as to conflict with or be contrary to the federal statutes prescribing a labor preference to honorably discharged soldiers, sailors, and marines, prohibiting as unlawful any other preference or discrimination among citizens of the United States." (Ref. Idaho Code § 44-1001)

26.6 The Contractor shall maintain, in compliance with Title 72, Chapter 17, Idaho Code, a drug-free workplace program throughout the duration of this Contract and shall only subcontract work to subcontractors who have programs that comply with Title 72, Chapter 17, Idaho Code.

26.7 As between the Agency and Contractor as to acts or failures to act, any applicable statute of limitations shall commence to run and any legal cause of action shall be deemed to have accrued in any and all events in accordance with Idaho law.

26.8 The Contractor and its subcontractors and sub-subcontractors shall comply with all applicable Idaho statutes with specific reference to Idaho Public Works Contractors' licensing laws in the State of Idaho, Title 54, Chapter 19, Idaho Code, as amended.

26.9 The Contractor is and shall remain in compliance with Executive Order 2009-10 which requires that the Contractor does not knowingly hire or engage any illegal aliens or persons not authorized to work in the United States and that it takes steps to verify that it does not hire or engage any illegal aliens or persons not authorized to work in the United States. Any misrepresentation in this regard or any employment of persons not authorized to work in the United States constitutes a material breach and shall be cause for the imposition of monetary penalties not to exceed five percent (5%) of the Fixed Price Contract Amount per violation and/or Termination of this Contract. The Contractor also acknowledges that, if it is a natural person, it is subject to Title 67, Chapter 79, Idaho Code regarding verification of lawful presence in the United States.

ARTICLE 27

EQUAL OPPORTUNITY

The Contractor shall maintain policies of employment as follows:

27.1 The Contractor and the Contractor's subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age, national origin or ancestry, or handicap. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, color, sex, age, national origin or ancestry, or handicap. Such action shall include 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 setting forth the policies of non-discrimination.

27.2 The Contractor and the Contractor's subcontractors shall, in all solicitation or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, age, national origin or ancestry, or handicap.

27.3 Violation of this Article 27 shall constitute a material breach of this Agreement and be deemed grounds for cancellation, termination or suspension of the Agreement by Agency, in whole or in part, and may result in ineligibility for further work for Agency.

ARTICLE 28

SUCCESSORS AND ASSIGNS

28.1 Each party binds itself, its successors, assigns, executors, administrators or other representatives to the other party hereto and to successors, assigns, executors, administrators or other representatives of such other party in connection with all terms and conditions of this Contract. The Contractor shall not assign this Contract or any part of it or right or obligation pursuant to it without prior written consent of the Agency. If Contractor attempts to make assignment without consent of Agency, Contractor shall remain legally responsible for all obligations under this Contract.

ARTICLE 29
SEVERABILITY

29.1 In the event any provision or section of this Contract conflicts with applicable law or is otherwise held to be unenforceable, the remaining provisions shall nevertheless be enforceable and shall be carried into effect.

ARTICLE 30
MEDIATION

30.1 Contractor Claims for additional cost or time are subject to Article 13, shall be reviewed as provided in accordance with that Article and, as a condition precedent to litigation, are subject to dispute resolution attempts and mediation in accordance with this Article. All other issues and disputes arising from this contract are also subject to dispute resolution attempts & mediation in accordance with this Article, as a condition precedent to litigation.

30.2 The parties agree that resolution of any dispute or disagreement without formal legal proceedings is to their mutual benefit and to the benefit of the Project.

30.3 The parties agree to make every reasonable attempt to resolve any issues or disputes informally. The parties further agree that prior to the institution by either of legal or equitable proceedings of any kind, and as a condition precedent thereto, any dispute between the Contractor and the Agency related to the Contract, including a dispute over the Agency's decision regarding a Claim, shall be subject to mediation as follows:

- .1** If the issue to be mediated involves only a dispute regarding the Contract Time, no request to mediate shall be made unless liquidated damages have been assessed by the Agency. If the issue to be mediated involves a Claim or other financial dispute, no request to mediate shall be made unless the amount is \$50,000 or more or until there are cumulative Claims or disputes amounting to \$50,000 or more; provided, however, that a mediation request can be made as to any Claim or financial matter at any time after Substantial Completion;
- .2** The party seeking mediation shall notify the other party in writing of its mediation request. In such written request, the requesting party must clearly describe the issues it believes are subject to mediation;
- .3** Within fifteen (15) days of receipt of the mediation request, the non-requesting party shall respond in writing to the request;
- .4** Unless the Agency and the Contractor agree to other rules for mediation, mediation shall be in accordance with the Construction Industry Rules of Arbitration and Mediation Procedures in effect at the time of the mediation;
- .5** The parties shall share the mediator's fee and any filing fees equally; provided, however, that if a party makes a written request to the mediator without satisfying the requirements of this section and by doing so incurs any costs or fees, that party shall be solely responsible for the costs or fees;
- .6** Unless otherwise mutually agreed to by the parties, the mediation shall be in Boise, Ada County, Idaho;

.7 The parties shall cooperate in arranging the other details of mediation, such as selection of the mediator, mediation dates and times;

.8 The parties agree that all parties necessary to resolve the matter shall be parties to the same mediation proceeding; provided, however, that no subcontractor or sub-subcontractor shall attend the mediation absent advance notice and consent from the Agency;

.9 Agreements reached in mediation shall be enforceable as settlement agreements in any court having proper jurisdiction; and

.10 Unless otherwise agreed in writing, the Contractor shall continue the Work and maintain the approved schedules during any mediation proceedings. If the Contractor continues to perform, the Agency shall continue to make payments in accordance with the Contract Documents.

30.4 If mediation fails to resolve the dispute, either party may file an action in the courts of Idaho in accordance with the venue provision contained in this Contract.

ARTICLE 31

WAIVER OF CONSEQUENTIAL DAMAGES

31.1 The Contractor and Agency waive claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes:

.1 Damages incurred by the Agency for rental expenses, for losses of use, income, profit, financing, business and reputation and for loss of management or employee productivity or of the services of such persons.

.2 Damages incurred by the Contractor for principal office expenses, including the compensation of personnel stationed there; for losses of income, financing, business and reputation; loss of management or employee productivity or of the services of such persons; and for loss of profit except profit arising directly from the Work.

31.2 This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Articles 18 and 20. Nothing contained in this paragraph shall be deemed to preclude an award of the assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

End of Agreement

Signatures appear on the following page.

IN WITNESS WHEREOF, the parties have executed this Contract with an effective date as first written above.

AGENCY

Capital City Development Corporation (CCDC)

Date Executed

By: _____
John Brunelle, Executive Director

CONTRACTOR

Date Executed

(Contractor's Name- Typed) *SEAL*

By: _____
Signature

Printed Name

Title

EXHIBIT A

AGENCY'S PROJECT IDENTIFICATION INFORMATION:

Project Title Pioneer Corridor – Phase 3
Project Location Between W. River St and The Boise River Greenbelt

General Project Description:

The project consists of a new decorative paver pathway. Site improvements also include site lighting, landscaping, and site furnishings.

ADDENDA: Addenda applicable to the Contract and made a part of are as follows:

Addendum No. _____ Dated _____
Addendum No. _____ Dated _____
Addendum No. _____ Dated _____
Addendum No. _____ Dated _____
Addendum No. _____ Dated _____

FIXED PRICE CONTRACT AMOUNT AND ACCEPTED ALTERNATES:

Total Fixed Price Contract Amount

(_____) Dollars \$

Contractor's Requests for Payment are to be submitted for Work accomplished through the 25th day of each month as described in Paragraph 7.3.

TIME FOR PERFORMANCE AND LIQUIDATED DAMAGES:

A. The Contractor shall commence construction of its scope of the Work in accordance with the Notice to Proceed issued by the Agency, and which will become Exhibit F to this Contract.

B. The Contractor shall accomplish Substantial Completion as defined in Article 6 of the Contract within seventy-one (71) consecutive calendar days from the date authorized to proceed in the Notice to Proceed.

C. The amount of liquidated damages per day for each and every day of unexcused delay as outlined in Article 6 on the Contract is: two hundred fifty Dollars (\$250.00)

DRAWINGS AND SPECIFICATIONS

The Agency or Architect shall furnish the Contractor three (3) sets of Drawings and Project Manuals.

EXHIBIT B

ADDRESSES and AUTHORIZED REPRESENTATIVES: The names, addresses and authorized representatives of the Agency, the Contractor and the Design Professional are:

AGENCY: Capital City Development Corporation (CCDC)
121 N. 9th Street, Suite 501
Boise, ID 83702

Project Manager: Matt Edmond
Telephone: (208) 319.1221
medmond@ccdcbiose.com
May sign for Agency: Yes [] No [X]

CONTRACTOR: _____ (company name)
_____ (address)
_____ (city, state, zip)
_____ (telephone and FAX)
Public Works Contractors License No. _____

Officer: _____ (name and title)
_____ (telephone)
_____ (E-mail)

Contractor's
Project Manager: _____ (name)
_____ (telephone and FAX)
_____ (E-mail)
May sign for Contractor: Yes [] No []
Change Orders: up to: \$____.00
Construction Change Authorizations: up to: \$____.00
Contractor's Request for Payment

Contractor's
Superintendent: _____ (name)
_____ (telephone and FAX)
_____ (E-mail)
May sign for Contractor: Yes [] No []
Construction Change Authorizations: up to \$____.00

DESIGN PROFESSIONAL:

The Land Group, Inc.
462 E Shore Drive Ste 100
Eagle Idaho, 83616
208-939-4041
208-939-4445

Professional's
Project Manager: Doug Russell, PLA
Professional License No. LA-16589
Telephone: 208-939-4041
Fax: 208-939-4445
doug@thelandgroupinc.com

Professional's
Field Representative: Darian Westrick, PLA
Professional License No. LA-16796
Telephone: 208-939-4041
Fax: 208-939-4445
darian@thelandgroupinc.com

May sign for Design Professional:

Field Reports	Yes [x]	No []
Change Order Proposal Requests	Yes [x]	No []
Construction Change Authorization:	Yes [x]	No []
Construction Change Order	Yes [x]	No []
Design Professional's Supplemental Instructions	Yes [x]	No []
Interpretations of the Contract Documents	Yes [x]	No []
Contractor's Request for Payment	Yes [x]	No []
Acceptance of Substantial Completion	Yes [x]	No []
Acceptance of final completion	Yes [x]	No []

EXHIBIT C

LIST OF DRAWINGS:

C1.00	COVER SHEET & OVERALL SITE PLAN
C1.10	DEMOLITION PLAN – AREA A
C1.11	DEMOLITION PLAN – AREA B
C1.50	SWPPP-ESC PLAN
C1.55	SWPPP-ESC DETAILS
C2.01	SITE MATERIALS PLAN –AREA A
C2.02	SITE MATERIALS PLAN –AREA B
C2.11	SITE LAYOUT PLAN – AREA A
C2.12	SITE LAYOUT PLAN – AREA B
C2.50	SITE DETAILS
C2.51	SITE DETAILS
C4.01	SITE GRADING PLAN – AREA A
C4.02	SITE GRADING PLAN – AREA B
L1.01	LANDSCAPE & IRRIGATION PLAN – AREA A
L1.02	LANDSCAPE & IRRIGATION PLAN – AREA B
L1.50	LANDSCAPE DETAILS
E0.0	ELECTRICAL SYMBOLS LIST, SHEET INDEX AND DETAILS
E2.0D	ELECTRICAL DEMOLITION PLAN
E2.0E	ELECTRICAL PLAN
E3.0	DIVISION 16 ELECTRICAL SPECIFICATIONS
E3.1	DIVISION 16 ELECTRICAL SPECIFICATIONS

LIST OF TECHNICAL SPECIFICATIONS:

DIVISION 1 - GENERAL REQUIREMENTS

- 01 10 00 – SUMMARY
- 01 25 00 - SUBSTITUTION PROCEDURES
- 01 26 00 - CONTRACT MODIFICATION PROCEDURES
- 01 29 00 - PAYMENT PROCEDURES
- 01 33 00 - SUBMITTAL PROCEDURES
- 01 40 00 - QUALITY REQUIREMENTS
- 01 50 00 - TEMPORARY FACILITIES AND CONTROLS
- 01 55 26 - TRAFFIC CONTROL
- 01 60 00 - PRODUCT REQUIREMENTS
- 01 73 00 - EXECUTION
- 01 77 00 - CLOSEOUT PROCEDURES
- 01 78 23 - OPERATION AND MAINTENANCE DATA
- 01 78 39 - PROJECT RECORD DOCUMENTS

DIVISION 12 – FURNISHINGS

12 93 00 – SITE FURNISHINGS

DIVISION 31 – EARTHWORK

31 10 00 - SITE CLEARING

31 20 00 - EARTH MOVING

DIVISION 32 – EXTERIOR IMPROVEMENTS

32 12 16 - ASPHALT PAVING

32 13 13 - CONCRETE PAVING

32 14 00 - UNIT PAVING

32 84 00 - PLANTING IRRIGATION

32 92 00 - TURF AND GRASSES

32 93 00 - PLANTS

EXHIBIT D

CONTRACTOR'S AFFIDAVIT CONCERNING TAXES

STATE OF _____)

COUNTY OF _____)

Pursuant to the Title 63, Chapter 15, Idaho Code I, the undersigned, being duly sworn, depose and certify that all taxes, excises and license fees due to the State or its taxing units, for which I or my property is liable then due or delinquent, has been paid, or arrangements have been made, before entering into a Contract for construction of any public works in the State of Idaho.

Name of Contractor

Address

City and State

By: _____
(Signature)

Subscribed and sworn to before me this _____ day of _____, _____.

Commission expires:

NOTARY PUBLIC, residing at

EXHIBIT E

NAMED SUBCONTRACTORS:

Pursuant to Idaho Code § 67-2310, commonly known as the naming law, the names and addresses of the entities who will perform the plumbing, heating and air conditioning and electrical work were named in the bid and are as follows:

Electrical (PWCL Category 1600)

(Name) _____

(Address) _____

Idaho Public Works Contractors License No. _____

Idaho Electrical Contractors License No. _____

EXHIBIT F

NOTICE TO PROCEED

TO CONTRACTOR:

CONTRACT DATE:

ARCHITECT:

CONTRACT AMOUNT: \$

DATE OF ISSUANCE: AGENCY:

Capital City Development Corporation (CCDC)

You are hereby notified to commence work on the above referenced contract on/or before and are to substantially complete the work within consecutive calendar days thereafter; therefore your contract completion date is .

The contract provides for the sum of \$ as liquidated damages for each consecutive calendar day after the above established substantial completion date that the work remains incomplete. Completion date will be established by "Certificate of Substantial Completion."

You are reminded that any changes to the original contract document regarding either cost or completion date must be effected by a change order approved by this department.

Your payment estimates must be submitted on Division of Public Works forms included herein. We will be most happy to assist you in preparing the payment estimate forms.

 has been appointed Field Representative for this project. Please contact him at prior to beginning work. A pre-construction meeting will be held , at , at **(location)**

Sincerely,

MATT EDMOND
PROJECT MANAGER

DISTRIBUTION: Tax Commission
 Division of Building Safety
 Risk Management (w/ Builder's Risk Application, if applicable)
 (Project Manager)
 Fiscal Office TAX ID xx-xxxxxxx

EXHIBIT G



CONTRACTOR'S REQUEST FOR TAX RELEASE

Date: _____

RE: Project Name: _____

State Agency: _____

Project Location: _____

Contractor Requesting Release – Name: _____

Address: _____

Contact Name: _____

Telephone Number: _____

Federal Employer Identification No.: _____

Project Information:

Project is Complete: _____

Project is Substantially Complete: _____

Project Start Date: _____

Project Complete Date: _____

Final Contract Amount (including change orders): _____

Did any public works or other governmental agency supply materials, which were installed by this Contractor or his subcontractors? Yes _____

No _____

If yes, list these materials and their dollar values: _____

To request a Tax Release, please send this form to:

Idaho State Tax Commission
Attn: Contract Desk; Sales Tax Audit
PO Box 36
Boise, ID 83722

EXHIBIT H

RELEASE OF CLAIMS

(TO BE COMPLETED FOR FINAL PAYMENT)

I, _____, do hereby release the State of Idaho from any and all claims of any character whatsoever arising under and by virtue of contract number _____ Dated _
as amended, except as herein stated.

Dated _____ Contractor

EXHIBIT I

SUPPLEMENTARY CONDITIONS TO CONTRACT

1. **FEDERAL, STATE, AND LOCAL PAYROLL TAXES:** Neither federal, state or local income taxes, nor payroll taxes of any kind shall be withheld and paid by Agency on behalf of Contractor or the employees of Contractor. Contractor shall not be treated as an employee with respect to the services performed hereunder for federal or state tax purposes. Contractor understands that Contractor is responsible to pay, according to law, Contractor's income tax. Contractor further understands that Contractor may be liable for self-employment (Social Security) tax to be paid by Contractor according to law.
2. **FRINGE BENEFITS:** Because Contractor is engaged in its own independently established business, Contractor is not eligible for, and shall not participate in, any employee pension, health, or other fringe benefit plans of Agency.
3. **AMENDMENTS:** This Agreement, including the amount of compensation and the Scope of Work, may be amended only in writing, upon mutual agreement of both Agency and Contractor.
4. **ATTORNEY FEES:** Should any litigation or arbitration be commenced between the parties hereto concerning this Agreement, the prevailing party shall be entitled, in addition to any other relief as may be granted, to costs and reasonable attorneys' fees as determined by arbitrator or court of competent jurisdiction. This provision shall be deemed to be a separate contract between the parties and shall survive any default, termination, or forfeiture of this Agreement.
5. **NUMERATION:** Agency and Contractor acknowledge the Agreement may contain gaps in the numbering of the provisions. Despite the gaps in the numbering, Agency and Contractor acknowledge the Agreement is the complete Agreement between them.
6. **SILENCE OF SPECIFICATION:** The apparent silence of this specification and supplemental specifications as to any detail, or the apparent omission from it of a detailed description concerning any point shall be regarded as meaning that only best commercial practice is to be used. Any exception to this specification shall be cause for rejection. Agency reserves the right to verify specification compliance and other information with published sources as deemed necessary.
7. **ACCIDENT PREVENTION:** The Contractor shall provide and maintain work environments and procedures which will:
 - a) Safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to Contractor operations and activities.
 - b) Comply with all local, County, State, or other applicable legal requirements and will exercise all legally required safety precautions at all times.
 - c) Ensure that all Contractor employees who are performing work in the streets wear an appropriate safety vest.
 - d) Avoid interruptions of Government operations and delays in Project completion dates; and will exercise due care during the performance of work to protect from damage all existing facilities, structures, landscaping and utilities on local jurisdiction and private property.

- e) For these purposes on contracts for construction or dismantling, demolition, or removal of improvements, the Contractor shall:
 - i) Provide appropriate safety barricades, signs, and signal lights;
 - ii) Ensure that any additional measures the Agency determines to be reasonably necessary for the purposes are taken.
 - iii) Take every reasonable effort to keep sidewalks, vehicle travel lanes, driveways and crosswalks open at all times, or provide detours as required.
 - v) Report to Agency immediately any Contractor caused damages.
 - vi) Effect the prompt repair any damage to any public property incurred while installing the required items. Repairs to be completed as quickly as is reasonably possible and as required by local ordinance.

END OF SUPPLEMENTARY CONDITIONS

EXHIBIT J – AIA DOCUMENTS AND FORMS



Document A310™ – 2010

Bid Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

Capital City Development Corporation (CCDC)
121 N 9th Street, Suite 501
Boise, Idaho 83702

BOND AMOUNT: \$**PROJECT:**

(Name, location or address, and Project number, if any)

Pioneer Path Phase 3

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this day of ,

(Contractor as Principal)

(Seal)

(Witness)

(Title)

(Surety)

(Seal)

(Witness)

(Title)



Document A312™ – 2010

Payment Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

Capital City Development Corporation (CCDC)
121 N 9th Street, Suite 501
Boise, Idaho 83702

CONSTRUCTION CONTRACT

Date:

Amount: \$

Description:

(Name and location)

Pioneer Path Phase 3

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond: ☐ None ☐ See Section 18

CONTRACTOR AS PRINCIPAL

Company: (Corporate Seal)

SURETY

Company: (Corporate Seal)

Signature: _____

Name and

Title:

Signature: _____

Name and

Title:

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:**OWNER'S REPRESENTATIVE:**

(Architect, Engineer or other party:)

121 N 9th Street, Suite 501
Boise, Idaho 83702

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

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

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

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

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

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

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

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

§ 16 Definitions

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

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

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

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

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

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

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

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: _____ (Corporate Seal)

Signature: _____
Name and Title: _____
Address: _____

SURETY

Company: _____ (Corporate Seal)

Signature: _____
Name and Title: _____
Address: _____



Document A312™ – 2010

Performance Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal
place of business)

OWNER:

(Name, legal status and address)

Capital City Development Corporation (CCDC)
121 N 9th Street, Suite 501
Boise, Idaho 83702

CONSTRUCTION CONTRACT

Date:

Amount: \$

Description:

(Name and location)

Pioneer Path Phase 3

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond: ☐ None ☐ See Section 16

CONTRACTOR AS PRINCIPAL

Company: (Corporate Seal)

SURETY

Company: (Corporate Seal)

Signature: _____

Name and

Title:

(Any additional signatures appear on the last page of this Performance Bond.)

Signature: _____

Name and

Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:**OWNER'S REPRESENTATIVE:**

(Architect, Engineer or other party:)

121 N 9th Street, Suite 501
Boise, Idaho 83702

ADDITIONS AND DELETIONS:

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This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

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

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

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

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

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

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

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

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

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

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

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

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

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

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

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

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

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

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

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

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

§ 14 Definitions

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

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

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

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

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

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

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: _____ *(Corporate Seal)*

Signature: _____
Name and Title: _____
Address: _____

SURETY

Company: _____ *(Corporate Seal)*

Signature: _____
Name and Title: _____
Address: _____



Document G701™ – 2001

Change Order

PROJECT (Name and address): Pioneer Path Phase 3	CHANGE ORDER NUMBER: 001 DATE:	OWNER: <input type="checkbox"/> ARCHITECT: <input type="checkbox"/> CONTRACTOR: <input type="checkbox"/> FIELD: <input type="checkbox"/> OTHER: <input type="checkbox"/>
TO CONTRACTOR (Name and address):	ARCHITECT'S PROJECT NUMBER: 115016.00 CONTRACT DATE: CONTRACT FOR: General Construction	

THE CONTRACT IS CHANGED AS FOLLOWS:

(Include, where applicable, any undisputed amount attributable to previously executed Construction Change Directives)

The original Contract Sum was	\$	0.00
The net change by previously authorized Change Orders	\$	0.00
The Contract Sum prior to this Change Order was	\$	0.00
The Contract Sum will be increased by this Change Order in the amount of	\$	0.00
The new Contract Sum including this Change Order will be	\$	0.00

The Contract Time will be increased by Zero (0) days.

The date of Substantial Completion as of the date of this Change Order therefore is

NOTE: This Change Order does not include changes in the Contract Sum, Contract Time or Guaranteed Maximum Price which have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER.

The Land Group, Inc.

Capital City Development Corporation
(CCDC)

ARCHITECT (Firm name)

CONTRACTOR (Firm name)

OWNER (Firm name)

462 E. Shore Drive, Ste. 100, Eagle, Idaho
83616

121 N 9th Street, Suite 501, Boise, Idaho
83702

ADDRESS

ADDRESS

ADDRESS

BY (Signature)

BY (Signature)

BY (Signature)

Doug Russell

(Typed name)

(Typed name)

(Typed name)

DATE

DATE

DATE

Continuation Sheet

AIA Document, G702™_1992, Application and Certification for Payment, or G736™_2009, Project Application and Project Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.

Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO: 001

APPLICATION DATE:

PERIOD TO:

ARCHITECT'S PROJECT NO: 115016.00

[illegible]

AIA[®] Document G706[™] – 1994

Contractor's Affidavit of Payment of Debts and Claims

PROJECT: <i>(Name and address)</i> Pioneer Path Phase 3	ARCHITECT'S PROJECT NUMBER: 115016.00	OWNER: <input type="checkbox"/>
		ARCHITECT: <input type="checkbox"/>
TO OWNER: <i>(Name and address)</i> Capital City Development Corporation (CCDC) 121 N 9th Street, Suite 501 Boise, Idaho 83702	CONTRACT FOR: General Construction	CONTRACTOR: <input type="checkbox"/>
	CONTRACT DATED:	SURETY: <input type="checkbox"/>
		OTHER: <input type="checkbox"/>

STATE OF:
COUNTY OF:

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707, Consent of Surety, may be used for this purpose

Indicate Attachment ☐ Yes ☒ No

CONTRACTOR: *(Name and address)*

BY:

(Signature of authorized representative)

(Printed name and title)

The following supporting documents should be attached hereto if required by the Owner:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.
3. Contractor's Affidavit of Release of Liens (AIA Document G706A).

Subscribed and sworn to before me on this date:

Notary Public:
My Commission Expires:

AIA[®] Document G707[™] – 1994

Consent Of Surety to Final Payment

PROJECT: *(Name and address)*

Pioneer Path Phase 3

ARCHITECT'S PROJECT NUMBER: 115016.00

OWNER: ☐

CONTRACT FOR: General Construction

ARCHITECT: ☐

TO OWNER: *(Name and address)*

Capital City Development Corporation
(CCDC)

121 N 9th Street, Suite 501

Boise, Idaho 83702

CONTRACT DATED:

CONTRACTOR: ☐

SURETY: ☐

OTHER: ☐

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the
(Insert name and address of Surety)

on bond of

(Insert name and address of Contractor)

, SURETY,

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety
of any of its obligations to

(Insert name and address of Owner)

Capital City Development Corporation (CCDC)

121 N 9th Street, Suite 501, Boise, Idaho 83702

as set forth in said Surety's bond.

, OWNER,

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:

(Insert in writing the month followed by the numeric date and year.)

(Surety)

(Signature of authorized representative)

Attest:

(Seal):

(Printed name and title)



AIA® Document G710™ – 1992

Architect's Supplemental Instructions

PROJECT *(Name and address):*
Pioneer Path Phase 3

**ARCHITECT'S SUPPLEMENTAL
INSTRUCTION NO:** 001

OWNER: ☐

ARCHITECT: ☐

CONSULTANT: ☐

CONTRACTOR: ☐

FIELD: ☐

OTHER: ☐

OWNER *(Name and address):*
Capital City Development
Corporation (CCDC)
121 N 9th Street, Suite 501
Boise, Idaho 83702

DATE OF ISSUANCE:

CONTRACT FOR: General Construction

FROM ARCHITECT *(Name and
address):*
The Land Group, Inc.
462 E. Shore Drive, Ste. 100
Eagle, Idaho 83616

CONTRACT DATE:

TO CONTRACTOR *(Name and
address):*

ARCHITECT'S PROJECT NUMBER:
115016.00

The Work shall be carried out in accordance with the following supplemental instructions issued in accordance with the Contract Documents without change in Contract Sum or Contract Time. Proceeding with the Work in accordance with these instructions indicates your acknowledgment that there will be no change in the Contract Sum or Contract Time.

DESCRIPTION:

ATTACHMENTS:

(Here insert listing of documents that support description.)

ISSUED BY THE ARCHITECT:

(Signature)

Doug Russell, Principal Landscape Architect

(Printed name and title)

AIA[®] Document G714[™] – 2007

Construction Change Directive

PROJECT: *(Name and address)*

Pioneer Path Phase 3

DIRECTIVE NUMBER: 001

DATE:

CONTRACT FOR: General Construction

OWNER: ☐

ARCHITECT: ☐

CONSULTANT: ☐

CONTRACTOR: ☐

FIELD: ☐

OTHER: ☐

TO CONTRACTOR: *(Name and address)*

CONTRACT DATED:

ARCHITECT'S PROJECT NUMBER:

115016.00

You are hereby directed to make the following change(s) in this Contract:

(Describe briefly any proposed changes or list any attached information in the alternative)

PROPOSED ADJUSTMENTS

1. The proposed basis of adjustment to the Contract Sum or Guaranteed Maximum Price is:

☒ • Lump Sum decrease of \$0.00

☐ • Unit Price of \$ per

☐ • As provided in Section 7.3.3 of AIA Document A201-2007

☐ • As follows:

2. The Contract Time is proposed to (remain unchanged). The proposed adjustment, if any, is 0 days.

When signed by the Owner and Architect and received by the Contractor, this document becomes effective IMMEDIATELY as a Construction Change Directive (CCD), and the Contractor shall proceed with the change(s) described above.

Contractor signature indicates agreement with the proposed adjustments in Contract Sum and Contract Time set forth in this CCD.

The Land Group, Inc.

ARCHITECT *(Firm name)*

462 E. Shore Drive, Ste. 100, Eagle,
Idaho 83616

ADDRESS

BY *(Signature)*

Doug Russell

(Typed name)

DATE

Capital City Development
Corporation (CCDC)

OWNER *(Firm name)*

121 N 9th Street, Suite 501, Boise,
Idaho 83702

ADDRESS

BY *(Signature)*

(Typed name)

DATE

CONTRACTOR *(Firm name)*

ADDRESS

BY *(Signature)*

(Typed name)

DATE

APPLICATION FOR PAYMENT FORM

APPLICATION FOR PAYMENT NO. _____

To: Capital City Development Corporation (AGENCY)
From: _____
Contract: _____
Project: _____
OWNER's Contract No. _____
PROJECT ENGINEER's Project No. _____

For Work accomplished
through the date of:

1. Original Contract Price: \$ _____
2. Net change by Change Orders and Written Amendments (+/-): \$ _____
3. Current Contract Price (1 plus 2): \$ _____
4. Total completed and stored to date: \$ _____
5. Retainage (per Agreement): _____ % of completed Work: \$ _____
_____ % of stored material: \$ _____
Total Retainage: \$ _____
6. Total completed and stored to date less retainage (4 minus 5): \$ _____
7. Less previous Application for Payments: \$ _____
- 8. DUE THIS APPLICATION (6 MINUS 7): \$ _____**

Accompanying Documentation:

CONTRACTOR'S Certification: The undersigned CONTRACTOR certifies that: 1.) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied on account to discharge CONTRACTOR's legitimate obligations incurred in connection with Work covered by prior Applications for Payment numbered 1 through _____ inclusive; 2.) title of all Work, materials, and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); and 3.) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective.

Dated: _____

CONTRACTOR

Notarized By: _____

State of _____

County of _____

Subscribed and sworn to before me this _____ day of _____, _____.

Notary Public

My Commission expires: _____

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated: _____

ARCHITECT / OWNER'S PROJECT MANAGER

EXHIBIT K – EROSION AND SEDEMENT CONTROL NARRATIVE

PIONEER PATH CORRIDOR – PHASE III
TLG PROJECT #115016
EROSION AND SEDIMENT CONTROL PLAN NARRATIVE

Project Call-Down List:

1. General Contractor:

Primary Contact:

Phone:

2. Contractor Responsible Person: To Be Determined

City of Boise License No – _____ Expires - _____

Company:

Phone:

3. Agency: Capital City Development Corporation (CCDC)

Primary Contact: Matt Edmond

Phone: 208.319.1221

4. Owner: RMH Company

Primary Contact: Michael Hormaechea

Phone: 208.861.9677

5. ESC/ESC Plan Preparer – Roger Collins

City of Boise License No - CON09-00260, Expires – 12/13/2015

Company: The Land Group, Inc.

Phone: 208.939.4041

Signature: 

6. Project Engineer: Jason Densmer

Company: The Land Group, Inc.

Phone: 208.939.4041

PIONEER PATH CORRIDOR – PHASE III

ESC Narrative

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PIONEER PATH CORRIDOR – PHASE III

ESC Narrative

I. Introduction

A. Definitions

1. Contractor -

That person or entity identified as such in the construction contract with the Operator. The term “Contractor” shall also include the Contractor’s authorized representative, as well as any and all subcontractors retained by the Contractor.

2. Operator -

Any person, firm, public organization or any other entity that has either

(a) Operational control over construction plans and specifications, including the ability to make modification to those plans and specifications or

(b) Day-to-day operational control of those activities at a project necessary to ensure compliance with the Erosion and Sediment Control Plan (ESC) for the site or other permit conditions.

There may be occasions during the course of a project in which there are multiple Operators, all of which need to maintain the appropriate ESC documents and plans.

3. Plan Designer -

That person or entity retained by an Operator to design the ESC plan.

4. Responsible Person -

A person who is certified and qualified in the principles and practices of erosion and sediment control and who possesses the skills necessary to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any erosion and sediment control measures selected to control the quality of storm water discharges from the construction activity.

5. Commencement of Construction Activities-

The initial disturbance of soils associated with clearing, grading, or excavating activities or other construction-related activities (e.g., stockpiling of fill material).

6. Final Soil Stabilization-

All soil disturbing activities at the site have been completed and that a uniform perennial vegetative cover with a density of at least 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or

geotextiles) have been employed. Soil stabilization needs to be in place on all areas where work has halted and soils left bare for 14 days.

B. Operator's Responsibilities

1. Require the Contractor to fully implement the ESC Plan prepared for the site and overseen by the Responsible Person.
2. Ensure that the Contractor is implementing the controls, inspections, maintenance, and all other requirements of the ESC.

C. Contractor's Responsibilities

1. Provide sub-contractor training for the job site.
2. Implement the stabilization, erosion control, and other requirements of the ESC Plan.
3. Provide qualified inspectors, and documentation of qualifications, for the controls implemented at the job site.
5. Conduct all necessary inspections at the required.
6. Keep a copy of the ESC Plan, permit certificates, permit language, Materials Management Plan (MMP), inspection records, and other required records on the job site.
7. Update and make changes to the ESC Plan and supporting documents (such as the BMP's and/or MMP) as needed.

PIONEER PATH CORRIDOR – PHASE III

ESC Narrative

II. Project Description

A. Overview

The project will consist of demolition, grading and construction of a multi-use pathway in the City of Boise. The proposed grading will predominately be cut for the proposed pathway with removal of existing asphalt, existing base courses, surficial soils and haul off. Additionally engineered base course materials will be imported to the site for the new asphalt, brick pavers, and concrete base course.

B. Location

The site is located between River Street and the Boise River, along Pioneer Street in the City of Boise. The property is situated in a portion of the Southeast 1/4 of the Northeast 1/4, Section 9, Township 3 North, Range 2 East, Boise Meridian, City of Boise, Ada County, Idaho. The site latitude and longitude are: 43° 36'46" N, 116° 12'55" W.

The Boise River lies approximately 37 feet south and down gradient of the southern end of the project. All other known major U.S. Waters within 1 mile of the site lie on the opposite side of the Boise River.

C. Site Description and Drainage

The project will consist of grading and construction for a partial replacement and partial re-alignment of the existing multi-use pathway that currently exists. Regional drainage based on topography for the region runs southwesterly to the Boise River. The site is situated so that it is unlikely that it will receive much if any storm water drainage from off-site sources based on the topography of the surrounding area. After completion of the project stormwater will percolate to the adjacent surficial soils.

1. Existing Drainage

Storm water drainage for the existing site is predominantly achieved by percolation through surficial from sheet flow off the paved pathway.

2. Drainage during construction

Stormwater drainage will basically continue to utilize the historical routes as grading and filling operations proceed. Groundwater is not anticipated to be encountered during construction.

3. Post Construction

After construction is complete, in the impervious areas, stormwater drainage will be directed to the sides of the path and will continue to percolate through surficial soils.

4. Disturbed Area

Total disturbed area will be approximately 0.44 acres for the site. See the ESC Plan drawing, sheet C1.50 for disturbed area. The entire disturbed area will be stabilized with pavements and landscape appurtenances at completion of the project.

D. Work to be performed

Throughout the phases of this project, the following construction activities will be performed.

- Demolition of existing pathway and a portion of landscaped areas for the new re-alignment.
 - Excavation
 - Off-haul of unsuitable soils
- Place base materials, brick pavers, asphalt and concrete paving
 - Install and compact engineered fill
 - Install asphalt
 - Install brick pavers
 - Concrete placing at flatwork
- Install/repair irrigation and landscaping
 - Trench and install irrigation system
 - Place topsoil
 - Install landscape material

E. Unique Site Features

The one geologic or topographic features that would be deemed unique would be the proximity of the Boise River. All effort shall be exercised to protect the river from sediments and any other pollutant leaving the site.

F. Project Schedule

The owner expects the construction of the project to start October 15, 2015 with a completion mid-December 2015. Generally, the order of activities will be as follows with some overlap:

1. Place inlet protection in all existing inlets as noted or shown on the ESC Plan drawing.
2. Install fiber wattles and stabilized entrances as specified for locations shown on the ESC Plan drawing.
3. Demolition of existing pathway and excavation of new pathway.
4. Back fill, install base and curbs.
5. Place brick pavers, concrete flatwork and asphalt.
6. Install sprinkler system and landscape material.
7. Remove all temporary BMP's upon final stabilization.

The ESC Coordinator shall be responsible for ensuring proper coordination of installation, maintenance, and removal of BMP's with the phases of construction in the timeline they actually occur.

III. Pollution Sources and BMP's

The potential sources for pollution of storm water are as follows:

- Site grading and material import-export – Sediment Tracking/Offsite Sedimentation
- Construction Material Hauling – Sediment Tracking

There is no storm water discharge associated with any other industrial activity other than the construction at the site.

All BMP's must be properly selected, installed and maintained in accordance with the manufacturer's specification and good engineering practices.

A. Slope Protection (Erosion Control) and Sediment Control

Slope Protection BMP's, more commonly referred to as Erosion Controls, are intended to prevent erosion of bare soils from occurring. Slope protection BMP's can generally be broken down into two major categories: Temporary Controls and Permanent Controls.

1. Temporary Controls

Care should be taken to preserve existing vegetation in and around the project site to the extent possible to limit soil exposure and tracking during wet months. Temporary controls include, but are not limited to:

- ❑ Mulching - Vegetative, wood, or other organic mulch product - BMP 15
- ❑ Geotextile - synthetic fabric (filter fabric) - BMP 17
- ❑ Matting - biodegradable jute or bonded matting - BMP 18

2. Permanent Controls

Permanent slope protection controls include, but are not limited to:

- Landscaping
 - Seeding – BMP 21
 - Sodding – BMP 22
 - Planting – BMP 23
- Retaining Walls – BMP 27 – in accordance with Site Plan
- Hardscape Surfaces - in accordance with Site Plan

Refer to the ESC Plan, sheet C1.50 for an accurate schedule of final soil stabilization controls. If any portion of the site is to remain undeveloped, then existing vegetation shall be preserved. If soil on any undeveloped portion of the project is disturbed, then the contractor shall apply slope protection controls no later than 14 days after the last construction activity to stabilize the disturbed soil, this requirement is especially important for all steep embankments with slopes of 10:1 (~10%) or greater.

It is the responsibility of the ESC Coordinator to ensure proper temporary and final soil stabilization controls are employed where needed and as specified.

The soil stabilization control BMP's checked below will be used on the project site. Additional BMP's listed, but not checked may be implemented on an as-needed basis if determined necessary by the ESC Coordinator.

Slope Protection BMP's (Erosion Controls)				
BMP used Onsite	Check if Contract Requirements	Check if used	Check if not used	If not used, state reason
Mulching	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Geotextile	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not warranted
Matting	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not warranted
Landscaping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Retaining Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not warranted

3. Sediment Control

Sediment Control BMP's are usually installed as additional means of protection. They are useful in situations when Erosion Control BMP's are not adequate or practical. These BMP's are usually structural devices that when properly used and maintained, collect sediment and prevent it from exiting the site. Sediment Control BMP's and installation guidelines are as follows:

- ❑ Drop Inlet Protection - BMP 31. "Matador" Fiber Matting or approved equal.
- ❑ Curb Inlet Protection – BMP 31. Place fiber wattle in gutter.
- ❑ Fiber Rolls (Fiber Wattle) - BMP 35.
- ❑ Silt fence – BMP 36. Silt fence will be constructed so that the bottom of the fence is buried at least 8-inches under the soil (do not backfill soil behind and/or in front of fence). Stakes should be placed on the downside of the slope or facing away from the sediment. Overlap stakes where one section meets another section.
- ❑ Earth Dike – BMP 41. An earth containment dike is required around potable restroom locations and soil stockpile and staging areas constructed on slopes in excess of 5:1.
- ❑ Dewatering – BMP 46. A specific plan for dewatering is required for this project and is outlined in Specification Section "312319 Dewatering". In no instance, shall water be discharged offsite without written approval from the Idaho Department of Environmental Quality (IDEQ) or the receiving agency.
- ❑ Street Sweeping and Vacuuming – Site access is by an existing paved access with no stabilized entrance. Offsite tracking of sediment of any amount is strictly prohibited. The ESC Coordinator will be accountable for determining when sweeping and vacuuming of pavement areas is necessary.
- ❑ Entrance/Outlet Tire Wash - A tire wash may be required during the wet season if excessive mud tracking occurs. This BMP may be implemented if determined necessary by the ESC Coordinator.

See sheet C1.50 of the accompanying ESC drawings for locations of BMP's. See Appendix B of this report and sheet C1.55 for BMP installation details.

The sediment control BMP's checked below will be used on the project site. Additional BMP's listed, but not checked may be implemented on an as-needed basis if determined necessary by the ESC Coordinator.

Sediment Control BMP's				
BMP used Onsite	Check if Contract Requirements	Check if used	Check if not used	If not used, state reason
Drop Inlet Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Curb Inlet Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	At River Street location.
Fiber Rolls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Silt Fence	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Earth Dike	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not warranted.
Dewatering	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Street Sweeping and Vacuuming	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Entrance/Outlet Tire Wash	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not warranted as long as track out is sufficiently abated.

4. Housekeeping BMP's (Source Controls) and Construction Site Guidelines

Housekeeping BMP's can be either organizational practices or structural BMP's. They are intended to prevent debris, dust, litter, sanitary and septic and/or hazardous waste from exiting the site. They also provide general guidance for contractors to operate an efficient and clean construction site.

Housekeeping BMP's and Construction Site Guidelines are as follows:

- Scheduling – BMP 1. Schedule and sequence construction work and erosion control applications so that they occur under optimal conditions-- that is, during periods when the potential for erosion is lowest. Proper timing will minimize erosion and also maximize the effectiveness of control methods.
- Staging Areas – BMP 2. This BMP includes measures for collecting runoff from a staging area, materials storage site, or industrial activity area or for diverting water flow away from such areas so that pollutants do not mix with clean storm water runoff. Refer to the ESC drawings for locations of staging areas.
- Preservation of Existing Vegetation – BMP 3. Protect existing vegetation (including trees, grasses, and other plants) by preventing disturbance or damage to specified areas of a construction site or right-of-way. Preserving natural vegetation provides buffer zones and stabilized areas, which help control erosion, protect water quality, and enhance aesthetic benefits. This practice minimizes the amount of bare soil exposed to erosive forces.
- Stabilization of Construction Entrance – BMP 5. Entrance to the site will be via the existing paved access off of Orchard Road. All employees, subcontractors, and suppliers are required to use designated construction entrances.
- Dust Control – BMP 7. Several methods are available. Typically sprinkling is employed. Apply water sparingly to avoid washing sediments into drainage systems. Other methods include: vegetative cover, mulching, spray-on adhesive and surface roughening.
- Cover for Materials and Equipment – BMP 8. This BMP includes partial or total physical enclosure of materials, equipment, process operations, or activities. Covering prevents storm water from coming into contact with potential pollutants and reduces material loss from wind blowing. Tarpaulins, plastic sheeting, roofs, buildings, and other enclosures are

examples of covering that are effective in preventing storm water pollution.

- Stockpile Management - BMP 9. Stockpile management procedures and practices are designed to reduce or eliminate air and storm water pollution from stockpiles of soil, paving materials such as Portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, asphalt minder (so called “cold mix” asphalt), and pressure-treated wood.
- Vehicle and Equipment Washing and Maintenance – BMP 11. Vehicle and equipment cleaning, fueling, and maintenance onsite is discouraged. However, if necessary, the equipment service area as shown on the ESC drawing shall be used. A typical vehicle/equipment washing and maintenance system is a lined, depressed area that collects the water used in washing off the trucks, cars, or other construction vehicles/equipment, and drains the wastewater into collection or treatment system.
 - Verify weekly that sufficient spill-control clean up materials are located near material storage, unloading and use areas. The type and quantity of spill control materials will vary depending on type of equipment on site.
 - Fueling areas and equipment should be inspected daily. Any equipment leaking fuel, oil, hydraulic fluid, etc. shall be immediately cleaned up. Drip pans should be located onsite to minimize any leak impacts. All materials and contaminated soils will be disposed of off-site in an appropriate and legal manner. Repair water leaks on equipment and utilities immediately. When washing vehicles, do not use soap or chemicals.
- Concrete Waste Management – BMP 13. The concrete washout shall be limited to the area as identified on the ESC drawings. A basin approximately 5' x 5' x 1' for a washout will be constructed or a self contained, leak-proof removable container will be used. It is the responsibility of the ESC Coordinator to ensure the washout is properly constructed, identified, and used.
- Sanitary/Septic Waste Management – BMP 14 - Portable restrooms are not required until the commencement of construction activities. If restrooms are placed onsite, they shall be located as far from public access as possible to protect against vandalism. The restroom shall also be located away from any potable and non-potable water sources (i.e. water mains, irrigation canals, wells, etc.). Spill-control clean up material shall be located near the restroom to aid in clean up in case of accidental

spills or tip over. Earthen Containment Berms will be constructed around the restroom area.

- Solid Waste/General Litter Management - Materials will be mixed/prepared off-site and only brought onto site by the erosion and sediment control contractor for immediate application/deployment. Raw materials used in construction will be stockpiled for use that day and stored on pallets. The contractor shall ensure that adequately sized solid waste storage containers with closable lids are provided and emptied as required to prevent excess material from spilling over the container walls.
- Soil Material Import and Export - should be limited to dryer periods to minimize mud and dirt tracking.
- Potable and Irrigation Water - Testing and installation of water and irrigation lines should be done such that all water is contained onsite and directed away from storm drain systems.

See sheet C1.50 of the accompanying ESC drawings for locations of BMP's. See Appendix B of this report and sheet C1.55 for BMP installation details.

The Housekeeping BMP's and Construction Guidelines checked below will be used on the project site. Additional BMP's listed, but not checked may be implemented on an as-needed basis if determined necessary by the ESC Coordinator.

Housekeeping BMP's and Construction Site Guidelines				
BMP used Onsite	Check if Contract Requirements	Check if used	Check if not used	If not used, state reason
Scheduling	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Staging Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Preservation of Existing Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Existing grasses and landscaping to remain.
Stabilization of Construction Entrance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Dust Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	As needed.
Cover for Materials and Equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	As needed.
Stockpile Management	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No stock piles expected for this project. Coordinate w/ owner and ESC coordinator prior to implementation of stock piles.
Vehicle and Equipment Washing and Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not warranted
Concrete Waste Management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sanitary/Septic Waste Management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Portable restrooms to be installed and anchored.
Soil Material Import/Export	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Export of spoils will be needed. Import of engineered fill and top soil will occur.
Potable and Irrigation Water	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

5. Illicit Discharge/Illegal Dumping Reporting

- The discharge of hazardous substances or oil in storm water discharges from the construction site must be prevented or minimized. Should an accidental spill or dumping occur, the contractor shall use the onsite spill-control material to contain the contaminants.
- Where a release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302, occurs during a 24-hour period:
 - You must provide notice to the National Response Center (NRC) (800-424-8802) as soon as site staff have knowledge of the discharge; and
 - You must modify the ESC Plan and Narrative within 7 calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. Plans must identify measures to prevent the reoccurrence of such releases and to respond to such releases.

The term “Reportable Quantity”, defined in 40 CFR, Parts 110, 117, and 302 may be viewed online at:

<http://www.epa.gov/epacfr40/chapt-l.info/chi-toc.htm>

PIONEER PATH CORRIDOR – PHASE III

ESC Narrative

IV. ESC Plan Posting Requirements

1. A complete copy of the ESC Plan and Narrative shall be kept at the construction site (or other location easily accessible during normal business hours to Boise City officials).
2. A sign or other notice must be posted in a conspicuous location near the construction entrance. The sign or other notice must contain the following information:
 - a. Address of the property (Lot and Block if address has not been assigned).
 - b. The ESC Permit Number
 - c. The responsible Person's name and phone number
 - d. The Stormwater Pollution Hotline Phone number
3. ESC Plan and Narrative must be made available upon request by EPA, a state, tribal, or other local approving agency. The copy of the ESC Plan and Narrative that is required to be kept onsite must be made available, in its entirety, to the EPA staff for review and copying at the time of an onsite inspection.

V. ESC Plan Drawings

All ESC Plan drawings are to be kept onsite with this complete ESC Narrative. Upon presentation of credentials, the ESC Plan drawings and ESC Narrative must be made available to EPA or City of Boise inspectors. Additionally, drawings may be obtained by contacting The Land Group at (208) 939-4041.

VI. Construction Site Inspection and BMP Maintenance

An Inspection Form has been included in the Appendix to record regular inspection, maintenance, and repair of BMP's at the site. It is recommended that the contractor make several copies of the blank form prior to the commencement of construction activities. Additional forms may be obtained by contacting The Land Group at: (208) 939-4041.

Inspections are to be carried out by the ESC Coordinator or an approved representative of the project who is certified and is knowledgeable about the requirements of the ESC Plan. Inspections must be conducted once every 14 calendar days **and** within 24 hours of storm event producing 1/4" or more of rain. Inspection frequency may be reduced to once every month if construction is occurring during dry months or if runoff is unlikely due to winter conditions.

All BMP's must be maintained in effective operating condition. BMP's not working effectively need to be identified and fixed. If a BMP needs to be modified, modifications must occur before the next storm event. If a site is deemed eligible for reduced inspections, indicate why it is and provide date of the waiver period.

A complete list of BMP's and their installation guidelines as prepared by the Idaho Department of Environmental Quality may be viewed online at: http://www.deq.idaho.gov/water/data_reports/storm_water/catalog/bmps.cfm

BMP's as defined by the EPA may be viewed online at: <http://yosemite.epa.gov/R10/WATER.NSF>

A. Work Records

The contractor will be required to keep a drawing on-site detailing where and which temporary BMP's are installed. The contractor shall keep records of dates when major grading activity occurs, when construction activity has been temporarily or permanently ceases and when stabilization measures are initiated. These records shall be kept on-site and updated weekly or as necessary.

Appendix A. Construction Site Inspection Forms

Storm Water Inspection Report

This report is intended to fulfill the requirements of Part 4 of the NPDES General Permit for Storm Water Discharges from Construction Activity.

Site Name:			
Inspection Schedule for this site:	<input type="checkbox"/> Once every 7 days <input type="checkbox"/> Once every 14 days and within 24 hours of end of storm event that is 0.5 inches or greater		
Inspection Date:			
Inspector Information:			
Name(s): Title(s) Inspector Qualifications			
	<input type="checkbox"/> Local Erosion & Sediment Control Training <input type="checkbox"/> Certified Professional in Erosion & Sediment Control <input type="checkbox"/> Other _____		
Weather Information Since Last Inspection			
Rain Events (Dates)	Approximate Duration of Storm Event	Amount (inches)	Did Storm Water Discharge from Site?
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
Weather Information During Inspection			
Precipitation? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, what type? (Rain, snow, etc.)			
Discharge Information During Inspection			
Any storm water discharge? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, state location:			
General Observations of All Disturbed Areas (Check one)			
<input type="checkbox"/> No erosion or sedimentation problems <input type="checkbox"/> Erosion or sedimentation problems are developing, maintenance is needed, but no additional control measures needed at this time. <input type="checkbox"/> Erosion or sediment problems are evident; maintenance and/or additional control measures needed within 7 days (See ESC Section)			
General Observation of All Equipment and Material Storage Areas (check one)			
<input type="checkbox"/> No pollution problems evident. <input type="checkbox"/> Potential pollution problem evident; maintenance and/or preventative action needed. <input type="checkbox"/> Pollution problem evident; maintenance and/or clean up needed immediately.			

Storm Water Inspection Report (Page 2)

This report is intended to fulfill the requirements of Part 4 of the NPDES General Permit for Storm Water Discharges from Construction Activity.

Off-site Pollution (check one):				
<input type="checkbox"/> No sediment tracking evident.				
<input type="checkbox"/> Sediment tracking evident; clean up needed immediately.				
<input type="checkbox"/> Discharge. Location: _____				
Description: _____				
Best Management Practices—Observed Problems (use additional page if necessary)				
Location	Type of Control*	Date Installed or Modified	Current Condition**	Corrective Action/Maintenance Needed
Storm Water Pollution Prevention Plan (ESC)				
Are changes to the ESC needed as a result of inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No				
If yes, describe:				
Deadline for change (must be within 7 calendar days of inspection):				
Compliance Certification				
<input type="checkbox"/> Based on this inspection, this site is in compliance with the Storm Water Pollution Prevention Plan and the Construction General Permit for Storm Water Discharges from Large and Small Construction Activities, and no updated/changes to the ESC are necessary at this time.				
<input type="checkbox"/> This inspection found areas of the site that require maintenance and/or other action. Corrective action will be taken within ____ days.				

Storm Water Inspection Report (Page 3)

This report is intended to fulfill the requirements of Part 4 of the NPDES General Permit for Storm Water Discharges from Construction Activity.

* Control Type Codes

1	Silt Fences	11	Vegetative Buffer Strip	21	Temporary seed/sod	31	Housekeeping
2	Earth Dikes	12	Vegetative Preservation	22	Permanent Seed/Sod	32	Dam
3	Structural Diversion	13	Construction Entrance Stabilization	23	Mulch	33	Sand Bag
4	Swale	14	Perimeter Ditch	24	Hay Bales	34	Other
5	Sediment Trap	15	Curb & Gutter	25	Geotextile		
6	Check Dam	16	Paved Road Surface	26	Rip-rap		
7	Subsurface Drain	17	Rock Outlet Protection	27	Tree Protection		
8	Pipe Slope Drain	18	Reinforced Soil Retaining System	28	Detention Pond		
9	Level Spreaders	19	Gabion	29	Retention Pond		
10	Storm Drain Inlet Protection	20	Sediment Basin	30	Waste Disposal		

** Condition Codes

G = Good	C = Needs to be cleaned	M = Marginal, needs maintenance or replacement soon	P = Poor, needs immediate maintenance or replacement	O = Other (describe)
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STORM WATER INSPECTION REPORT (Page 4)

This report is intended to fulfill the requirements of Part 4 of the NPDES General Permit for Storm Water Discharges from Construction Activity.

Date of Inspection:				
Best Management Practices – Observed Problems (Additional Sheet)				
Location	Type of Control*	Date Installed or Modified	Current Condition**	Corrective Action/ Maintenance Needed

PIONEER PATH CORRIDOR – PHASE III

ESC Narrative

Appendix B. Site Specific BMP Construction Drawings

Description	Schedule and sequence construction work and erosion control applications so that they occur under optimal conditions--that is, during periods when the potential for erosion is lowest. Proper timing will minimize erosion and also maximize the effectiveness of control methods.	
Applications	This measure applies to almost any ground-disturbing activity, but it is especially relevant to large construction projects and any areas where work activities can be planned to coincide with periods of low erosion potential, such as during dry weather. The period May 15 through November 1 is recommended as the best time for initiating construction activities and completing soil stabilization in most of Idaho. When construction during the wet season is unavoidable, use other BMPs described in this catalog to control erosion, such as any of the slope protection techniques.	
Limitations	Drainage area - unlimited Minimum bedrock depth - N/A NRCS soil type - ABCD Drainage/flood control - no	Maximum slope - unlimited Minimum water table - N/A Freeze/thaw - good
Targeted Pollutants	Sediment	
Design Parameters	<ul style="list-style-type: none">Construction work involving soil disturbance or exposure should be scheduled during seasonal low-runoff periods under favorable soil moisture conditions whenever possible.Erosion controls should be installed in stages to protect completed work and minimize exposed soils.Sediment collection systems should be installed prior to activities expected to produce sediment.Slope stabilization measures should be initiated within 14 calendar days after construction activities in that portion of the site where earthmoving activities have temporarily or permanently ceased.Consider site characteristics and permit conditions when deciding what kind of erosion control devices to incorporate into a construction project. Select measures that can be installed without disrupting critical timing or sequencing of other construction or erosion control activities.Identify the locations and dimensions for all erosion control and stormwater management measures as clearly as possible on the site plans. This will help ensure effectiveness and proper timing of installation or implementation.	
Construction Guidelines	<ul style="list-style-type: none">Develop a scheduling/sequencing plan that addresses the following timing considerations. If using a Critical Path Method (CPM) for scheduling, incorporate the erosion control and stormwater management practices into the CPM.	

- Work activities that leave a site most susceptible to erosion should be scheduled for periods when the potential for erosion is lowest.
- Allow time to install sediment collection systems, drainage systems, and runoff diversion devices before beginning ground-disturbing work in a given area.
- Plan to install and maintain effective soil stabilization measures as work progresses, not just at the completion of all construction.
- Conduct work in units or stages so that some portions of the project site are final-graded and ready for seeding each time an approved season of seeding arrives. (See BMP 2-Staging Areas).

Maintenance Continually monitor site conditions and progress of work. Update the project work schedule to maintain appropriate timing and sequencing of construction and control applications.

Description This BMP includes measures for collecting runoff from a staging area, materials storage site, or industrial activity area or for diverting water flow away from such areas so that pollutants do not mix with clean stormwater runoff. Various flow diversion structures, called stormwater conveyances, can be used to contain runoff on site, to channel it around the industrial area, or to carry pollutant-laden water directly to a treatment device or facility. Several options are available:

Stormwater Conveyances: This term includes many kinds of channels, gutters, drains, and sewers. Stormwater conveyances can be either temporary or permanent. They are constructed or lined with many different materials, including concrete, clay tiles, asphalt, plastics, metals, riprap, compacted soils, and vegetation. The type of material used depends on the use of the conveyance.

Dikes or Berms: Diversion dikes or berms are ridges built to block runoff from passing beyond a certain point. Temporary dikes are usually made with compacted soil or compost. More permanent ones are constructed out of concrete, asphalt, or other durable materials.

Diversion dikes are used to prevent the flow of stormwater runoff onto construction or staging/storage areas. Limiting the flow across these areas reduces the volume of stormwater that may carry pollutants from the area and may, therefore, require treatment. This method is suitable for sites where significant volumes of stormwater runoff tend to flow onto active materials handling or equipment staging sites and other construction areas.

Graded Areas and Pavement: Land surfaces can be graded, or graded and paved, so that stormwater runoff is directed away from construction activity areas. The slope of the grade allows the runoff to flow, but keeps it from washing over areas that may be contaminated with pollutants. Like conveyances and dikes, grading can prevent runoff from entering construction areas and becoming contaminated with pollutants from these areas. Grading can be a permanent or temporary control measure.

Applications **Stormwater Conveyances:** Stormwater conveyances can be used for two different purposes. The first is to keep uncontaminated stormwater from getting into areas of a construction site where it may become contaminated. This can be accomplished by collecting the stormwater in a conveyance and directing the flow away from those areas. Secondly, conveyances can be used to collect stormwater downhill from construction areas and keep it separate from runoff that has not been in contact with those areas. When potentially contaminated stormwater is collected in a conveyance like this, it can be directed to a treatment device or another facility on the site if desired.

Other beneficial aspects of stormwater conveyances include:

- Prevention of temporary flooding at industrial sites.
- Low maintenance.
- Erosion-resistant conveyance of stormwater runoff.
- Long-term control of stormwater flows.

Dikes or Berms: Typically, dikes are built on slopes just uphill from an active construction area together with some sort of a conveyance, such as a swale. The conveyance is necessary to keep the water away from the dike so that the water will not pool and seep through the dike. See BMP 41-Earth Dike.

Some advantages of diversion dikes are that they:

- Effectively limit stormwater flows over industrial site areas.
- Can be installed at any time.
- Are economical, temporary structures when built from soil on site.
- Can be converted from temporary to permanent at any time.

Graded Areas and Pavement: Grading is appropriate for any construction site where outdoor activities may pollute stormwater runoff--parking lots or outdoor storage areas, for example. Grading is often used in conjunction with coverings, buffer zones, and other practices to reduce the runoff velocity, increase infiltration of uncontaminated runoff, or direct pollutant-laden runoff to stormwater treatment facilities. Grading and paving are relatively inexpensive and easy to implement.

Limitations

Drainage area - unlimited	Maximum slope – 15%
Minimum bedrock depth - N/A	Minimum water table – N/A
NRCS soil type - ABCD	Freeze/thaw – good
Drainage/flood control – yes	

Stormwater Conveyances:

Once the stormwater is concentrated in conveyances, it should be routed through stabilized structures all the way to its discharge to a receiving water or other stormwater BMP.

- May increase flow rates.
- May be impractical if there are space limitations.
- May be expensive to install, especially for small facilities or after a site has already been constructed.

Dikes and Berms

- Are not suitable for large drainage areas unless there is a gentle slope.
- May require maintenance after heavy rains.

Graded Areas and Pavement

- May be uneconomical to re-grade and resurface large areas.
- May not be effective during heavy precipitation.

Targeted
Pollutants
Design
Parameters

Sediment

Stormwater Conveyances: In planning for stormwater conveyances, consider the amount and speed of the typical stormwater runoff. Also, consider the stormwater drainage patterns, so that channels may be located to collect the most flow and can be built to handle the amount of water they will receive. When deciding on the type of material for the conveyance, consider the resistance of the material, its durability, and its compatibility with any pollutants it may carry.

Conveyance systems are most easily installed when a facility is first being constructed. Where possible, use existing grades to decrease costs. Grades should be positive to allow for the continued movement of the runoff through the conveyance system; however, grades should not create an increase in velocity that causes an increase in erosion. Consider the materials used for lining the conveyance and the types of outlet controls provided.

Dikes and Berms: In planning for the installation of dikes, consider the slope of the drainage area, the height of the dike, the amount of runoff it will need to divert, and the type of conveyance that will be used with the dike. Steeper slopes result in higher volumes of runoff and higher velocities, which the dike should be capable of handling. Remember that dikes are limited in their ability to manage large volumes of runoff. See BMPs 41-Earth Dike for additional parameters.

Graded Areas and Pavement: When designing graded and paved areas, be sure to consider both control and containment of runoff flows. The grading should control the uncontaminated flow by diverting it around areas that may have pollutants. The grading should also contain the contaminated flows or divert them to treatment facilities.

Construction
Guidelines

Stormwater Conveyances: Specific construction methods apply to the type of conveyance being used.

Dikes and Berms: Ideally, dikes are installed before construction activity begins. However, dikes can be easily constructed at any time. Temporary dikes (usually made of dirt) generally only last for 18 months or less, but they can be made into permanent structures by stabilizing them with vegetation. Slope protection such as vegetation is crucial for preventing the erosion of the dike.

Graded Areas and Pavement: Staging/storage areas should be designated prior to the start of construction.

Maintenance

- It is best to inspect stormwater conveyances within 24 hours of a rainstorm and remove debris promptly. Make daily inspections during periods of prolonged rainfall, since heavy storms may clog or damage the conveyances. It is important to repair damage to these structures as soon as possible.

- Dikes should be inspected regularly for damage. This is especially important after storm events since a heavy rain may wash parts of a temporary dike away. Any necessary repairs should be made immediately to make sure the structure continues to function effectively.
- Inspect unpaved, graded areas to check for gullies and other signs of erosion. Inspect paving regularly for cracks that may allow contaminants to seep into the ground. Also, check to make sure that the drains receiving the discharge from the paved area remain free of clogged sediment or other debris so that the water does not back up into areas where pollutants may be.

Description	Protect existing vegetation (including trees, grasses, and other plants) by preventing disturbance or damage to specified areas of a construction site or right-of-way. Preserving natural vegetation provides buffer zones and stabilized areas, which help control erosion, protect water quality, and enhance aesthetic benefits. This practice minimizes the amount of bare soil exposed to erosive forces.	
Applications	<p>This technique is applicable to all types of sites. Areas where preserving vegetation can be particularly beneficial are floodplains, wetlands, stream banks, steep slopes, and other areas where other structural erosion controls would be difficult to establish, install, or maintain. Compared to newly planted or seeded areas, preserving natural vegetation has many advantages:</p> <ul style="list-style-type: none"> ▪ It can handle higher quantities of stormwater runoff than newly seeded areas. ▪ It does not require time to establish (it is effective immediately). ▪ It has greater filtering capacity because the vegetation and root structure are usually denser in preserved natural vegetation than in newly seeded or base areas. ▪ It usually requires less maintenance, watering, and chemical application (e.g., fertilizer, pesticides) than planting new vegetation. <p>It also:</p> <ul style="list-style-type: none"> ▪ Enhances aesthetics. ▪ Provides areas for infiltration, thus reducing the quantity and velocity of stormwater runoff. ▪ Allows areas where wildlife can remain undisturbed. ▪ Provides noise buffers and screens for on-site operations. 	
Limitations	<p>Drainage area - unlimited Minimum bedrock depth - N/A NRCS soil type - ABCD Drainage/flood control – no</p>	<p>Maximum slope – unlimited Minimum water table - N/A Freeze/thaw – good</p> <p>Preservation of natural vegetation may be impractical in some situations because:</p> <ul style="list-style-type: none"> ▪ It may constrict the area available for construction activities. ▪ It may not be cost-effective in areas with high land values.
Targeted Pollutants	Sediment	
Design Parameters	<ul style="list-style-type: none"> ▪ Successful preservation of vegetation requires good planning and site management to minimize the impact of construction activities on existing vegetation. The areas to be preserved should be identified in the plans and clearly marked in the field before any site disturbance begins. Clearly mark all trees to be preserved, and protect against ground disturbance within the dripline of each marked tree. 	

The dripline marks the edge of the tree's foliage where drips from rainfall would drop. Most of the tree's roots lie within the dripline and are vulnerable to damage.

- Preserving natural vegetation may affect some aspects of staging, work sequencing, and construction cost. In addition, control measures may be needed around the perimeter of the preserved area to maintain adequate water flow and drainage and to prevent damage from excessive erosion or sedimentation. Be sure to consider these and related factors when preparing the project site plan and project cost estimates.
- Consider the use of design exceptions to enable preservation of natural vegetation in certain areas where it would typically be removed and where its preservation would not pose safety problems.

Construction Guidelines

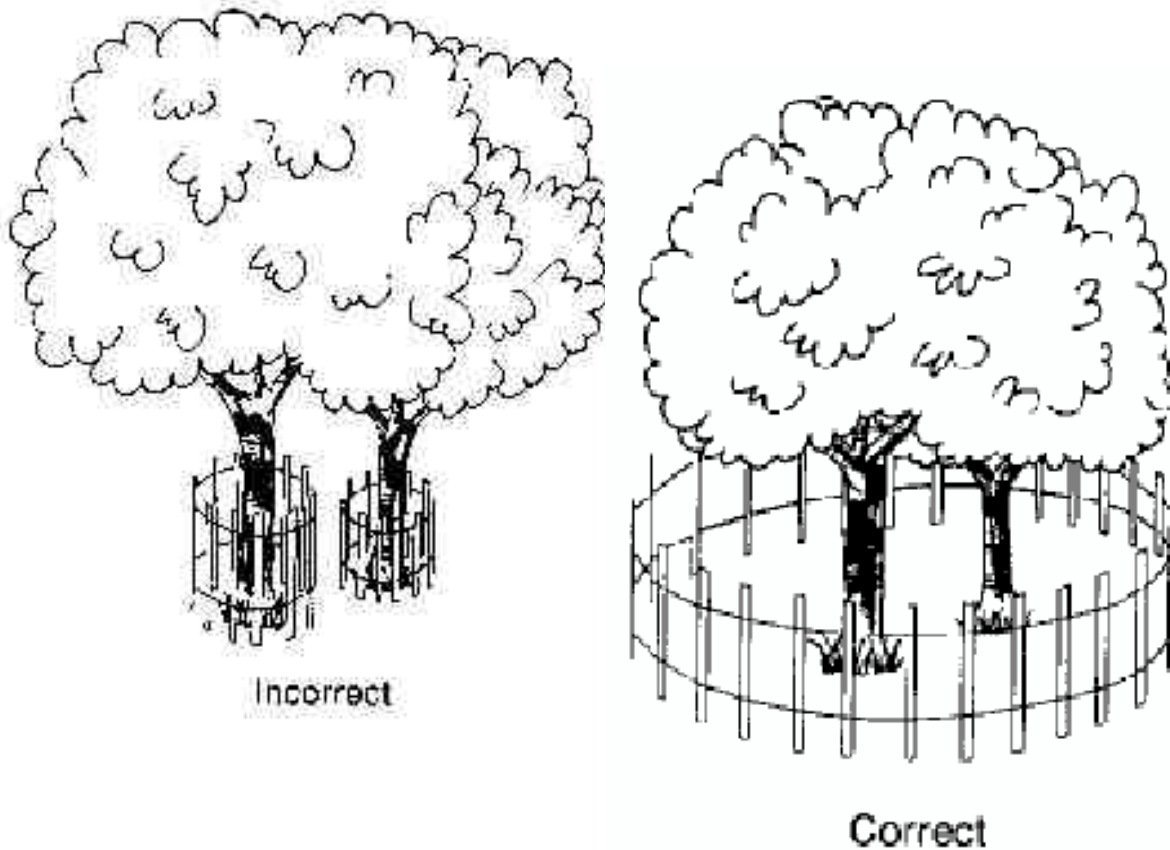
- Check the project plans for areas designated for preservation of natural vegetation. Keep all construction equipment, materials, and waste out of the designated areas.
- Do not modify existing drainage patterns through or into any preservation area unless specifically directed by the plans or approved by the local permitting authority.
- Perform maintenance activities as needed to ensure that the vegetation remains healthy and able to aid in erosion control and sediment collection.

Maintenance

Inspect at regular intervals to make sure the preserved vegetated areas remain undisturbed and are not being overwhelmed by sediment. Implement maintenance or restorative actions as needed. Proper maintenance is important to ensure healthy vegetation that can control erosion. Different species, soil types, and climatic conditions will require different maintenance activities such as mowing. Maintenance should be performed regularly, especially during construction.

Description	Minimize the total amount of bare soil exposed to erosive forces by (1) controlling the amount of ground that is cleared and grubbed at one time in preparation for construction, and (2) limiting the amount of time that bare ground may remain exposed before slope protection or stabilization measures are put into place. This measure, in conjunction with appropriate timing (avoiding the rainy season), can reduce erosion and sedimentation.	
Applications	Any areas where vegetation should be removed to facilitate construction. This practice should be a design consideration of all projects. It may be necessary to carefully coordinate land clearing, grading, and erosion control measures--see BMP 1-Timing of Construction.	
Limitations	Drainage area - unlimited Minimum bedrock depth - N/A NRCS soil type - ABCD Drainage/flood control – no	Maximum slope – unlimited Minimum water table - N/A Freeze/thaw – good
Targeted Pollutants Design Parameters	Sediment <ul style="list-style-type: none"> ▪ Evaluate the erosion potential of the project site (based on slope, soil type, intended season of work, use of heavy equipment). ▪ Based on the above analysis, establish the maximum allowable area that may be exposed at one time. The project site plan should clearly specify the maximum allowable exposure area. ▪ Initiate slope protection and reclamation as work progresses to help minimize the amount of disturbed soil. ▪ In all cases, stabilization measures should be initiated within 14 days after ceasing work in a given area or as soon as practicable during seasonally arid periods. 	
Construction Guidelines	<ul style="list-style-type: none"> ▪ Do not disturb any areas that are not actually needed for the specified construction or related staging activities. See BMP 3-Preservation of Existing Vegetation. ▪ Conduct work in units or stages so that construction and stabilization take place promptly after clearing and grubbing and as much of the site as possible is ready for seeding each time the specified seeding season arrives. ▪ Implement soil stabilization measures concurrently with the progress of clearing and grading work to minimize the length of time that bare ground lies exposed to erosion. ▪ At the approach of a designated seeding season, be prepared to seed all portions of the project that are ready for seeding (as required). 	

Maintenance Conduct periodic inspections to check for unnecessary ground disturbance. Also check for clearing and grubbing beyond the contractor's capability and progress in keeping grading and pollution control measures current (in accordance with accepted work schedule).



Barrier should be installed at the drip line of tree branches.

Description	A temporary sediment removal device--normally a pad of crushed rock or stone--can be installed at the approach from a construction site to a public roadway to stabilize the road. This BMP is used to limit sediment tracking from vehicles and equipment leaving the construction site onto public rights-of-way and streets.	
Applications	<p>A stabilized construction entrance is appropriate in the following locations:</p> <ul style="list-style-type: none"> ▪ Wherever vehicles are entering or leaving a construction site to or from a public right-of-way, street, alley, sidewalk or parking area. ▪ At any unpaved entrance/exit location where there is risk of transporting mud or sediment onto paved roads. 	
Limitations	<p>Drainage area - unlimited</p> <p>Minimum bedrock depth – 3 ft</p> <p>NRCS soil type - ABCD</p> <p>Drainage/flood control – no</p>	<p>Maximum slope – 15%</p> <p>Minimum water table – N/A</p> <p>Freeze/thaw – good</p>
Targeted Pollutants	<ul style="list-style-type: none"> ▪ Sediment ▪ Phosphorus ▪ Trace Metals ▪ Hydrocarbons 	
Design Parameters	<p>Width: The width should be at least 10 ft but not less than the full width of points where ingress or egress occurs. At sites where traffic volume is high, the entrance should be wide enough for two vehicles to pass safely. Flare the entrance where it meets the existing road to provide a sufficient turning radius.</p> <p>Length: The minimum length should be 50 ft except on a single-residence lot where a 30 ft minimum would apply.</p> <p>Depth: Total depth of rock should be at least 6 in.</p> <p>Aggregate: Fractured</p> <p>stone 2 to 8 in. diameter (for the base layer) and crushed stone 2 in. diameter or reclaimed or recycled concrete equivalent (for the top layer).</p> <p>Geotextile (filter fabric): Most installations will include geotextile (filter fabric) with the products placed over the entire area to be covered with aggregate. Work on single residential lots will generally not need geotextile unless there is potential for excessive erosion, a high water table, or other risk factor. The geotextile should be a woven or</p>	

nonwoven fabric consisting only of continuous chain polymeric filaments or yarns of polyester. The geotextile should be inert to commonly encountered chemicals, hydrocarbons, mildew, and rot resistant.

Drainage: Runoff from a stabilized construction entrance should drain to a sediment trap or a sediment basin. Piping of surface water under the entrance should be provided as needed. If piping is impossible, install a mountable berm with 5:1 slopes.

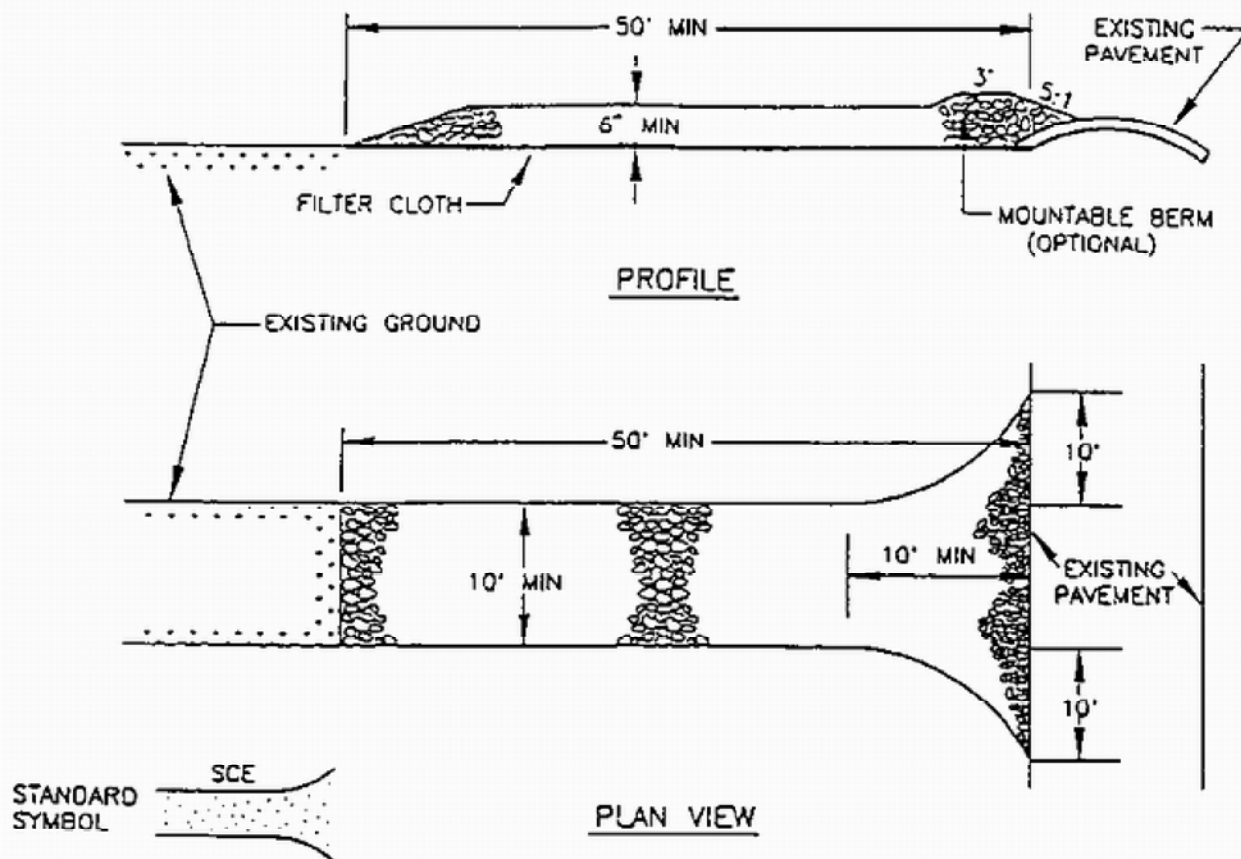
Dust Control: Dust control should be provided at all times (see BMP 7-Dust Control).

Construction Guidelines

- Clear all vegetation, roots, and all other obstructions in preparation for grading.
- Prior to placing geotextile (filter fabric), make sure that the entrance is properly graded and compacted.
- To reduce maintenance and loss of aggregate, place geotextile over the existing ground before placing the stone for the entrance.
- Place a 1 ft layer of fractured stone over the entire width and length of the entrance.
- Place a 4 in. layer of 2 in. crushed stone over the base layer.

Maintenance

- The entrance should be maintained in a condition that will prevent tracking or flow of mud onto public rights-of-way. This may require periodic top dressing with additional 2 in. stone (as conditions demand) and repair or cleaning of any structures used to trap sediment.
- All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains should be removed immediately. When necessary, vehicle wheels should be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it should be done on an area stabilized with aggregate that drains into an approved sediment trap.
- Trapped sediment should be removed from the site or stabilized on site and prevented from entering storm drains, ditches, or waterways. Disturbed soil areas resulting from removal should be permanently stabilized.
- The stabilized construction entrance may be removed after final site stabilization is achieved or after the temporary BMPs are no longer needed.



CONSTRUCTION SPECIFICATIONS

- 1 STONE SIZE—USE 2" STONE OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- 2 LENGTH—AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
- 3 THICKNESS—NOT LESS THAN 6 INCHES.
- 4 WIDTH—10 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
- 5 FILTER CLOTH—WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
- 6 SURFACE WATER—ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- 7 MAINTENANCE—THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- 8 WASHING—WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- 9 PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TOOTHMAN-ORTON ENGINEERING COMPANY
BOISE, IDAHO McCALL, IDAHO

STABILIZED CONSTRUCTION ENTRANCE

STANDARD
DRAWING

SCE-1

Description	<p>This BMP describes products or measures used for reducing or preventing wind erosion by protecting the soil surface, roughening the surface, and reducing the surface wind velocity. Several dust control treatments are described below. Other methods are also available.</p> <p>Vegetative Cover: For disturbed areas not subject to traffic, vegetation provides the most practical method of dust control (see BMP 21-Seeding and BMP 22-Sodding).</p> <p>Mulch (including gravel mulch): When properly applied, mulch offers a fast, effective means of controlling dust (see BMP 15-Mulching).</p> <p>Spray-On Adhesive: Asphalt emulsions, latex emulsions, or resin in water can be sprayed onto mineral soil to control dust (see BMP 16-Hydromulching).</p> <p>Sprinkling: The site may be sprinkled with water until the surface is wet. Sprinkling is especially effective for dust control on haul roads and other traffic routes.</p> <p>Stone: Stone or gravel used to stabilize construction roads and disturbed soils can also be effective for dust control and reduce soil losses from those areas by up to 80% .</p> <p>Surface Roughening: Tilling or discing the surface of disturbed soils to produce a rough surface or ridges which when perpendicular to prevailing winds can reduce soil losses due to wind by 80% (see BMP 25-Slope Roughening).</p> <p>Barriers: A board fence, wind fence, sediment fence, or similar barrier can control air currents and blowing soil. All of these fences are normally constructed of wood. Perennial grass and stands of existing trees may also serve as wind barriers. Barriers prevent erosion by obstructing the wind near the ground and preventing the soil from blowing off site.</p>
Applications	<p>The above measures for dust control should be used when open, dry areas of soil are anticipated on the site. Clearing and grading activities create the opportunity for large amounts of dust to become airborne. Therefore, one or several dust control measures should be considered prior to clearing and grading. In many cases, water erosion control measures incorporated into the project will indirectly prevent wind erosion. As a standard practice, any exposed area should be stabilized using vegetation to prevent both wind and water erosion. When rainfall is insufficient to establish vegetative cover, mulching is an effective way of conserving moisture, preventing surface crusting, reducing</p>

runoff and erosion, and helping to establish vegetation. It is a critical treatment on sites with erosive slopes.

Limitations	<div> <div>Drainage area – N/A</div> <div>Minimum bedrock depth – N/A</div> <div>NRCS soil type – N/A</div> <div>Drainage/flood control – no</div> </div> <div> <div>Maximum slope – 5%</div> <div>Minimum water table - N/A</div> <div>Freeze/thaw – N/A</div> </div> <p>Vegetative measures may not be practical during dry periods unless a reliable supply of establishment water is available. Other methods should be stipulated in the project contract to ensure that dust control is not overlooked.</p> <p>Barriers (such as walls or fences) can be part of the long-term dust control strategy in arid and semiarid areas, but they are not a substitute for permanent stabilization.</p>
Targeted Pollutants	<div>Sediment</div> <div>Trace Metals</div> <div>Hydrocarbons</div>
Design Parameters	<p>Dust Prevention: The best method of controlling dust is to prevent dust production. This can best be accomplished by limiting the amount of bare soil exposed at one time. In project design, identify all areas where ground disturbance will not be allowed. Design and locate haul roads, detours, and staging areas to avoid unnecessary exposure of bare ground and avoid using areas that are the most susceptible to wind erosion.</p> <p>In the stormwater site plan, specify staging or work sequencing techniques that minimize the risk of wind erosion from bare soil. In most cases, this will require a change from traditional construction techniques that allow large areas to be disturbed at the outset of construction and to remain exposed for long periods of time.</p> <p>Vegetative Cover: Follow recommended seeding and planting specifications. If site conditions are favorable, use an extended seeding season to ensure that seeding becomes established over as much of the project as possible before winter shutdown or substantial completion. Specify the use of establishment water to accelerate vegetative stabilization if other means of long-term slope protection are not feasible.</p> <p>Mulch: Apply according to the design parameter for BMP 16- Hydromulching.</p> <p>Sprinkling: Apply at a rate of 3 gallons per acre so that the soil is wet but not saturated or muddy and so that no dust is being generated.</p> <p>Stone: At ingress/egress to public highways, apply as indicated in BMP 5- Stabilization of Construction Entrance. For detours, haul roads, or temporary traffic routes through the construction site, provide a layer of fractured stone 2</p>

to 4 in. thick and 1 to 2 in. in diameter.

Surface Roughening: Tilling or discing should leave 6 in. (minimum) furrows, preferably perpendicular to the prevailing wind direction, to gain the greatest reduction in wind erosion. If the surface cannot be furrowed perpendicular to the prevailing wind direction, roughening the surface by using a ripper/scarifier (grader) or a ripper (cat) will produce the desired result of a 6 in. irregular surface.

Barriers: A wind barrier generally protects soil downwind for a distance of 10 times the height of the barrier. If additional protection is needed, use other methods in conjunction with the barrier.

Construction Guidelines

Site Assessment: Assess the potential problem of wind erosion and dust generation at the project site. Consider the soil type, prevailing wind direction, and the effect of other prescribed erosion control measures.

Use Preventive Strategies Wherever Possible:

- Minimize amount of bare ground exposed at one time.
- Minimize amount of ground disturbance occurring when wind erosion is highest.

Implement Dust Control Measures as Needed:

- Provide stabilized roadway to minimize amount of dust generated by construction vehicles and highway traffic (gravel, pave, or moisten the bare areas of the highway or detour route).
- Apply protective materials to exposed areas (e.g., stone, mulch, adhesive/emulsions).
- Install barriers to prevent dust from blowing off site.
- Establish vegetation at the earliest possible opportunity (using establishment water if necessary to ensure viability).
- Keep haul roads, detours, and other bare areas moist by sprinkling them with water.
- Perform street sweeping, as needed.

Maintenance

- Dust control requires constant attention: it is not a one-time or once-in-awhile activity. Dust control sprinkling may have to be done several times a day during hot, dry weather.
- Areas protected by mulch, adhesive emulsions, or barriers need to be checked at regular intervals according to the inspection schedule set forth in the stormwater plan. Remove sediments that accumulate behind any sediment fence or barrier when the accumulation reaches one half the height of the barrier. Dispose of the sediments only in an approved location (not in wetlands or where they will contribute to pollution at the disposal site).

Apply chemical controls (emulsions and resins) at the manufacturer's specified rates and in accordance with all federal, state, and local regulations governing their use. Chemical products should be stored, handled, and disposed of in accordance with all applicable regulations and department policies.

Description This BMP describes methods of minimizing exposure of pollutants to stormwater runoff by enclosing any drips, overflows, leaks, and other liquid material releases or by isolating pollutant spills from stormwater runoff. There are numerous spill containment methods, ranging from large structural barriers to simple, small drip pans. The benefits vary based on cost, maintenance requirements, and the size of spill control. Three possible options are discussed below:

Containment Diking: Temporary or permanent polyurethane or plastic berms, concrete berms, or retaining walls designed to hold spills. Diking is one of the best protective measures against stormwater pollution because it surrounds the area of concern and holds the spill, keeping spill materials separated from the stormwater outside of the diked area. Diking is one of the most common types of spill containment. Also see BMP 41-Earth Dike and BMP 43-Temporary Berms.

Curbing: Like containment diking, curbing is a barrier that surrounds an area of concern. It prevents spills or leaks from being released to the environment by routing runoff to treatment or control areas. The terms "curbing" and "diking" are sometimes used interchangeably, but curbing is usually small scale and cannot contain large spills like diking can. As with diking, common materials for curbing include earth, concrete, synthetic materials, metal, or other impenetrable materials. Asphalt is also a common material used in curbing.

Drip Pans: Pans used to contain very small volumes of leaks, drips, and spills. Drip pans can be depressions in concrete, asphalt, or other impenetrable materials, or they can be made of metals, plastic, or any material that does not react with the dripped chemicals. Empty or discarded containers may be used as drip pans. Catch drips so that the materials or chemicals can be cleaned up easily or recycled before they can contact stormwater. Drip pans can be a temporary or permanent measure.

Applications **Containment Diking:** Diking can be used at any construction site, but it is most commonly used for controlling large spills or releases from liquid storage areas and liquid transfer areas. It is an effective containment method around tank truck loading and unloading areas. Proper diking contains spills, leaks, and other releases and prevents them from flowing into runoff conveyances, nearby streams, or infiltration into groundwater. It also allows for proper disposal and/or recycling of materials captured within the dike.

Curbing: Curbing is usually small scale; it cannot contain large spills like diking can. However, many facilities use curbing to contain small areas used for handling and transferring liquid materials.

~~Curbing is already a common practice. It is inexpensive, easy to install, and~~

provides excellent control of run-on. As with diking, materials spilled within a curbed area can be collected for proper disposal and/or recycling.

Drip Pans: Drip pans can be used at any site where valves and piping are present and the potential for small-volume leakage and dripping exist. Although leaks and drips should be repaired and eliminated as part of preventive maintenance programs, drip pans can provide a temporary solution where repair or replacement should be delayed. In addition, drip pans can be an added safeguard when they are positioned beneath areas where leaks and drips may occur.

Drip pans are inexpensive, easy to install, and simple to operate. They allow for reuse or recycling of the collected material.

Limitations

Drainage area - N/A	Maximum slope – N/A
Minimum bedrock depth – N/A	Minimum water table – N/A
NRCS soil type - N/A	Freeze/thaw – N/A
Drainage/flood control – no	

Containment Diking:

- May be too expensive for some smaller facilities.
- Requires maintenance.
- Could collect polluted stormwater, with possible infiltration to ground water.

Curbing:

- Not effective for holding large spills.
- May require more maintenance than diking.

Drip Pans:

- Suitable only for small volumes.
- Should be inspected and cleaned frequently.
- Should be secured during poor weather conditions.
- Requires that personnel be trained in proper disposal methods so that contents are not disposed of improperly.

Targeted Pollutants

Trace Metals
Hydrocarbons

Design Parameters

Containment Diking:

Size: For tank truck loading and unloading operations, the diked area should be capable of holding an amount equal to any single tank truck compartment.

Materials: Materials used to construct the dike should be strong enough to safely hold spilled materials. The materials used usually depend on what is available on-site and the substance to be contained. Dikes may be made of earth (i.e., soil or clay), concrete, synthetic materials (liners), metal, or other impervious materials. Containment dikes may need to be designed with impervious materials to prevent leaking or pollution of stormwater, surface

water, and ground water supplies.

In general, strong acids and bases may react with metal containers, concrete, and some plastics. So where spills may consist of these substances, other alternatives should be considered. Some of the more reactive organic chemicals may also need to be contained with special liners. If uncertain about the suitability of certain dike construction materials, refer to the *Material Safety Data Sheet (MSDS)* for the chemical being contained.

Curbing: When using curbing for runoff control, protect the berm by limiting traffic and installing reinforced berms in areas of concern. Materials spilled within a curbed area can be tracked outside of that area when personnel and equipment leave the area. This tracking can be minimized by grading within the curbing to direct the spilled materials to a downslope side of the curbed area. This will keep the materials away from personnel and equipment that pass through the area. It will also allow the materials to accumulate in one area, making cleanup much easier. Manual or mechanical methods, such as those provided by sump systems, can be used to remove accumulated material from a curbed area.

Drip Pans: When using drip pans, consider local weather conditions, the location of the drip pans, materials used for the drip pans, and how the pans will be cleaned. The location of the drip pan is important. Because drip pans should be inspected and cleaned frequently, they should be easy to reach and remove. Take special care to avoid placing drip pans in precarious positions such as next to walkways or on an uneven surface. Drip pans in these locations are easily overturned and may present a safety or environmental hazard. Weather is also an important factor. Heavy winds and rainfall can move or damage drip pans because the pans are small and lightweight. To prevent this, secure the pans by installing or anchoring them. Drip pans may be placed on platforms or behind wind blocks or may be tied down.

Maintenance Cleaning guidelines should be included in the maintenance plan for all methods of spill prevention and control.

Containment Diking: Inspect containment dikes during or after significant storms or spills to check for washouts or overflows. In addition, regular testing to ensure that dikes are capable of holding spills is recommended. Soil dikes may need to be inspected on a more frequent basis.

Changes in vegetation, inability of the structure to retain stormwater, dike erosion, or soggy areas indicate problems with the dike's structure. Damaged areas should be patched and stabilized immediately, where necessary. Earthen dikes may require special maintenance of vegetation, such as mowing and irrigation.

When evaluating the performance of the containment system, pay special attention to the overflow system, since it is often the source of uncontrolled leaks. If overflow systems do not exist, accumulated stormwater should be

released periodically. Polluted stormwater should be treated prior to release. Mechanical parts (such as pumps) or manual systems (slide gates, stopcock valves) may require regular cleaning and maintenance.

Curbing: Since curbing is sized to contain small spill volumes, frequent maintenance is needed to prevent overflow of any spilled materials. Inspect all curbed areas regularly and clean clogging debris. Repair the curb by patching or replacing it as needed to ensure effective functioning. Inspections should be conducted before forecasted rainfall events and immediately after storm events. If spilled or leaked materials are observed, cleanup should start immediately to allow space for future spills. In addition, prompt cleanup of spilled materials will prevent dilution by rainwater, which can adversely affect recycling opportunities.

Drip Pans: For drip pans to be effective, site operators should pay attention to the pans and empty them when they are nearly full. Because of their small holding capacities, drip pans will easily overflow if not emptied. Also, recycling efforts can be affected if stormwater accumulates in drip pans and dilutes the spilled material. It is important to have clearly specified and easily followed practices of reuse, recycle and/or disposal, especially the disposal of hazardous materials. Consider dumping the drip pan contents into a nearby larger-volume storage container and periodically recycling the contents of the storage container.

Frequent inspection of the drip pans is necessary due to the possibility of leaks in the pan itself. Also check for random leaking of piping or valves and for irregular, slow drips that may increase in volume. Conduct inspections before forecasted rainfall events to remove accumulated materials. Empty accumulations immediately after each storm event.

Description	<p>This BMP entails meeting the regulatory requirements of hazardous waste management that includes hazardous waste determination; acquiring an EPA identification number; accumulation; record keeping reporting; and transportation manifesting. Good housekeeping will minimize the contribution of pollutants to stormwater discharges by handling and storing hazardous materials on site in a clean and orderly manner.</p>	
Applications	<p>Compliance with applicable regulations will protect human health and the environment from hazardous waste generated by construction activities, reduce liability, and prevent unnecessary interruptions to schedules (i.e., project shut down due to environmental investigations/enforcement actions). The first step in preventing pollution of stormwater runoff is to maintain a clean and orderly work environment. This will reduce the possibility of accidental spills.</p> <p>Common sense is the simplest and most inexpensive method to utilize. Improving the operation and maintenance of industrial machinery, material storage practices, material inventory controls, routine and regular clean-up, maintenance activities in work areas, and providing educational programs for employees regarding these practices will assist in reaching these goals.</p>	
Limitations	<p>Drainage area - N/A Minimum bedrock depth - N/A NRCS soil type - N/A Drainage/flood control – no</p>	<p>Maximum slope – N/A Minimum water table - N/A Freeze/thaw – N/A</p> <p>Carelessness and poor judgment often result in problems associated with the disposal of hazardous materials. Not being fully aware of all the hazards at the site could increase the potential for mishandling of such wastes, resulting in stormwater contamination.</p>
Targeted Pollutants	<p>Sediment Trace Metals</p>	
Design Parameters	<p>Select a designated waste collection area on site. Secure an adequate number of containers with lids or covers. If possible, provide a covered area or spill containment pallets. Arrange for waste collection before containers overflow (additional containers and more frequent pick-ups will be needed during the demolition phase). Provide immediate cleanup in case of a spill. Assure that waste is transported and disposed of at an approved facility. A liner, concrete pad, berm, etc., should be utilized to keep waste separated and to contain accidental spills so that stormwater runoff is not polluted. Provide labels and signs for the area to educate contractors about proper storage and handling and to comply with regulatory requirements.</p>	

Construction Guidelines

The best way to avoid polluting runoff from outside material storage areas is to prevent stormwater run-on or rain from coming in contact with the materials.

These are some of the methods that can be utilized to accomplish this:

- Identify, control, and enforce storage and disposal/stockpile areas
- Provide a barrier such as a liner, concrete pad or berm
- Protect the storage area by:
 - ✓ Storing the material indoors
 - ✓ Covering the area with a roof
 - ✓ Covering the material with a temporary covering
- Engineer safeguards such as:
 - ✓ Overflow protection devices
 - ✓ Protective guards around tanks, storage area, etc.

Maintenance

- Regularly pick up and dispose of all garbage and waste material.
- Make sure equipment is working properly.
- Routinely inspect for leaks or conditions that could lead to discharges of chemicals and contact with stormwater:
 - ✓ External corrosion and structural failure
 - ✓ Installation problems
 - ✓ Evidence of spills or overfills
- Locate storage areas away from direct traffic routes.
- Stack according to directions to avoid damage due to improper weight distribution.
- Store likes together, separate incompatible wastes.
- Assign hazardous material inventory to a limited number of people.
- Keep up-to-date inventory of all hazardous materials and wastes.
- Identify all chemical substances present at the work site.
- Label all containers with name, hazards, handling, and first-aid information.
- Mark those that require special instructions.
- Cleanup of liquid or dry material spills.
- Provide initial and annual training for employees on the hazards and the proper handling procedures.
- Do not mix products together unless specifically recommended.
- Use the entire product before disposing of container.
- Do not remove original product label from container.

Description	Prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting off-site washout, performing on-site washout in a designated area, and training employees and subcontractors.	
Applications	Concrete pours, such as foundation, footing or pile sites	
Limitations	Drainage area – N/A Minimum bedrock depth - N/A NRCS soil type - BCD Drainage/flood control – no	Maximum slope – N/A Minimum water table - N/A Freeze/thaw – good
	Off-site washout of concrete wastes may not always be possible.	
Targeted Pollutants	Concrete waste	
Construction Guidelines	<p>The following practices will help reduce stormwater pollution from concrete wastes:</p> <ul style="list-style-type: none"> ▪ Avoid mixing excess amounts of fresh concrete or cement on site. ▪ Perform washout of concrete trucks off site or in designated areas only. ▪ Do not wash out concrete trucks into storm drains, open ditches, streets, or streams. ▪ Avoid dumping excess concrete in non-designated dumping areas. <p>For on-site washout:</p> <ul style="list-style-type: none"> ▪ Locate washout area at least 50 ft from storm drains, open ditches, or water bodies. Construct a temporary pit or bermed area with a paved or gravel approach to capture liquid and solid waste. ▪ Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed of properly. ▪ When washing concrete to remove fine particles and expose the aggregate, drain the water to a bermed or level area. ▪ Avoid washing sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose in the trash. ▪ Train employees and subcontractors in proper concrete waste management. 	
Maintenance	<ul style="list-style-type: none"> ▪ Inspect subcontractors to ensure that concrete wastes are being properly managed. ▪ If using a temporary pit, dispose hardened concrete on a regular basis. 	

Description	Prevent the discharge of pollutants to stormwater from sanitary/septic waste by providing convenient, well-maintained facilities, and arranging for regular service and disposal.	
Applications	All construction sites where portable facilities are used.	
Limitations	Drainage area – N/A Minimum bedrock depth - N/A NRCS soil type - N/A Drainage/flood control – N/A	Maximum slope – N/A Minimum water table - N/A Freeze/thaw – N/A
	No major limitations.	
Targeted Pollutants	Nutrients Bacteria	
Approach	Sanitary and septic wastes should be disposed of in accordance with state and local requirements. Some of these requirements are listed below: <ul style="list-style-type: none">▪ Locate sanitary facilities in a convenient location.▪ Avoid discharging or burying untreated raw wastewater.▪ Ensure that temporary septic systems treat wastes to appropriate levels before discharging.▪ If using an on-site disposal system (OSDS) such as a septic system, comply with local health agency requirements.▪ Ensure that temporary sanitary facilities that discharge to the sanitary sewer system are properly connected. This practice will help eliminate illicit discharges.▪ If discharging to the sanitary sewer, contact the local wastewater treatment plant for their requirements.▪ Ensure that a licensed service maintains sanitary/septic facilities in good working order.▪ Portable units may need to be staked or secured to a fixed object.	
Maintenance	<ul style="list-style-type: none">▪ Inspect facilities regularly.▪ Arrange for regular waste collection.	

Description	Topsoiling is the placement of topsoil or other suitable plant growth material over disturbed lands to provide a suitable soil medium for vegetative growth and a supply of native or locally occurring seeds and propagules. Topsoiling may involve bringing in soils from off site or merely replacing fertile topsoil that was stripped and stockpiled during earlier site development activities.	
Applications	Topsoiling is recommended on slopes 2:1 or flatter where the native soil is unsuitable for vegetative growth. It is an effective way of improving plant establishment on sites where moisture, nutrients, or pH levels are low, or where the remaining soil is too shallow to support root systems.	
Limitations	Drainage area – unlimited Minimum bedrock depth – 3 ft NRCS soil type – N/A Drainage/flood control – no	Maximum slope – 50% Minimum water table – 2 ft Freeze/thaw – fair
Targeted Pollutants	Sediment	
Design Parameters	<p>Plan to maintain the existing or established grade of the subsoil. The topsoil should be uniformly distributed at a minimum compacted depth of 2 in. on slopes 3:1 or steeper, and 4 in. deep on flatter slopes. The soil should be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or other mixture approved by an agronomist. It should be free of subsoil, refuse, sticks, noxious weed seeds, other extraneous materials, and stones larger than 1.5 in. diameter.</p> <p>Topsoil can either be obtained commercially or stripped, stockpiled, and replaced on the construction site. Stockpiled topsoil should undergo a laboratory analysis to determine organic content, pH, and soluble salts. A pH of 6.0 to 7.5 and organic content of not less than 1.5% by weight is recommended. Where soil pH is less than 6.0, lime may be applied to adjust pH to 6.5 or higher. Any soils having soluble salt content greater than 500 parts per million should not be used.</p> <p>If desired, it is possible to place a thin layer of topsoil 1.2 to 2 in. thick on benched slopes. In such applications, it is important not to apply so much topsoil that the value of the benches is destroyed. This method is especially valuable on rocky benches, especially on south- or west-facing slopes, however, proper placement of the soil is often a problem. In some cases, soil has been bucketed onto slopes. This produces an uneven spread and the</p>	

quantity is hard to control. Soil can also be blown onto the slope using a snow blower. In that case, organic matter can be mixed with the soil, but the soil should be screened to remove any rocks larger than 2 in.. The advantage is that the amount of soil needed is much less and it can be spread very rapidly on the horizontal surfaces. The soil may need some form of stabilization before the next rain event. Consider whether mulch, matting, geotextiles or seeding is required and when.

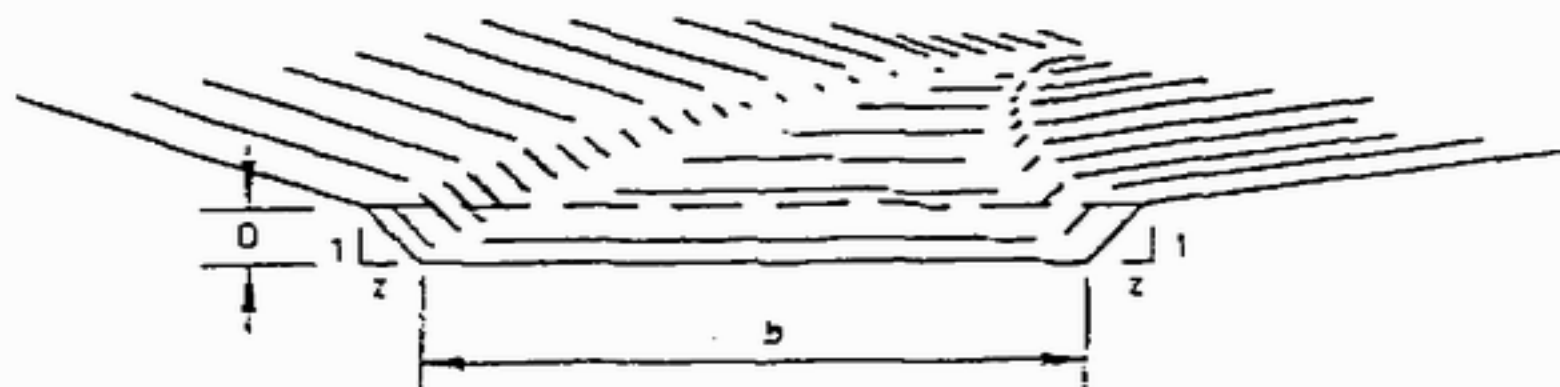
Construction Guidelines

The following guidelines apply to the placement of topsoil:

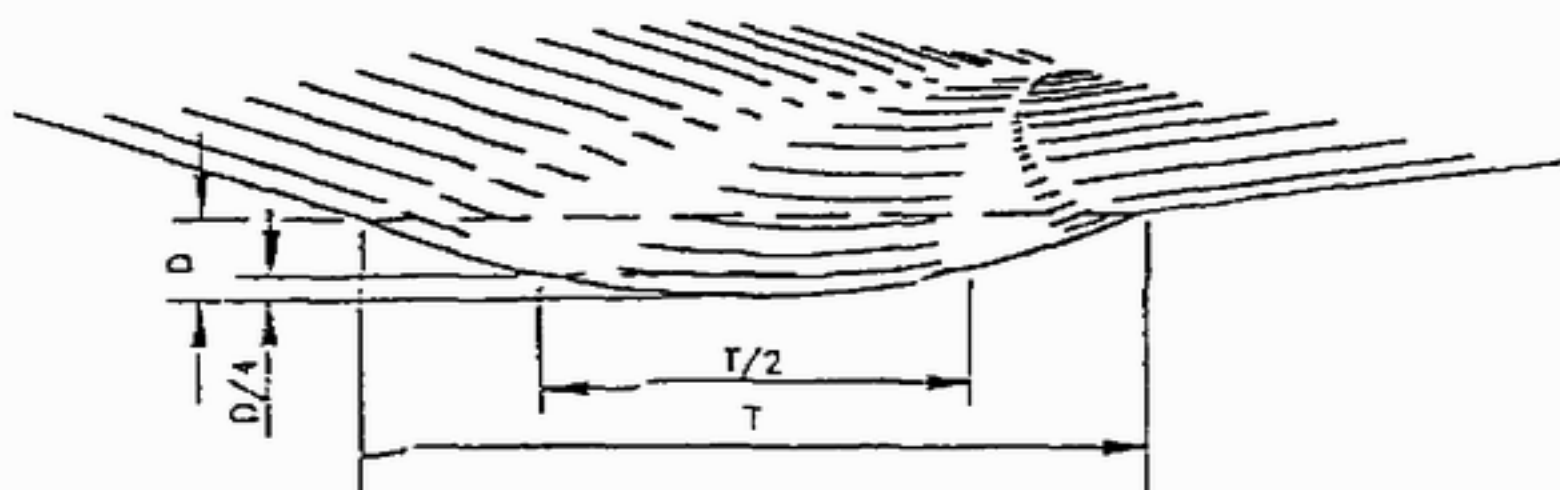
- The existing or established grade of subsoil should be maintained.
- Lime may be uniformly applied over designated areas where subsoil is highly acidic or heavy in clay content.
- Prior to spreading topsoil, loosen the subgrade by discing (or other method) to a depth of 2 in. to permit bonding of subsoil to topsoil. Tracking a bulldozer vertically over the slope will pack the soil and create horizontal erosion check slots to prevent topsoil from sliding down the slope.
- Spread the topsoil uniformly at a minimum compacted depth of 2 in. on 1:3 or steeper slopes and 4 in. on flatter slopes. A depth of 6 to 12 in. is preferred. Any surface irregularities should be corrected in an effort to prevent formation of water-holding depressions.
- Where quantities of stockpiled topsoil on site are limited, it is more desirable to cover all areas of exposed subsoil to a lesser depth than to cover partial areas to the suggested minimum depth of 3.1 in..
- Topsoil should not be placed when the subgrade is frozen, excessively wet, or in a condition that may otherwise be detrimental to proper grading or proposed sodding or vegetation establishment.

Maintenance

Periodically and after major storm events, inspect, repair, and reseed as necessary to control slope erosion and subsequent topsoil losses.



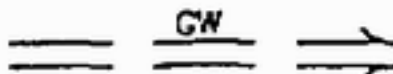
TRAPEZOIDAL CROSS-SECTION



PARABOLIC CROSS-SECTION

CONSTRUCTION SPECIFICATIONS

- 1 ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE WATERWAY.
 - 2 THE WATERWAY SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN, AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
 - 3 FILLS SHALL BE COMPACTED AS NEEDED TO PREVENT UNEQUAL SETTLEMENT THAT WOULD CAUSE DAMAGE IN THE COMPLETE WATERWAY.
 - 4 ALL EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE WATERWAY.
 - 5 STABILIZATION SHALL BE DONE ACCORDING TO THE APPROPRIATE "STANDARD AND SPECIFICATIONS FOR VEGETATIVE PRACTICES".
- A FOR DESIGN VELOCITIES OF LESS THAN 3.5 ft. per sec., SEEDING AND MULCHING MAY BE USED FOR THE ESTABLISHMENT OF THE VEGETATION. IT IS RECOMMENDED THAT, WHEN CONDITIONS PERMIT, TEMPORARY DIVERSIONS OR OTHER MEANS SHOULD BE USED TO PREVENT WATER FROM ENTERING THE WATERWAY DURING THE ESTABLISHMENT OF THE VEGETATION.
 - B FOR DESIGN VELOCITIES OF MORE THAN 3.5 ft. per sec., THE WATERWAY SHALL BE STABILIZED WITH SOD, WITH SEEDING PROTECTED BY JUTE OR EXCELSIOR MATTING OR WITH SEEDING AND MULCHING INCLUDING TEMPORARY DIVERSION OF THE WATER UNTIL THE VEGETATION IS ESTABLISHED.
 - C STRUCTURAL - VEGETATIVE PROTECTION
 - (1) SUBSURFACE DRAIN FOR BASE FLOW SHALL BE CONSTRUCTED AS SHOWN ON THE STANDARD DRAWING AND AS SPECIFIED IN THE "STANDARD AND SPECIFICATIONS FOR SUBSURFACE DRAIN".


 STANDARD SYMBOL

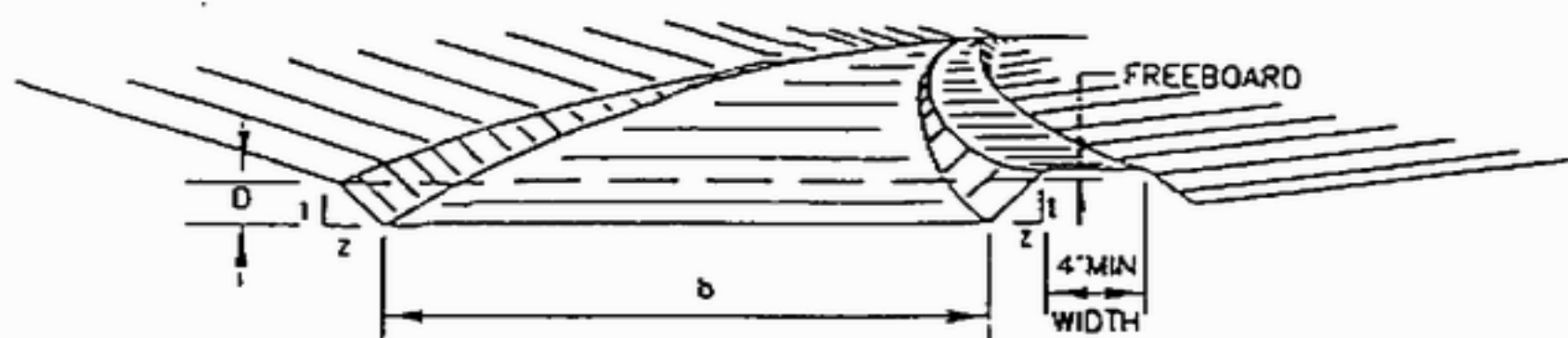
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TOOTHMAN-ORTON ENGINEERING COMPANY
BOISE, IDAHO McCALL, IDAHO

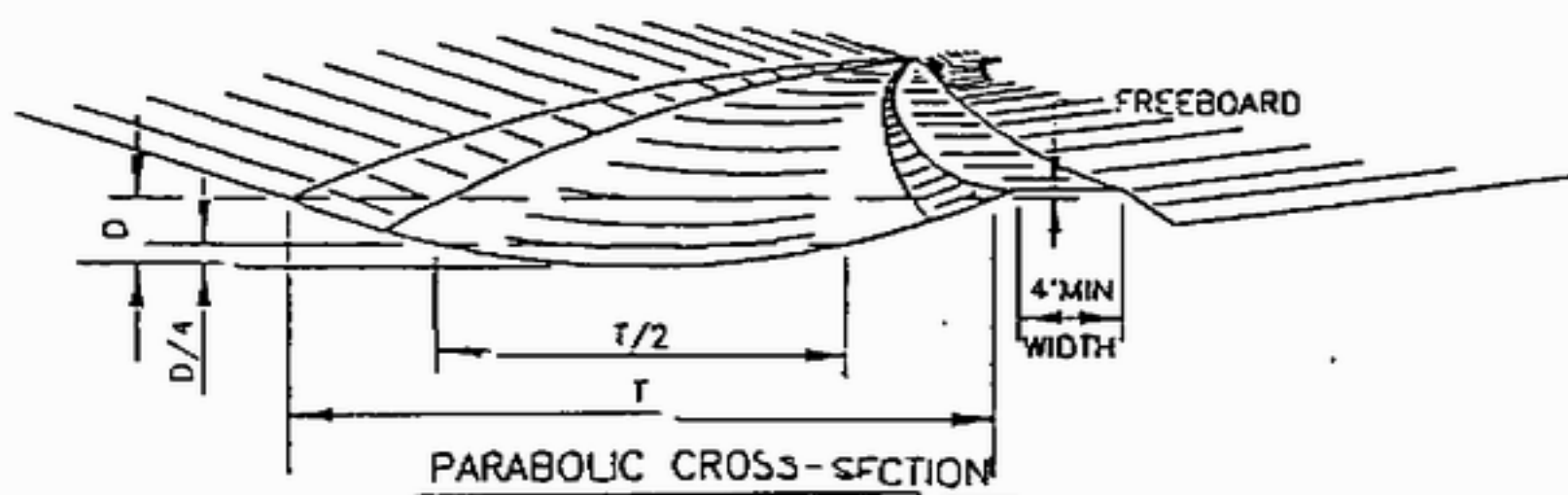
GRASSED WATERWAY

STANDARD
DRAWING

GW-1



TRAPEZOIDAL CROSS-SECTION



PARABOLIC CROSS-SECTION

CONSTRUCTION SPECIFICATIONS

- 1 ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE DIVERSION.
- 2 THE DIVERSION SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN, AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
- 3 FILLS SHALL BE COMPACTED AS NEEDED TO PREVENT UNEQUAL SETTLEMENT THAT WOULD CAUSE DAMAGE IN THE COMPLETED DIVERSION.
- 4 ALL EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE DIVERSION.
- 5 STABILIZATION SHALL BE DONE ACCORDING TO THE APPROPRIATE "STANDARD AND SPECIFICATIONS FOR VEGETATIVE PRACTICES".
 - A FOR DESIGN VELOCITIES OF LESS THAN 3.5 ft. per sec., SEEDING AND MULCHING MAY BE USED FOR THE ESTABLISHMENT OF THE VEGETATION. IT IS RECOMMENDED THAT, WHEN CONDITIONS PERMIT, TEMPORARY DIVERSIONS OR OTHER MEANS BE USED TO PREVENT WATER FROM ENTERING THE DIVERSION DURING THE ESTABLISHMENT OF THE VEGETATION.
 - B FOR DESIGN VELOCITIES OF MORE THAN 3.5 ft. per sec., THE DIVERSION SHALL BE STABILIZED WITH SOD, WITH SEEDING PROTECTED BY JUTE OR EXCELSIOR MATTING OR WITH SEEDING AND MULCHING INCLUDING TEMPORARY DIVERSION OF THE WATER UNTIL THE VEGETATION IS ESTABLISHED. SEE "THE STANDARD AND SPECIFICATIONS FOR PROTECTIVE MATERIALS".

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STANDARD SYMBOL

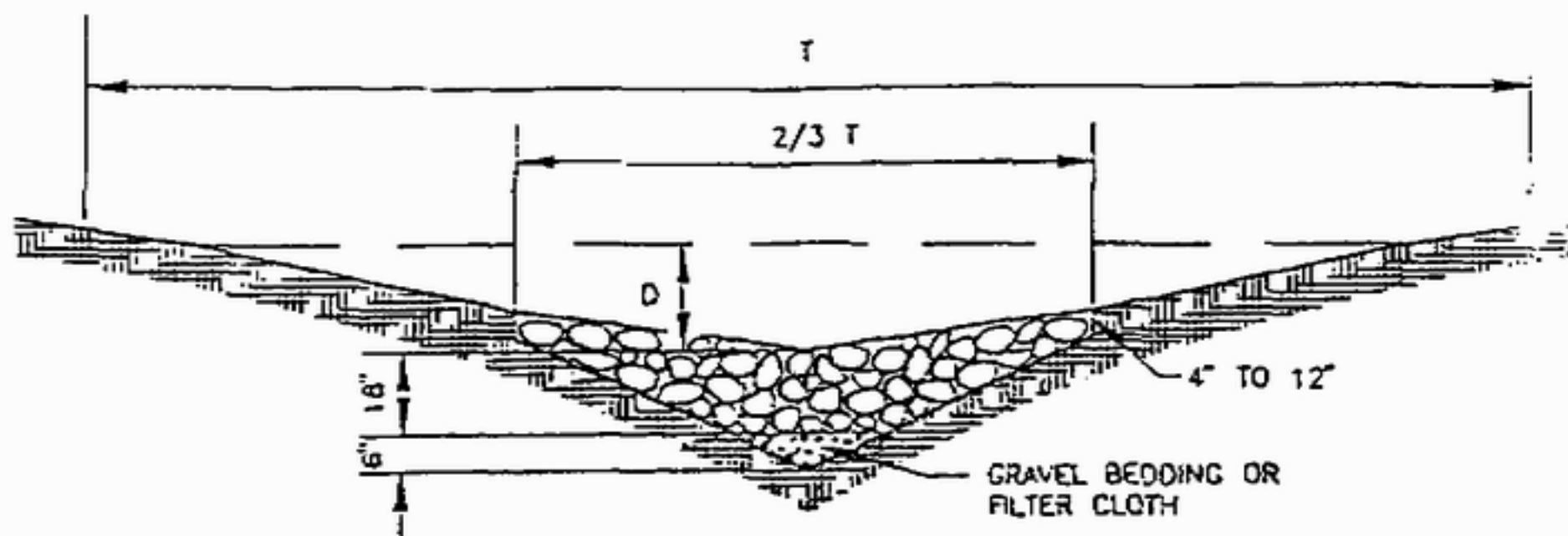
U.S. DEPARTMENT OF AGRICULTURE
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DIVERSION

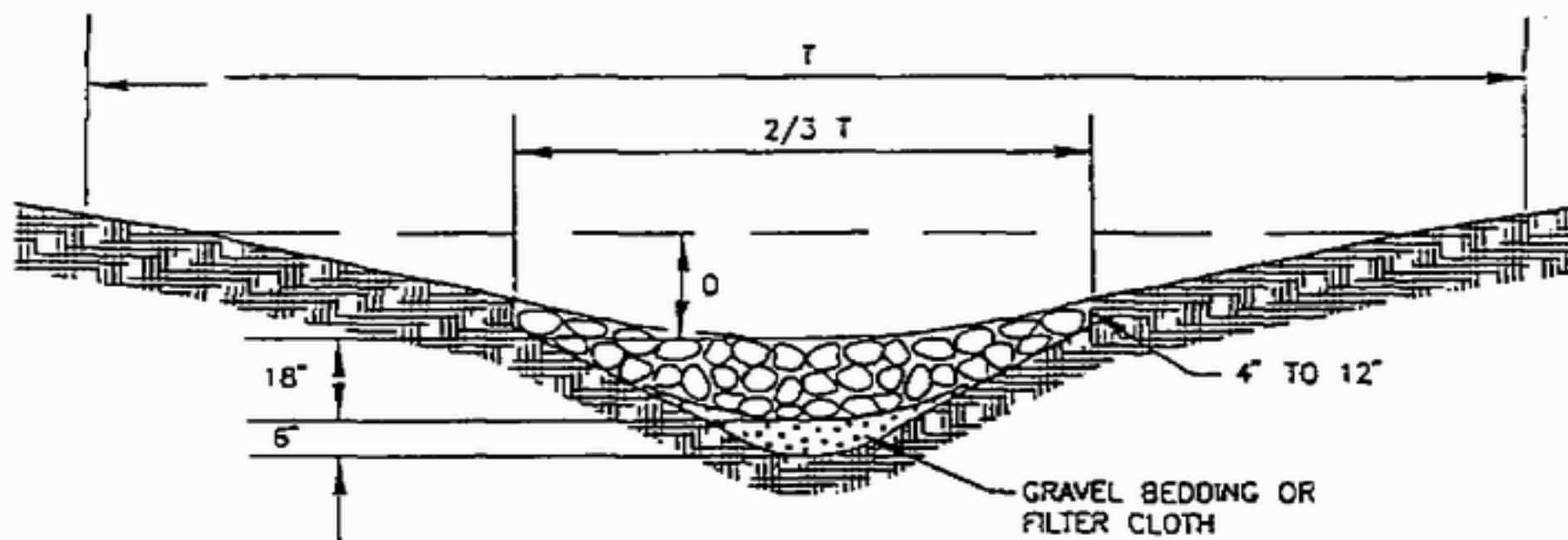
STANDARD
DRAWING

GW-3



WATERWAY WITH STONE CENTER DRAIN
"V" SECTION SHAPED BY MOTOR PATROL

"V" SECTION



WATERWAY WITH STONE CENTER DRAIN
ROUNDED SECTION SHAPED BY BULLDOZER

ROUNDED SECTION

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TOOTHMAN-ORTON ENGINEERING COMPANY
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WATERWAY WITH STONE
CENTER

STANDARD
DRAWING

RW-1

Description Permanent Seeding means growing a long-term or permanent vegetative cover (plants) on disturbed areas or areas that need assistance in revegetation. The purpose of permanent seeding is to reduce erosion and sedimentation and to establish desirable competitive ground cover for wildlife habitat and ease of roadside maintenance. This practice uses prescribed perennial grasses, legumes and native shrubs or wild flowers that will hold the soils, reduce stormwater runoff and act as a bio-filtering system on long-term basis.

The guidelines given in this fact sheet for design, construction and maintenance can also be used to install temporary seeding on construction sites.

Applications Temporary seeding should be considered as slope protection and erosion control practice for construction sites. Permanent seeding should be considered for any disturbed area where all construction or maintenance activities have ceased or been finalized and is now ready for permanent vegetative cover. Typical areas subject to permanent vegetative cover are all areas disturbed by new construction, reconstruction and maintenance, and materials source site and areas in need of revegetation.

The primary advantages of seeding are:

- It establishes good soil stabilization.
- It prevents soil erosion and sedimentation.
- It contains and filters stormwater runoff.

Additional advantages specific to permanent seeding are:

- It provides wildlife ground cover and habitat.
- It competes with undesirable vegetation and noxious weeds.
- It provides aesthetic qualities.
- It reduces the cost of maintenance.

Limitations	Drainage area – unlimited	Maximum slope – 5%
	Minimum bedrock depth – 2 ft	Minimum water table – 2 ft
	NRCS soil type – N/A	Freeze/thaw – fair
	Drainage/flood control – no	

Permanent vegetative ground cover will take several years before sufficient establishment takes place. Establishment will occur quicker in high precipitation areas, usually over 20 in., as opposed to the arid or semi-arid regions of the state. Permanent seeding should be conducted in conjunction with various forms of mulching, matting, and annual grass (cereal grain) as a nurse crop.

Other factors that contribute to the success or failure of permanent seeding are:

- Seeding should be done at the proper time of year.
- Proper application of fertilizers as prescribed will contribute to the success of the seeding.
- Once seeded, the site should not be disturbed.
- Irrigation may have to be used in low precipitation area (arid/semi-arid) for establishment.

**Targeted
Pollutants**

Sediment
Phosphorus
Trace metals

**Design
Parameters**

Conduct all permanent seeding and fertilizing in accordance with local requirements. See Volume 4, Appendix C, Stormwater Plant Materials for additional guidelines.

**Construction
Guidelines
Maintenance**

Permanent seeding is the last phase of reclaiming any disturbed soils.

- Inspect all seeded areas on a regular basis and after each major storm event to check for areas where corrective measures may have to be made.
- Indicate which areas need to be reseeded or where other remedial actions are necessary to assure establishment of permanent seeding.
- Continue monitoring of the site/area until permanent vegetation is established.

Description	Sodding entails the placement of rolls or strips of sod as a landscape planting or erosion control measure. Sod is a layer of soil bound by grass and plant roots into a thick mat. It is commercially available in rolled strips that are laid over an area of exposed soil. Sod stabilizes the area by immediately covering the surface with vegetation and enabling stormwater to infiltrate into the ground.	
Applications	<p>Sodding is appropriate for any graded or cleared area that might erode and where a permanent, long-lived plant cover is needed immediately. It can be a temporary or permanent BMP. Possible uses for sod include buffer zones, stream banks, dikes, swales, slopes, outlets, level spreaders, and filter strips. Primary advantages of sod are:</p> <ul style="list-style-type: none"> ▪ Provides immediate dense vegetative cover and erosion control. ▪ Provides more stabilizing protection than initial seeding. ▪ Generates less weed growth than seeded vegetation does. ▪ Can be available for site activities (open to foot traffic) within a shorter time than can seeded vegetation. ▪ Can be placed at any time of the year as long as water is available and moisture conditions in the soil are favorable. 	
Limitations	<p>Drainage area – unlimited Minimum bedrock depth – 2 ft NRCS soil type – ABCD Drainage/flood control – no</p>	<p>Maximum slope – 14% Minimum water table – 2 ft Freeze/thaw – fair</p>
Targeted Pollutants	<ul style="list-style-type: none"> ▪ Purchase and installation costs are higher than for seeding. ▪ Continued irrigation may be required if the sod is placed during dry seasons or on sandy soils. Watering may be necessary after planting and during periods of drought or intense heat. ▪ Sod should not be installed during very hot or wet weather <p>Sediment Phosphorus Trace metals</p>	
Design Parameters	<p>Materials: Use grasses that require little or no maintenance (watering or fertilizing). This may require advance planning to obtain grasses that are desirable for the location.</p> <p>Site preparation: The soil surface should be find graded before laying down the sod. Topsoil may be needed in areas where soil textures or conditions are inadequate (such as dense or impermeable soils). Add lime and fertilizers as needed to promote good plant growth conditions.</p>	

Slope: Do not place sod on slopes greater than 3:1 if slopes are to be mowed. If placed on steep slopes, the sod should be laid with staggered joints or be pegged down (or both).

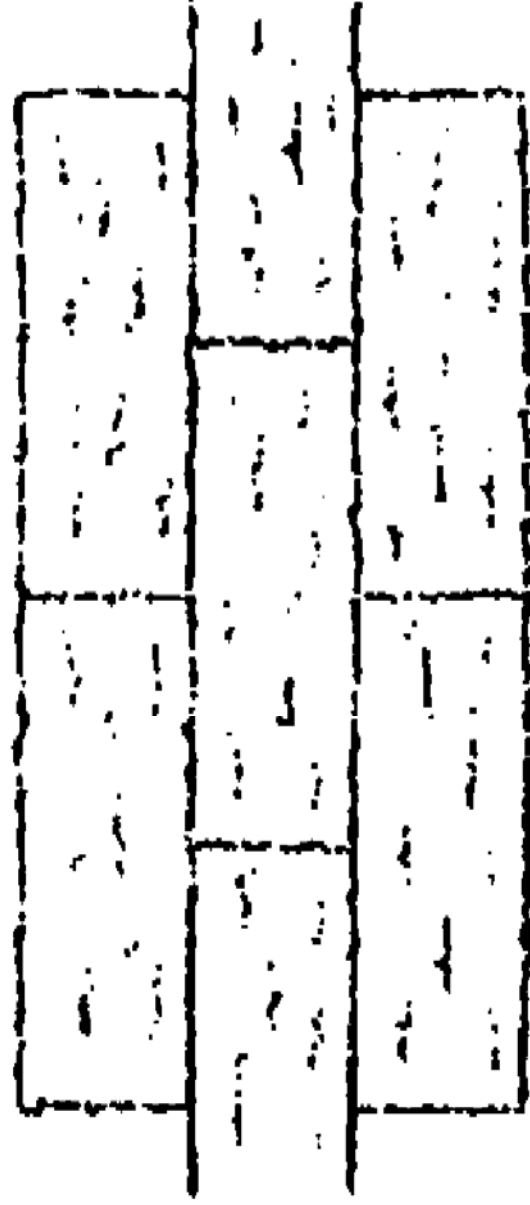
Installation methods: Sod can be applied in strips or other patterns, or alternate areas can be seeded to reduce expense. If placed on steep slopes or next to running waterways, consider placing chicken wire, jute, or other matting over the sod for extra protection against lifting.

Construction Guidelines

- Spread and grade the topsoil (if used). Sod may be placed directly on the ground (without topsoil) only if it has been specifically grown for sites with no topsoil.
- Prepare the soil surface by fine-grading the surface before laying sod. Sodding should then take place immediately after the soil bed is established.
- Lay the sod in a staggered pattern. Sod in waterways should be laid parallel to the flow.
- Sod can be laid in strips on the contour to reduce effective slope length.
- Roll or compact the sod immediately after installation to ensure firm contact with the underlying soil.
- Water to a depth of 4 in., as needed.

Maintenance

- Inspect the sod frequently after it is first installed, especially after large storm events, until it is established as permanent cover. Remove and replace any dead sod.
- Once the sod is established, mow the area as needed.
- Water as often as necessary during periods of intense heat or lack of rain.
- Sodding usually serves as both a temporary and permanent measure and, therefore, does not require removal.



Correct



Incorrect

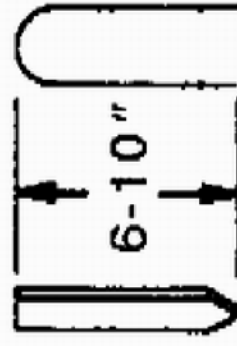
Lay sod in a staggered pattern with strips butted tightly against each other. A sharpened mason's trowel can be used to tuck down the ends and trim pieces.

Butting—angled ends caused by the automatic sod cutting must be matched correctly.

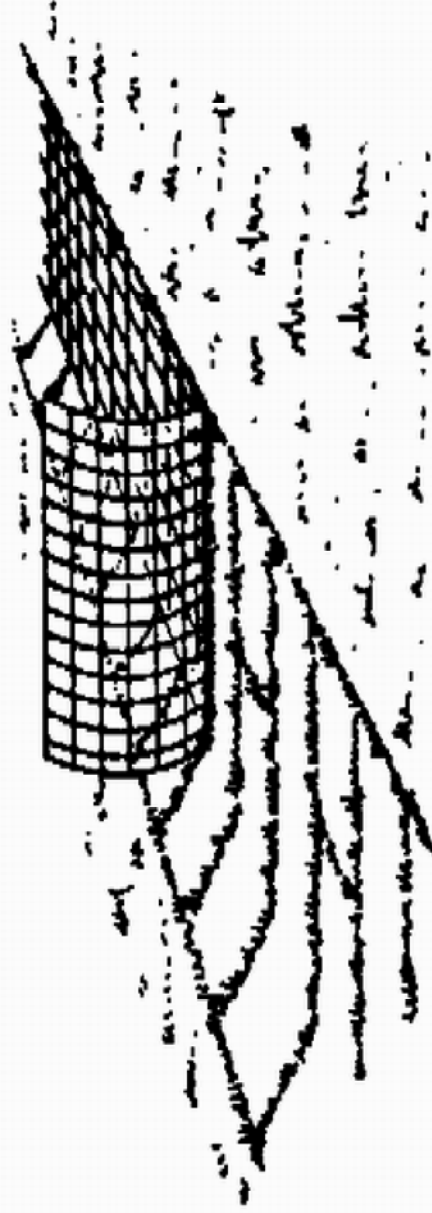
Flow



Lay sod across the direction of flow.



Use pegs or staples to fasten sod firmly at the ends of strips and in the center, or every 3-4' if the strips are long. When ready to mow, drive pegs or staples flush with the ground.



In critical areas, secure sod with netting and staples.

Description Planting is the process of establishing vegetation by setting out plants that have been grown to a specified size or age. The plants may be potted in plastic tubes or in containers of various sizes, root wrapped, or may be bare rootstock.

Plantings are often specified for aesthetic purposes (landscaping) but can serve various erosion control functions as well. The living trees and shrubs in a planted area will grow large enough to provide soil stabilization and erosion control benefits sooner than the seeds of woody species can germinate and grow to effective size.

The use of trees and shrubs also provides greater aesthetic and biological diversity and, in many areas, is more compatible with vegetation on lands adjoining the planted site.

Also refer to Volume 4, Appendix C: Stormwater Plant Materials, for additional design guidance regarding using landscaping to maximize water quality benefits.

- Applications**
- Planting is the preferred method of revegetation in many situations where seeding and other slope treatments are either not effective or not appropriate as permanent measures. Such areas may include the following:
 - Any finished slope that will remain undisturbed for at least 10 years, especially if the area is bordered by forests, wetlands or other naturally occurring woody vegetation. On such sites, trees and shrubs may be the desirable vegetation from a long-term perspective, but they may be very difficult or unreliable to establish from seed.
 - Extremely rocky slopes or sites: If natural vegetation is present in significant amounts, such areas are difficult to seed and mulch effectively. Plantings can be used to provide additional stabilization.
 - Streets or materials source sites that have been abandoned permanently.
 - All types of landscaping, including urban thoroughfares, interchanges, and residential streets where landscape aesthetics are a concern.
 - Wetlands and wildlife habitat areas: in such areas, it may be critical to plant the desired species initially so that the site is not overrun by weeds or undesirable plant species that detract from the intended use of the site.
 - Areas where the higher rate of transpiration for trees and shrubs (compared to grasses and forbs) helps remove excess moisture from the soil.

Limitations	Drainage area – unlimited	Maximum slope – 50%
	Minimum bedrock depth – 3 ft	Minimum water table – 3 ft
	NRCS soil type – ABCD	Freeze/thaw – fair
	Drainage/flood control – no	

- Purchase and installation costs are higher than for seeding.
- Continued or periodic irrigation may be required if planting occurs during dry season or on sandy soils. Watering may also be necessary up to 2 years after planting and during periods of drought or intense heat.
- Specific seasons of work apply for planting. Planting outside the designated season should not be allowed unless provisions for special care and maintenance of the plants are enforceable.

Targeted Pollutants

Sediment
Phosphorus
Trace metals

Design Parameters

Advantages of Planting: Many shrubs and trees are difficult to establish from seed in natural environments and natural seed crops vary widely from year to year. Rapid invasion from native vegetation and rapid establishment of sown seed of woody species is therefore unreliable. Vegetative plantings are used to provide living shrubs and trees that will grow to adequate size to provide soil stabilization and erosion control faster than seeds of woody species can germinate and grow to these dimensions.

Materials: Planted material may be grown from either cuttings or seed. At delivery to a job site, the plants may be potted (in containers), root wrapped, or bare root stock. Some species are successfully planted as sprigs or tubelings.

Use of Native Species: If possible, use species that are native to the area. Native species provide long-term soil stabilization which is aesthetically harmonious with natural vegetation and which requires little long-term maintenance. Short-term maintenance is necessary to ensure the establishment of the vegetation.

Maximizing Effectiveness: Successful planting projects depend on selecting suitable plant species, using healthy planting stock, and planting when the season and weather conditions are favorable. The site should be properly prepared for planting and should be properly maintained after planting to ensure long-term survival of the plants. Make sure the contract and plans include adequate provisions for all aspects of the planting process.

Since vegetative planting places living plants on a site, thus decreasing the length of time necessary to establish a complete revegetation project, it is more effective than seeding methods for revegetation. Adequate maintenance is absolutely necessary to achieve this effectiveness since vegetative planting require irrigation for at least the first year and will benefit from irrigation for 2 or more years.

Vegetative planting may be combined with seeded grasses and legumes that provide immediate surface coverage.

Construction Guidelines

- Make sure that planting sites are adequately graded and that tree locations and planting areas (for shrubs, vines, and ground covers) are marked and

approved before planting begins.

- Plant materials should be examined before use to ensure that species, container sizes, and root and soil condition are acceptable. If possible, the growth medium for containerized plants should be similar to the soil type on the revegetation site. Container size guidelines are as follows:
- Tree species may be of bare rootstock or of potted stock. Pots should be one gallon size or larger.
- Shrub species may be of bare rootstock or of potted stock. The preferred planting pot is a tube of woven plastic that is planted with the plant contained in it. The pot deteriorates over time. The pots should be 2 in. long, with both ends open.
- Paper pots should be 2 to 3.1 in. square and 8.5 to 12 in. long. The paper around the rim should be removed to ground level at planting.
- Peat pots are not recommended since research has shown greater mortality of plantings in peat pots due to drying. If peat pots are used, any exposed peat pot material showing after planting should be removed.
- In general, no container should be less than 2 in. wide and 6 in. deep.

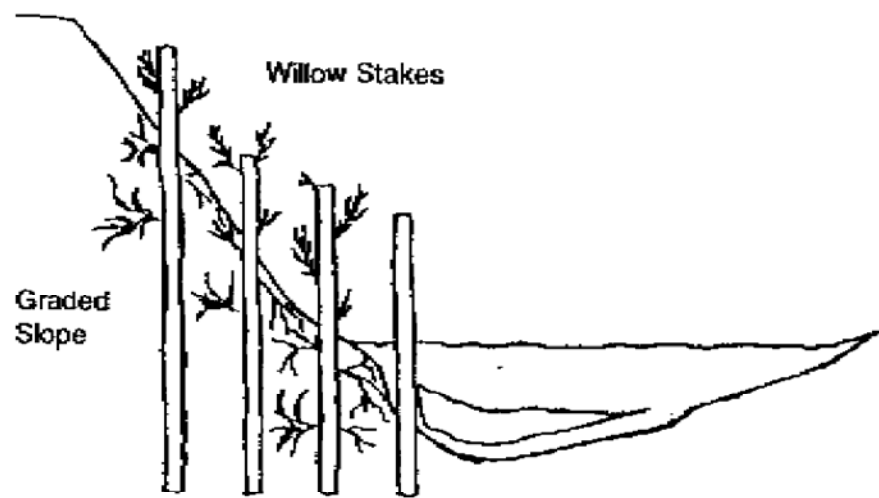
Plant storage: Store bundled bare root planting stock, whether tree or shrub species, in a cool, moist place from time of receipt until time of planting. This time should not exceed 10 days. Store potted planting stock in shade, out-of-doors, and kept lightly sprinkled with water to maintain a moist soil from the time of receipt to the time of planting. This time should not exceed 30 days.

Planting procedures:

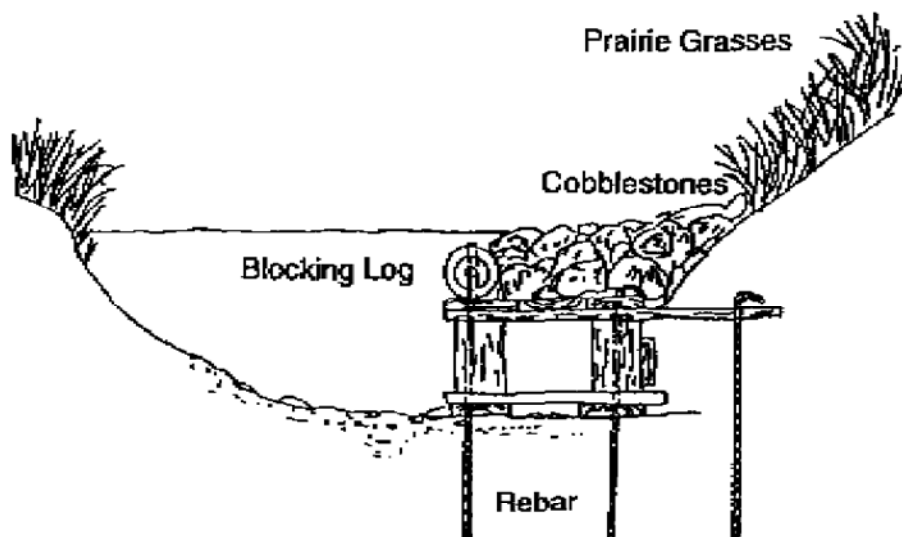
- Plant the mixture of trees and shrubs that has been prescribed. In no case should this be less than 690 plants per acre. If bare root stocks are used, planting rates should be increased by 1.25 times the stated rate.
- Voluntary or unskilled labor may be used in planting. However, a supervisor who is skilled in the techniques being used should direct the labor.
- Construct a basin 12 in. in diameter and depressed no more than 2 in. from the elevation of the downslope lip.
- Open the planting hole with a planting bar or shovel. Then place the plant near the downslope lip of the basin. This allows sloughing from the slope to fall in to the basin without burying the young plant.
- Carefully remove plants from their containers, if any, and place them in the planting holes so that the crown of the plant is at the surface of the soil. No air space should be allowed around the roots, nor should the roots be folded under. Plants in individual containers made of decomposable material are planted without removing them from the container.
- Apply fertilizer at the rate specified, and place wood chip or wood fiber mulch to a depth of 2 in. around each plant.
- The soil should be wetted to field capacity to a depth of 3.1 to 4 in. at the time of planting and each time the soil moisture level drops below the permanent wilting percentage.

Maintenance

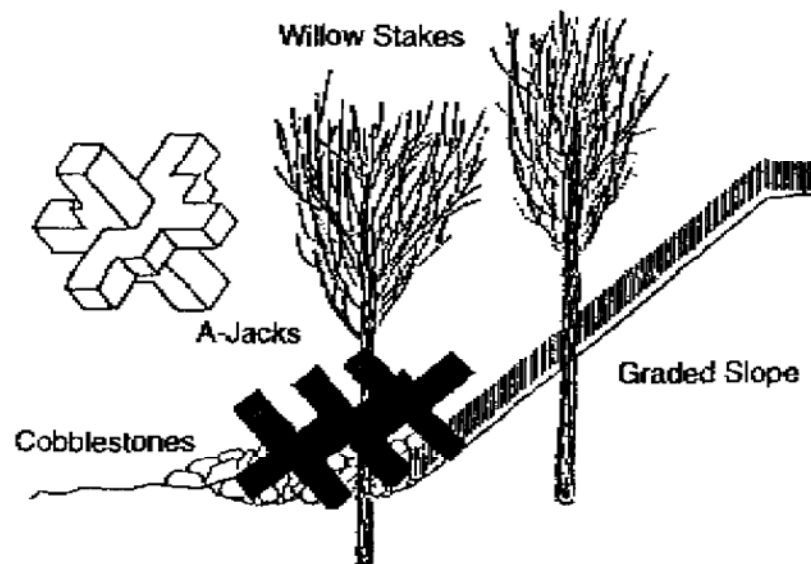
- Irrigation of vegetative plantings during the first 2 years following planting is required to increase the survival rate. Water as often as necessary during periods of intense heat or lack of rain.
- Inspect plantings frequently after first installed to see if plants are thriving. Remove and replace dead plants to restore the prescribed number of living plants per hectare.
- After storm events, examine the planting basins and mulch cover and make any needed repairs.



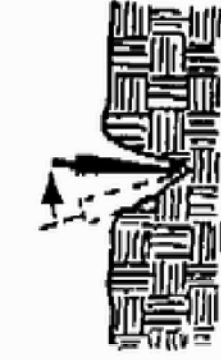
Willow posts installed below depth of streambed scour.



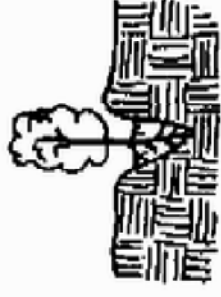
Lunker with riprap below baseflow stage. Rebar is driven below bed scour depth.



A-jack bank structures.



Insert bar and push forward to upright position.



Remove bar and place seedling at correct depth.



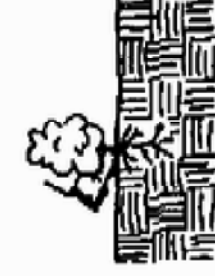
Push bar toward plant firming soil at top of roots.



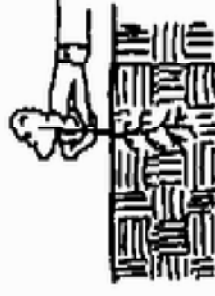
Fill in hole by stamping with heel.



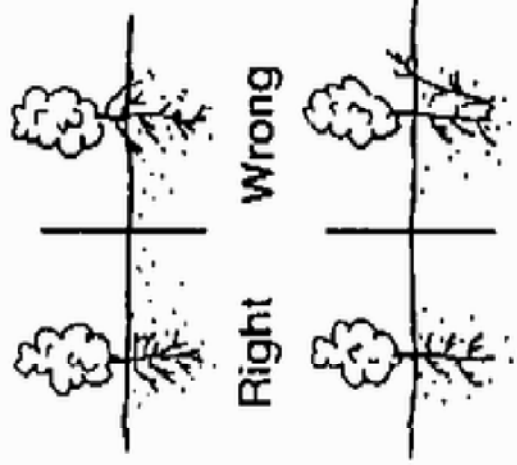
Re-insert bar next to planting hole and pull away from seedling, firming soil at bottom of roots.



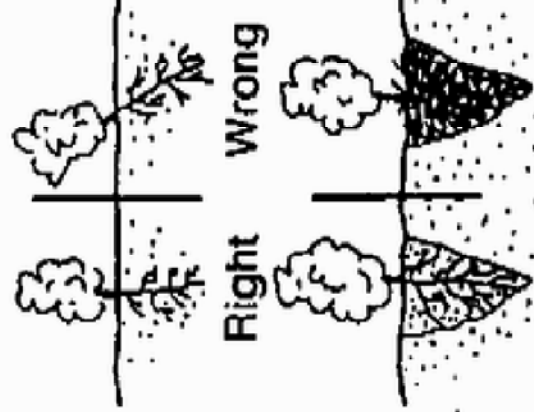
Firm soil around seedling with feet.



Test planting by pulling lightly on seedling.



Make hole deep enough to accommodate all roots without bending.

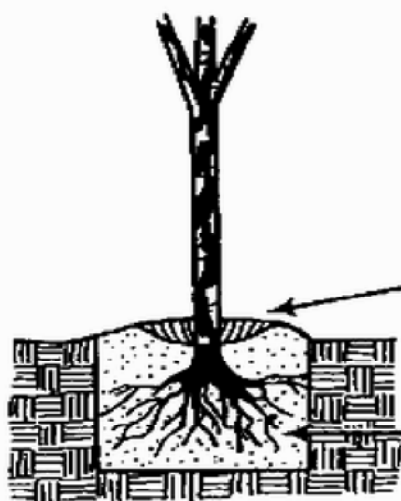


Plant seedlings upright.

Always plant in soil—never leaves or debris.

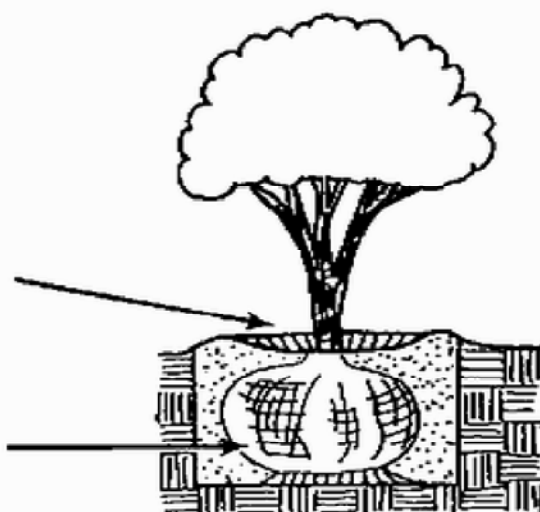


Plant at the same depth as when previously grown. Spread out roots of bare-root specimens.

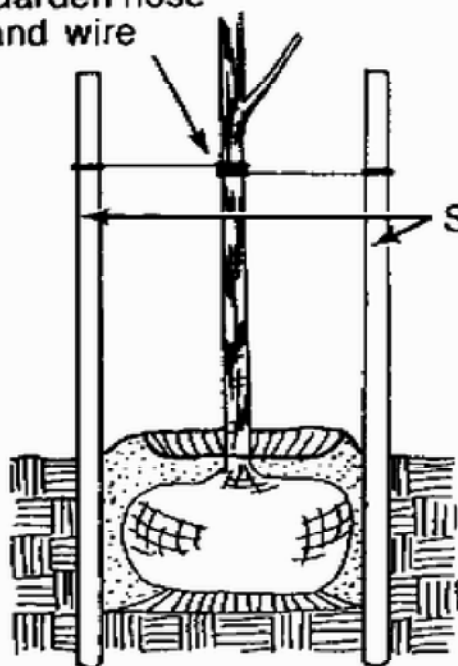


Prepare watering depression inside excavated area.

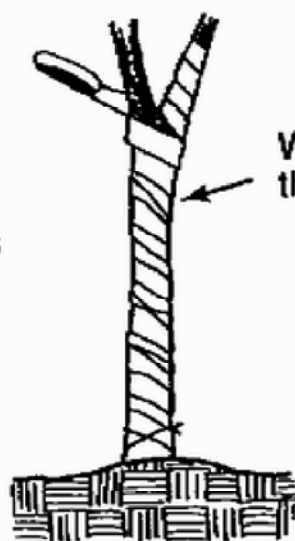
Planting soil mixture



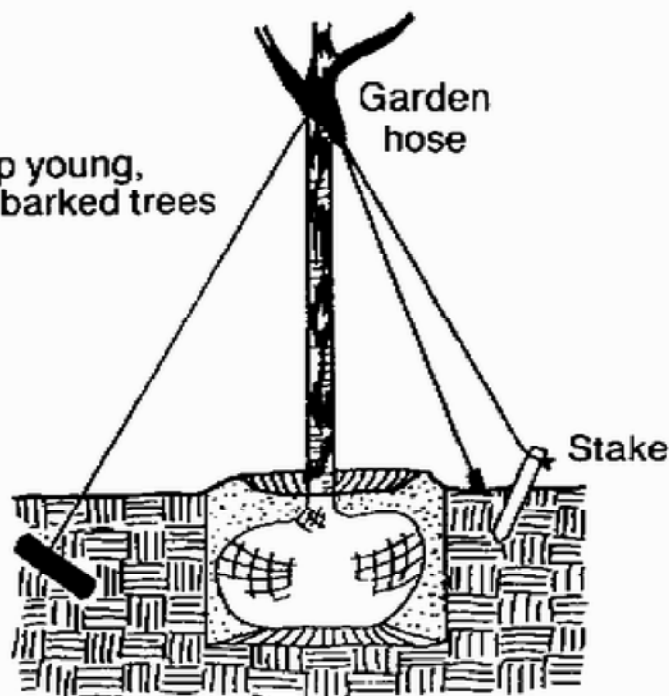
Garden hose and wire



Trees under 6'



Wrap young, thin-barked trees



Trees over 6'

Description Inlet protection consists of a filtering measure placed around an inlet or drain to trap sediment and prevent the sediment from entering the storm drain system. Additionally, it serves to prevent the silting-in of inlets, storm drainage systems, or receiving channels. Inlet protection may be composed of gravel and stone with a wire mesh filter, block and gravel, or sod. Manufactured products are also available that are designed to trap silt and sediment at the point of entry to a storm drain. Inserts can include bags, racks, baskets and other materials that hang down into a catch basin or inlet. Inserts are made from filter fabric, wire mesh, metal plates, various types of plastic products and combinations of these and other materials. Care should be taken not to cause flooding with diverted flow.

- Applications**
- Inlet protection is appropriate for small drainage areas (less than 1 ac.) where storm drains will be ready for use before the drainage area reaches final stabilization. Storm drain inlet protection is also used where:
 - ✓ A permanent storm drain structure is being constructed on site and there is danger of sediment silting it in before permanent site stabilization.
 - ✓ There is a threat of sediment silting in an inlet that is in place prior to permanent stabilization.
 - ✓ Ponding around the inlet structure could be a problem to traffic on site.
 - Block and gravel filters can be used where velocities are higher. They may be used with most types of inlets where overflow capability is needed and in areas of heavy flows (238 gal/min or greater).
 - Gravel and mesh filters can be used where flows are higher and in locations subject to disturbance by site traffic. This type of protection may be used with most inlets where overflow capability is needed and in areas of heavy flows (238 gal/min or greater).
 - Sod inlet filters are usually used where sediments in the stormwater runoff are low.
 - Gravel and mesh filters and block and gravel filters should not be used in the right of way unless there is sufficient space to avoid a traffic hazard.

- Limitations**
- | | |
|------------------------------|----------------------------|
| Drainage area – 1 ac. | Maximum slope – 5% |
| Minimum bedrock depth – 2 ft | Minimum water table – 2 ft |
| NRCS soil type - ABCD | Freeze/thaw – good |
| Drainage/flood control – no | |
- Consider sandbags (BMP 43-Temporary Berms) in situations where anchoring is not possible (e.g., paved road surfaces).
 - Inlet protection is a high maintenance item compared with other more permanent measures.
 - These devices require additional upslope BMPs to be effective.

Targeted
Pollutants
Design
Parameters

Sediment

Several different designs are in use and the configurations vary. The following design considerations apply to most of inlet protection. Some additional concerns apply to only one or two of the types.

Drainage area: Not to exceed 1 ac. Overland flow to the inlet should be no greater than 240 gal/min.

Slope gradient: The drainage area should be fairly flat, with slopes of 5% or less. With filter fabric designs, the area immediately surrounding the inlet should not exceed a slope of 1%.

Sump: Where possible, a block-and-gravel protection device should be provided with a sediment-trapping sump 12 to 20 in. deep as measured from the crest of the inlet. Side slopes should be 2:1. The recommended volume of excavation is 860 ft³/ac. of ground disturbed.

Orientation: To achieve maximum trapping efficiency in gravel-and-mesh or block-and-gravel traps; the longest dimension of the basin should be oriented toward the longest inflow area.

Materials for excavated gravel inlet protection:

- Hardware cloth or wire mesh with 2/5 to 3/5 in. openings
- Washed gravel 0.8 to 4 in. diameter

Materials for block and gravel inlet protection:

- Hardware cloth or wire mesh with 2/5 to 3/5 in. openings
- Filter fabric (see the fabric specifications for silt fence, BMP 36-Silt Fence)
- Concrete blocks 4 to 12 in. wide
- Washed gravel 0.8 to 4 in. diameter

Inlet Inserts:

Devices should be installed as per the manufacturer's instruction meeting the following criteria:

- Devices should be installed as a point protection or in series as a perimeter sediment control BMP prior to any site grading activity.
- Installation should not block flows from filtering into the inlet or catch basin.
- Fabrics or other materials should be sized to handle projected site runoff and sediment load flows. Filter fabric should not be used alone as inlet protection.
- Devices should be installed without protruding parts that could be a traffic, worker, or pedestrian hazard.
- Retrieval edges, cords, bars, chains or other mechanisms should be flagged or marked for retrieval under submerged conditions.

Construction — Gravel and mesh:

Guidelines

- Remove any obstructions to excavating and grading. Excavate sump area, grade slopes, and properly dispose of soil.
- Secure the inlet grate to prevent seepage of sediment-laden water.
- Place wire mesh over the drop inlet so the wire extends a minimum of 1 ft beyond each side of the inlet structure. Overlap the strips of mesh if more than one is necessary.
- Place filter fabric over the mesh, extending it at least 1 ft beyond the inlet opening on all sides. Ensure that weep holes in the inlet structure are protected by filter fabric and gravel.
- Place stone or gravel over the fabric/wire mesh to a depth of at least 20 in.

Block and gravel:

- open ends of the block should face outward, not upward, and the ends of adjacent blocks should abut. Lay one block on each side of the structure on its side to allow for dewatering of the pool.
- The block barrier should be at least 12 in. high and may be up to a Secure the inlet grate to prevent seepage of sediment-laden water.
- Place wire mesh over the drop inlet so the wire extends a minimum of 12 to 20 in. beyond each side of the inlet structure. Overlap the strips of mesh if more than one is necessary.
- Place filter fabric (optional) over the mesh and extend it at least 20 in. beyond the inlet structure.
- Place concrete blocks over the filter fabric in a single row lengthwise on their sides along the sides of the inlet. Excavate the foundation a minimum of 2 in. below the crest of the inlet. The bottom row of blocks should be against the edge of the structure for lateral support.
- The maximum of 24 in. high. It may be from 4 to 12 in. deep, depending on the size of block used.
- Prior to backfilling, place wire mesh over the outside vertical end of the blocks so that stone does not wash down the inlet.
- Place gravel against the wire mesh to the top of the blocks.

Swale, ditch line or yard inlet protection:

- Excavate completely around inlet to a depth of 18 in. below notch elevation.
- Drive 2 x 4 post 1 ft into ground at four corners of inlet. Place nail strips between posts on ends of inlet. Assemble top portion of 2 x 4 frame using overlap joint shown. Top of frame (weir) should be 6 in. below edge of roadway adjacent to inlet.
- Stretch wire mesh tightly around frame and fasten securely. Ends should meet at post.
- Stretch filter cloth tightly over wire mesh, the cloth should extend from top of frame to 18 in. below inlet notch elevation. Fasten securely to frame. Ends should meet at post, be overlapped and folded, then fastened down.
- Backfill around inlet in compacted 6 in. layers until layer of earth is even with notch elevation on ends and top elevation on sides.
- If the inlet is not in a low point, construct a compacted earth dike in the ditch line below it. The top of the dike is to be at least 6 in. higher than

the top of frame (weir).

- This structure should be inspected frequently and the filter fabric replaced when clogged.

Curb Inlet Protection:

- Attach a continuous piece of wire mesh (30 in. minimum width by throat length plus 4 ft) to the 2 x 4 in. weir (measuring throat length plus 2 ft) as shown on the standard drawing.
- Place a piece of approved filter cloth (40-85 sieve) of the same dimensions as the wire mesh over the wire mesh and securely attach to the 2 in. of 4 in. weir.
- Securely nail the 2 x 4 in. weir to 9 in. long vertical spacers to be located between the weir and inlet face (maximum 6 ft apart).
- Place the assembly against the inlet throat and nail (minimum 2 ft) lengths of 2 x 4 in. to the top of the weir at spacer locations. These 2 x 4 in. anchors should extend across the inlet top and be held in place by gravel-filled bags or alternate weight.
- The assembly should be placed so that the end spacers are a minimum 1 ft beyond both ends of the throat opening.
- Form the wire mesh and filter cloth to the concrete gutter and against the face of curb on both sides of the inlet. Place clean 2 in. stone over the wire mesh and filter fabric in such a manner as to prevent water from entering the inlet under or around the filter cloth.
- This type of protection should be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
- Assure that storm flow does not bypass inlet by installing temporary earth or asphalt dikes directing flow into inlet.

Maintenance

- Inspect regularly and after every storm. Make any repairs necessary to ensure the measure is in good working order.
- Remove accumulated sediment and restore the trap to its original dimensions when sediment has accumulated to half the design depth of the trap. All sediments removed should be disposed of properly.
- On gravel-and-mesh devices, clean (or remove and replace) the stone filter if it becomes clogged.
- Replacement of inlet inserts should be per manufacturer's instructions or when device no longer drains. At no time should devices be punctured or otherwise modified to bypass.
- Unless cleaned for reuse as a permanent site control or cleaned and left to biodegrade, all inlet inserts should be removed after construction is completed (or after permanent vegetation is established).
- Inlet protection should remain in place and operational up to 30 days after the drainage area is completely stabilized.

Compacted
soil to prevent
piping

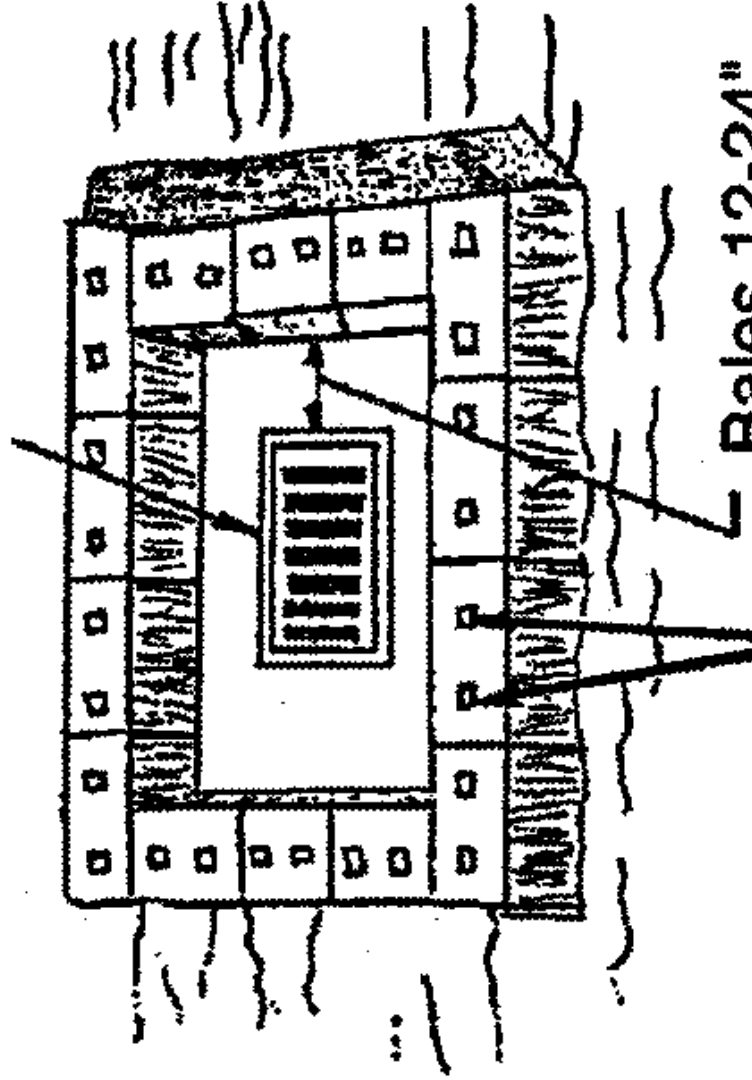
Drop inlet with grate

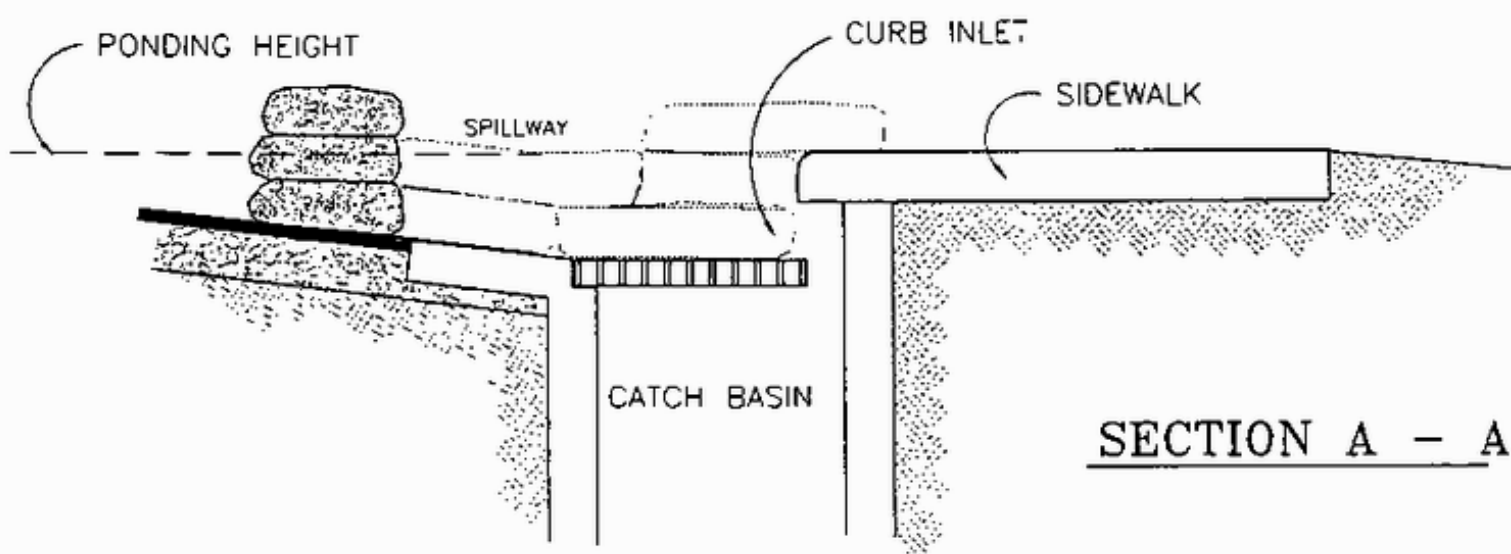
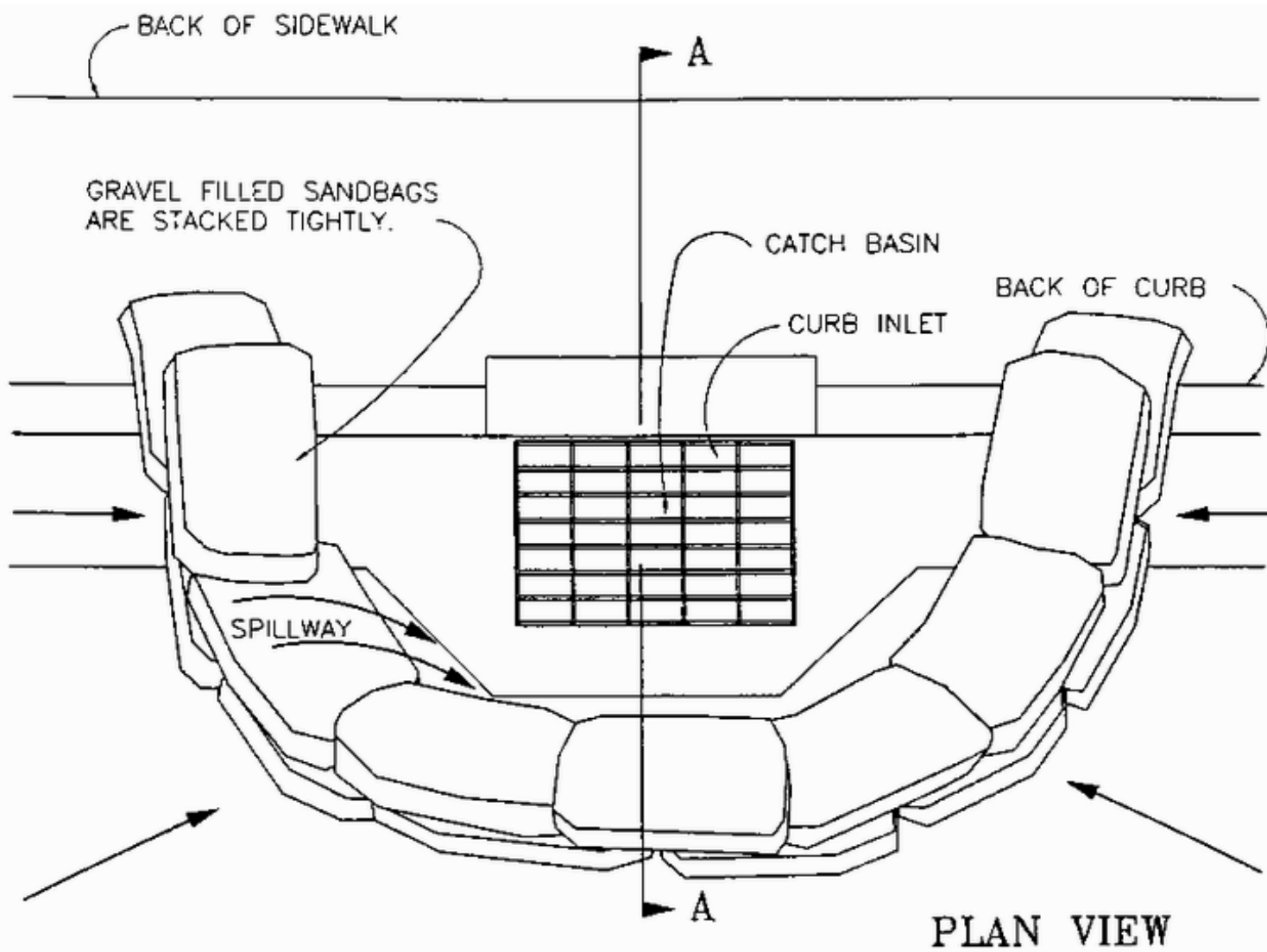
Runoff
water with
sediment

Staked
straw bale
Filtered
water

Bales 12-24"
from inlet

Straw bales
staked with 2
stakes per bale

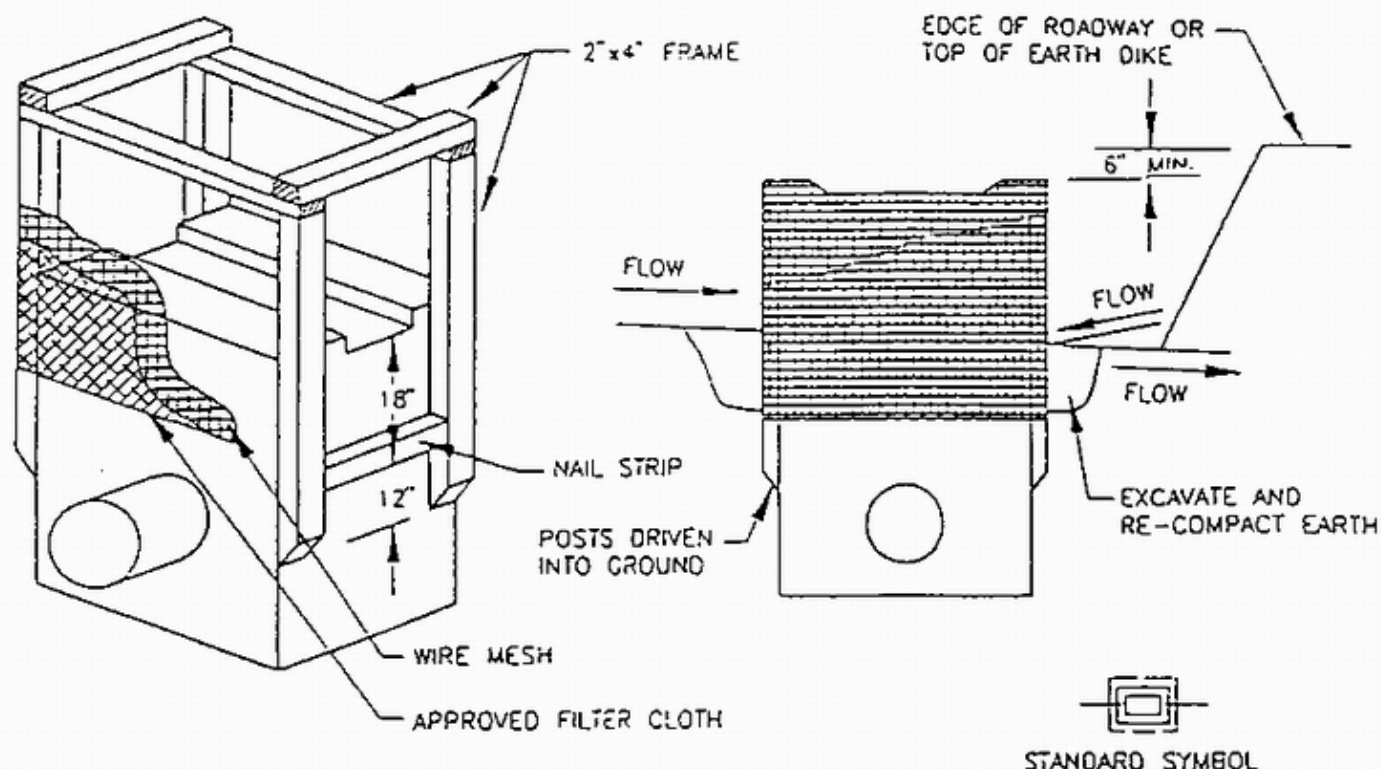




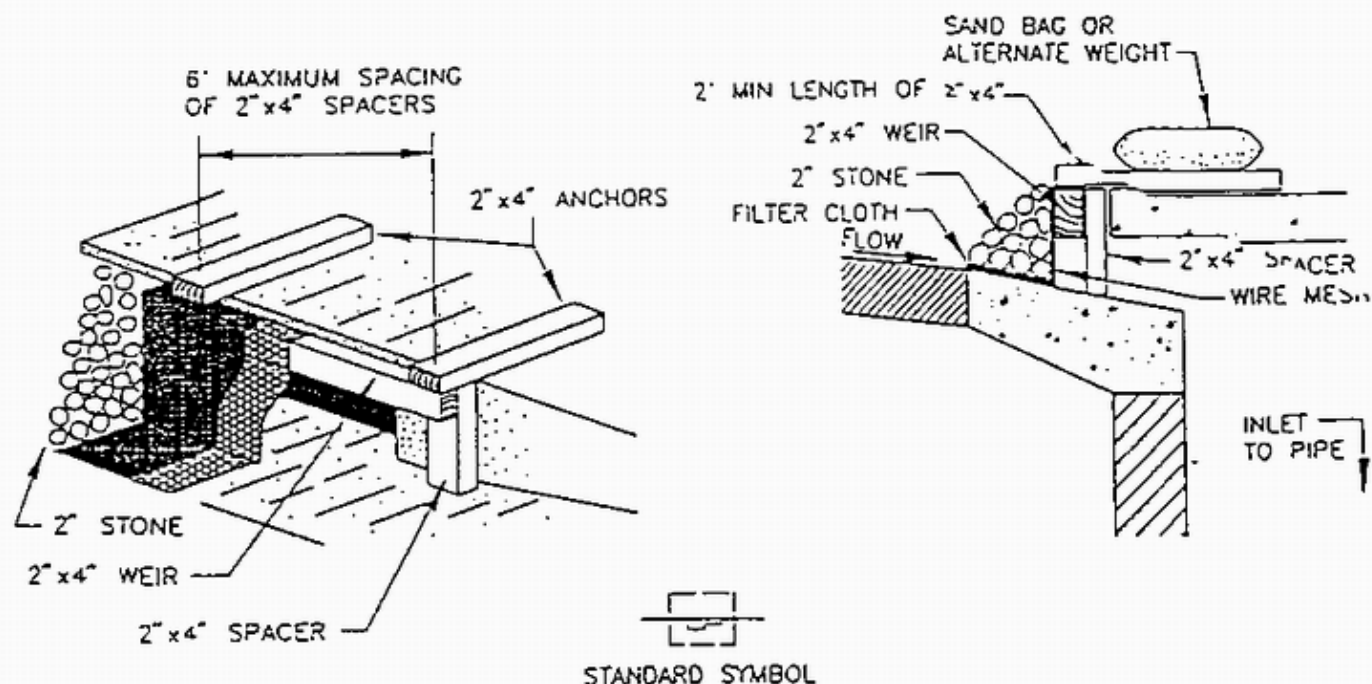
NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREET SEGMENTS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS, OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.

3. LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY FOR OVERFLOW.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.



SWALE INLET PROTECTION DETAIL



CURB INLET PROTECTION DETAIL

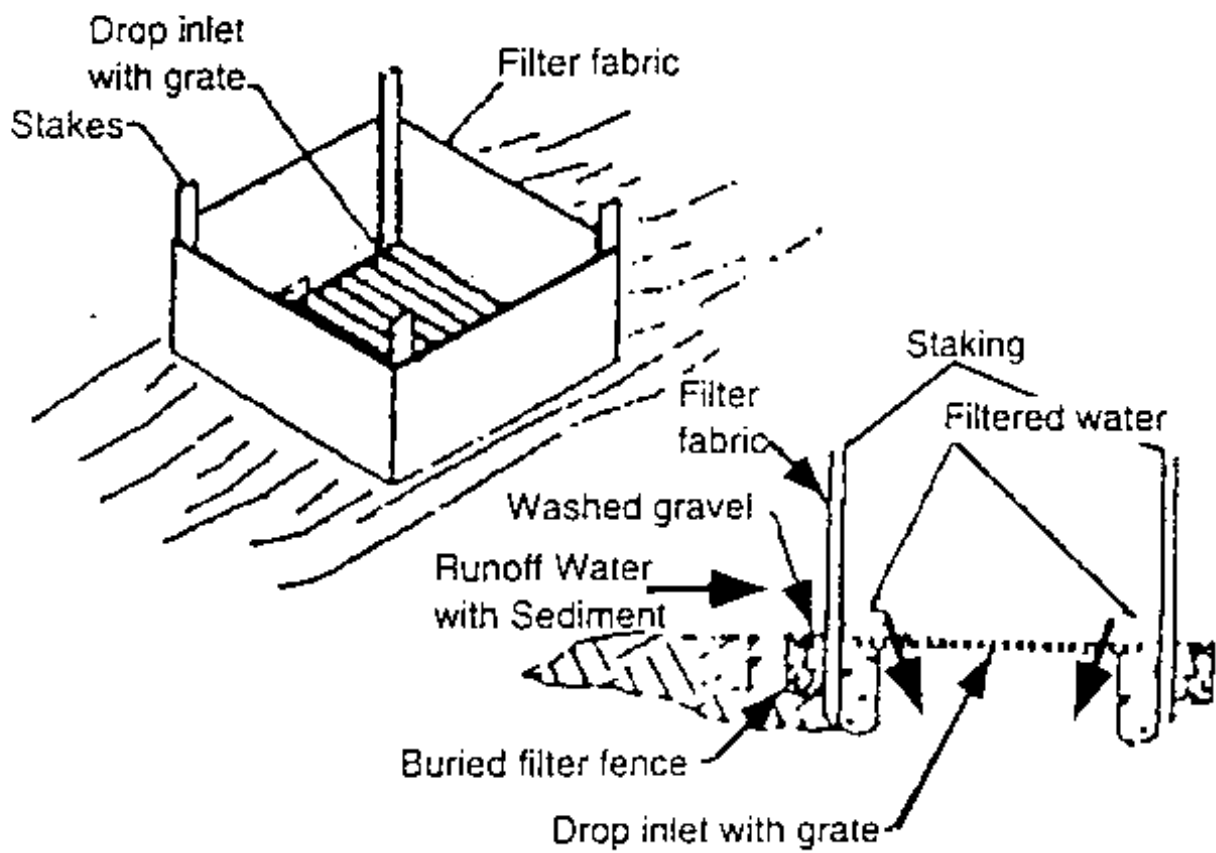
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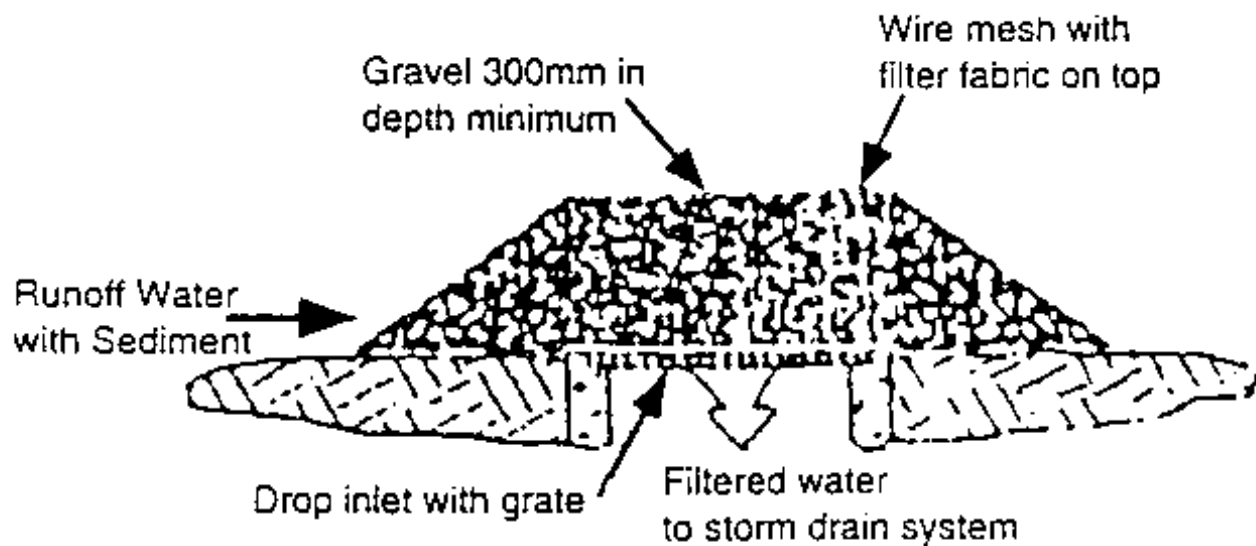
INLET PROTECTION
DETAIL

STANDARD
DRAWING

IPD-1



FILTER FABRIC FENCE INLET FILTER



GRAVEL AND WIRE MESH FILTER SECTION

Description	A fiber roll (wattle/compost-filled socks) consists of straw, flax, or other similar materials bound into a biodegradable tubular plastic or similar encasing material. When fiber rolls are placed at the toe and on the face of slopes, they intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff. By interrupting the length of a slope, fiber rolls can also reduce erosion.	
Applications	<ul style="list-style-type: none"> Along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow At the end of a downward slope where it transitions to a steeper slope Along the perimeter of a project As check dams in unlined ditches Down-slope of exposed soil areas Around temporary stockpiles As temporary curbs for conveying water to catch basins and pipe slope drains For catch basin protection 	
Limitations	Drainage area – N/A Minimum bedrock depth – N/A NRCS soil type - ABCD Drainage/flood control – yes	Maximum slope – See Design Parameters Minimum water table - N/A Freeze/thaw – good
		<ul style="list-style-type: none"> Fiber rolls are not effective unless trenched. Fiber rolls at the toe of slopes greater than 5:1 (H:V) should be a minimum of 20 in. diameter or installations achieving the same protection (i.e., stacked smaller diameter fiber rolls, etc.). Difficult to move once saturated. If not properly staked and trenched in, fiber rolls can be transported by high flows. Fiber rolls have a very limited sediment capture zone. Fiber rolls should not be used on slopes subject to creep, slumping, or landslide.
Targeted Pollutants Design Parameters	Sediment Locate fiber rolls on level contours spaced as follows: <ul style="list-style-type: none"> Slope inclination of 4:1 or flatter: Fiber rolls should be placed at a maximum interval of 20 ft. Slope inclination between 4:1 and 2:1: Fiber rolls should be placed at a maximum interval of 15 ft (A closer spacing is more effective.). Slope inclination 2:1 or greater: Fiber rolls should be placed at a maximum interval of 10 ft (A closer spacing is more effective.). 	

Construction Guidelines

- Fiber rolls should be either prefabricated rolls or rolled tubes of erosion control blanket. Field rolled fiber roll is assembled by rolling the length of erosion control blanket into a tube of minimum 8 in. diameter and binding the roll at each end and every 4 ft along the length of the roll with jute-type twine.
- Turn the ends of the fiber roll up slope to prevent runoff from going around the roll.
- Stake fiber rolls into a 2 to 4 in.-deep trench with a width equal to the diameter of the fiber roll. Drive stakes at the end of each fiber roll and spaced 4 ft maximum on center. Use wood stakes with a nominal classification of 0.75 x 0.75 in. and minimum length of 24 in.
- If more than one fiber roll is placed in a row, the rolls should be overlapped, not abutted.

Maintenance

- Inspect prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at 2-week intervals during the non-rainy season.
- Repair or replace split, torn, unraveling, or slumping fiber rolls.
- If the fiber roll is used as a sediment capture device, or as an erosion control device to maintain sheet flows, sediment that accumulates in the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when sediment accumulation reaches one-half the designated sediment storage depth, usually one-half the distance between the top of the fiber roll and the adjacent ground surface.
- Sediment removed during maintenance may be incorporated into earthwork on the site or disposed at an appropriate location.
- If fiber rolls are used for erosion control, such as in a mini-check dam, sediment removal should not be required as long as the system continues to control the grade. Sediment control BMPs will likely be required in conjunction with this type of application.

Description	A silt fence is a temporary sediment barrier consisting of a filter fabric stretched and attached to supporting posts. Wire fence backing is necessary with several types of filter fabric commonly used. Silt fences assist in sediment control by retaining some of the eroded soil particles and slowing the runoff velocity to allow particle settling.	
Applications	<ul style="list-style-type: none"> ▪ Silt fences can be used near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. The fences should remain in place until the disturbed area is permanently stabilized. ▪ Silt fences can also be used along the toe of fills, on the downhill side of large through-cut areas, along streams, and at natural drainage areas to reduce the quantity of sediment and to dissipate flow velocities to downstream areas. ▪ Also use at grade breaks on cut/fill slopes and above interceptor dikes. ▪ The silt fence should be constructed after the cutting and slashing of trees and before excavating haul roads, fill benches, or any soil disturbing construction activity in the drainage areas. 	
Limitations	<p>Drainage area – 1 ac./100 ft</p> <p>Minimum bedrock depth – 2 ft</p> <p>NRCS soil type - ABCD</p> <p>Drainage/flood control – no</p>	<p>Maximum slope – 33%</p> <p>Minimum water table – 2 ft</p> <p>Freeze/thaw – good</p>
Targeted Pollutants	Sediment	
Design Parameters	<ul style="list-style-type: none"> ▪ Maximum allowable slope lengths contributing runoff to a silt fence are listed in Table 36-1 below. ▪ Maximum drainage area for overland flow to a silt fence should not exceed 0.5 ac. per 100 ft of fence. ▪ Design computations are not required. All silt fences should be placed as close to the contour as possible, and the area below the fence should be undisturbed or stabilized. ▪ A detail of the silt fence should be shown on the plan, and contain the following minimum requirements: <ul style="list-style-type: none"> ✓ The type, size, and spacing of fence posts ✓ The size of woven wire support fences ✓ The type of filter cloth used ✓ The method of anchoring the filter cloth 	

- ✓ The method of fastening the filter cloth to the fencing support
- Where ends of filter fabric come together, they should be overlapped, folded and stapled to prevent sediment bypass.
- Materials:
 - ✓ Silt Fence Fabric: The fabric should meet the specifications in Table 36-2 below, unless otherwise approved by the appropriate erosion and sediment control plan approval authority. Such approval does not constitute statewide acceptance. Statewide acceptability depends on in-field and/or laboratory observations and evaluations.
 - ✓ Fence Posts (for fabricated units): The length should be a minimum of 36 in. long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.0 square in.. Steel posts will be standard “T” and “U” section weighing not less than 1 pound per linear ft.
 - ✓ Wire Fence (for fabricated units): Wire fencing should be a minimum 14.25 gage with a maximum 6 in. mesh opening, or as approved.
 - ✓ Prefabricated Units: Envirofence or approved equal may be used in lieu of the above method providing the unit is installed per manufacturer’s instructions.

Construction Guidelines

- Posts should be spaced 10 ft apart when a wire mesh support fence is used and no more than 6.5 ft apart when using extra-strength filter fabric (without a wire fence). The posts should extend at least 16 in. into the ground.
- If standard strength filter fabric is to be used, fasten the optional wire mesh support fence to the upslope side of the posts using heavy duty wire staples, tie wires, or hog rings. Extend the wire mesh support to the bottom of the trench. The filter fabric should then be stapled or wired to the fence.
- Extra strength filter fabric does not require a wire mesh support fence. Staple or wire the filter fabric directly to the posts.
- Do not attach filter fabric to trees.
- Where joints in the fabric are required, splice it together only at a support post, with a minimum 6 in. overlap, and securely seal the joint.
- Embedded filter fabric should extend in a flap that is anchored by backfill, to prevent fabric from pulling out of ground.

Maintenance

Silt fences should be inspected periodically for damage (such as tearing by wind, animals, or equipment) and for the amount of sediment that has accumulated. Remove the sediment when it reaches one-half the height of the silt fence. In situations where access is available, machinery can be used.

Otherwise, the silt should be removed manually. The following are key elements to remember:

- The sediment deposits should be removed when heavy rain or high water is anticipated.
- The sediment deposits should be placed in an area where there is little danger of erosion.

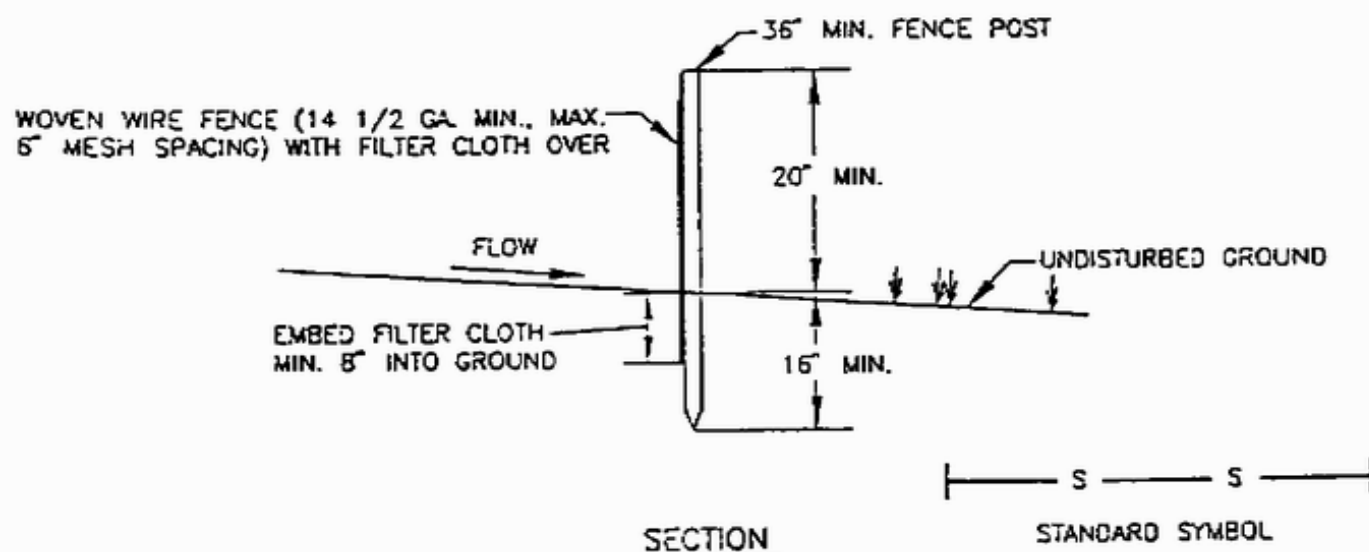
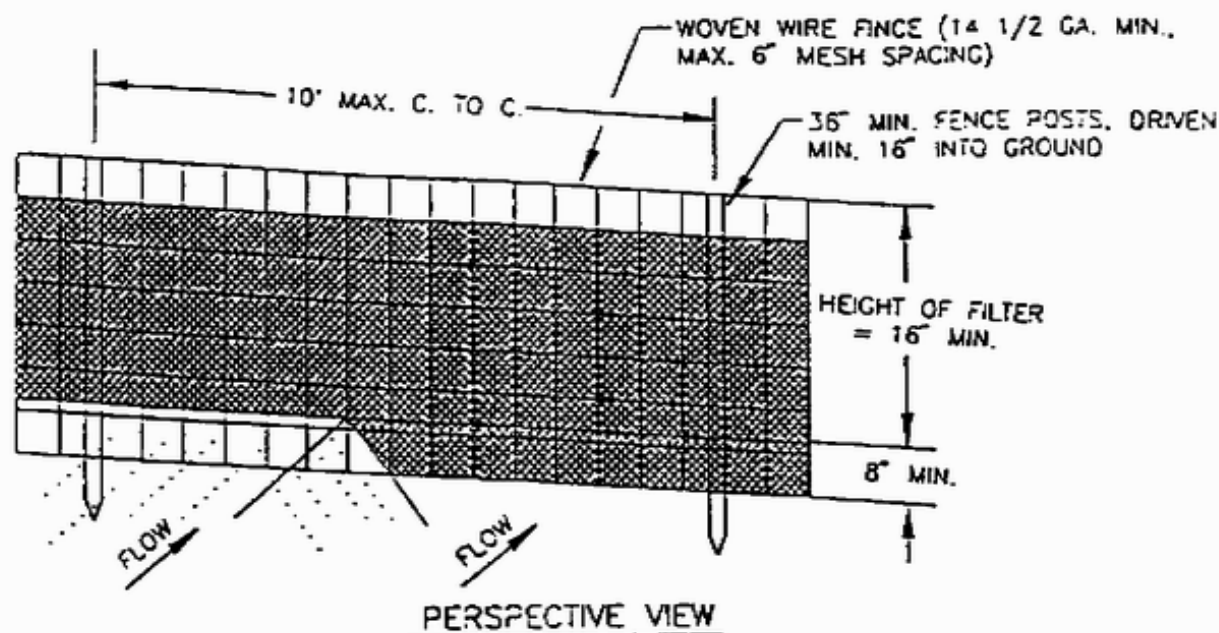
- The silt fence should not be removed until adequate vegetative growth ensures no further erosion of the slopes. Generally, the fabric is cut at ground level, the wire and posts are removed, then the sediment is spread, seeded, and protected (mulched) immediately.

Table 36–1. Maximum Allowable Slope Lengths

Slope Steepness	Maximum Slope Length (Feet)
2:1	50
3:1	75
4:1	125
5:1	175
Flatter than 5:1	200

Table 36-2. Filter Fabric Specifications

Fabric Properties	Value	Minimum Acceptable Test Method
Grab Tensile Strength (lbs)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682
Mullen Burst Strength (PSI)	190	ASTM D3786
Puncture Strength (lbs)	40	ASTM D751 (modified)
Equivalent Opening Size	40-80	US Std Sieve CW-02215
Ultraviolet Radiation Stability %	90	ASTM-G-26



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP AND MID-SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6 INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

POSTS: STEEL, EITHER "T" OR "U" TYPE OR Z HARDWOOD.

FENCE: WOVEN WIRE, 14 GAGE, 6" MAX. MESH OPENING.

FILTER CLOTH: FILTER X, MIRAFL 100X, STABILINKA T140N OR APPROVED EQUAL.

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE OR APPROVED EQUAL.

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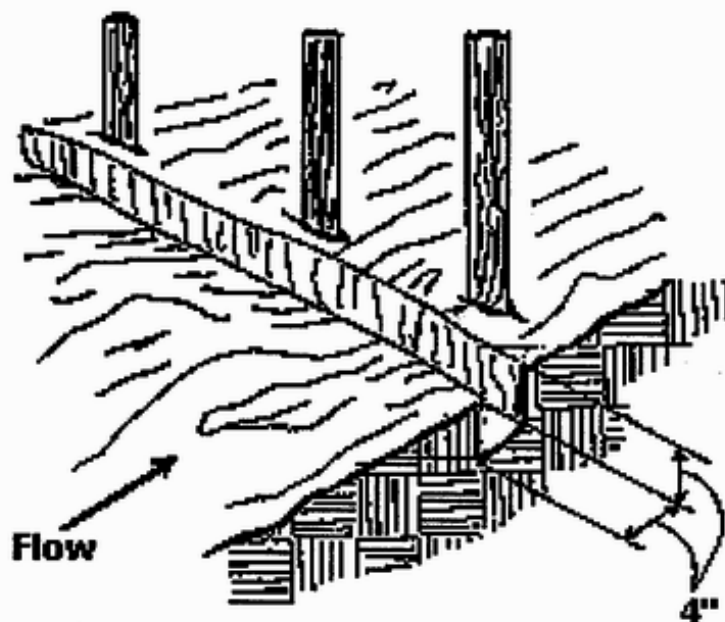
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SILT FENCE

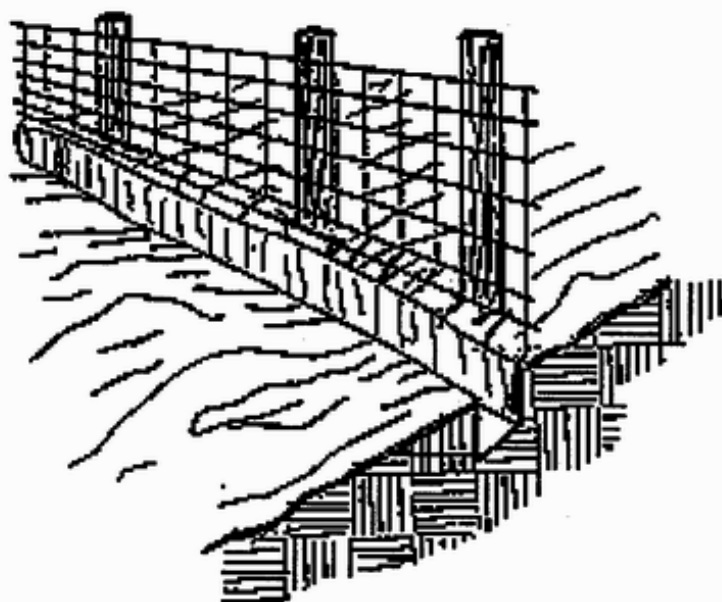
STANDARD
DRAWING

SF-1

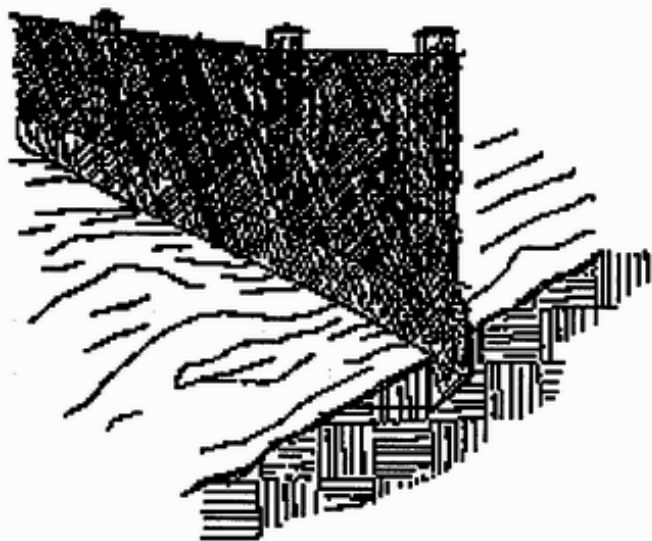
- 1. Set Posts and Excavate a 4" x 4" Trench upslope along the line of the posts.**



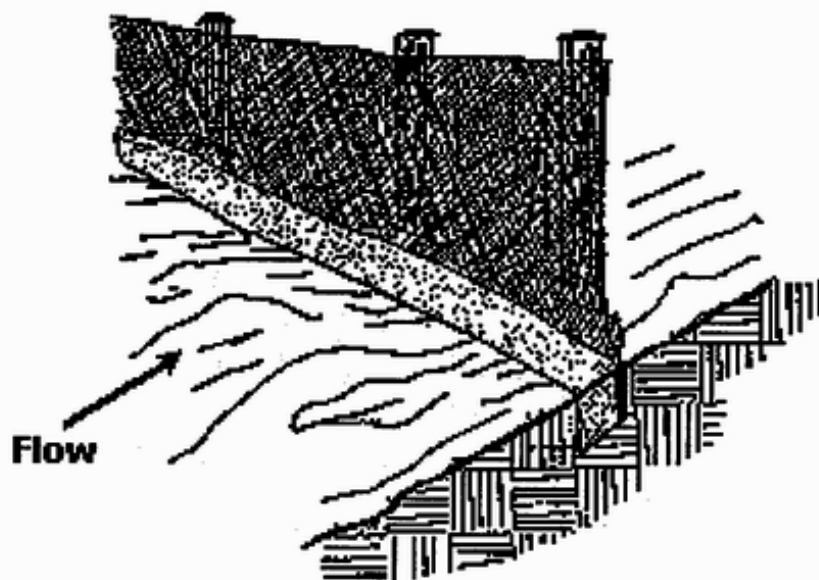
- 2. Staple Wire Fencing to the Posts.**



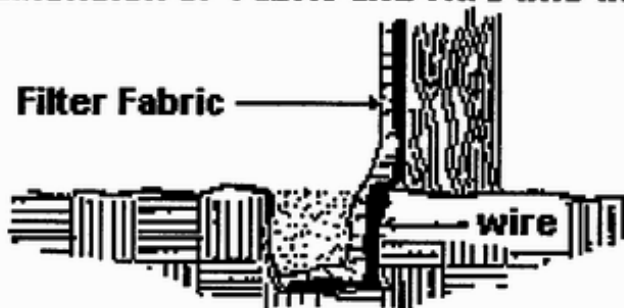
- 3. Attach the Filter Fabric to the Wire Fence and Extend it into the Trench.**



- 4. Backfill and Compact the Excavated Soil**



Extension of Fabric and Wire into the Trench



Sedimentation Trap (Basin)

BMP 38

Description	<p>A sedimentation trap is a temporary or permanent dam or basin used to collect, trap, and store sediment produced by construction activities, or as a flow detention facility for reducing peak runoff rates. Sediment basins can be designed to maintain a permanent pool or to drain completely dry. Either way, the basin detains sediment-laden runoff long enough to allow most of the sediment to settle out.</p> <p>A sediment basin can be constructed by excavation or by placing an earthen embankment across a low area or drainage swale. The pond has a riser and pipe outlet with a gravel outlet or spillway to slow the release of runoff and provide some sediment filtration.</p>		
Applications	<p>Sediment traps are appropriate where physical site conditions or land ownership restrictions preclude the effective use of barrier-type erosion control measures. It may be used below construction operations which expose critical areas to soil erosion.</p> <p>A temporary sediment basin used in combination with other control measures, such as seeding or mulching, is especially effective for removing sediments. Note that the use of sedimentation basins on construction sites greater than or equal to 1 ac., with an NPDES stormwater permit has special requirements. Refer to Part IV.D.2.a. (2)(a) of the NPDES stormwater general permit for on-site activities.</p>		
Limitations	<table><tr><td>Drainage area – 5 ac. Minimum bedrock depth – 3 ft NRCS soil type - BCD Drainage/flood control – no</td><td>Maximum slope – 10% Minimum water table – 2 ft Freeze/thaw – good</td></tr></table> <ul style="list-style-type: none">▪ May not be feasible downstream of narrow right-of-way due to lack of space.▪ May not be practical in highly erodible soil types (0.01 in. and smaller, very fine sand, silt and clay) due to extremely large basin size requirements.▪ May not remove enough of the fine silts. Additional control measures such as filter cloth around riser should be used to minimize release of fine silts. If filter cloth is used, regular inspection and replacement is required to deal with clogging.▪ Should not be located in any active stream channel.	Drainage area – 5 ac. Minimum bedrock depth – 3 ft NRCS soil type - BCD Drainage/flood control – no	Maximum slope – 10% Minimum water table – 2 ft Freeze/thaw – good
Drainage area – 5 ac. Minimum bedrock depth – 3 ft NRCS soil type - BCD Drainage/flood control – no	Maximum slope – 10% Minimum water table – 2 ft Freeze/thaw – good		
Targeted Pollutants Design Parameters	<p>Sediment</p> <ul style="list-style-type: none">▪ Design of the basin should be based upon the total drainage area lying upstream and (if permanent) on the future use of such lands. A professional engineer should approve the design.		

- The volume of the sediment basin should be at least 1800 ft³ /ac. of total drainage area (about 0.5 in. over the watershed). Disturbed areas greater than 10 acres within the same drainage basin should be provided a basin with a capacity of 3600 ft³ of total drainage area (1 in. over the watershed) to meet the NPDES regulations.
- The basin should be designed with baffles or other deflectors to spread the flow throughout the basin. It should also include an emergency spillway and riser pipe(s). These structures should be designed on a site-specific basis using standard engineering practices. Calculating the settling zone volume and adding the necessary sediment storage volume should size the basin pond.
- The settling zone volume is determined by the pond surface area calculated using the following equation:

$$SA = 1.2Qx / V_{sed}$$
 Where:
 - ✓ SA = the pond surface area in square meters
 - ✓ Qx = the design inflow (in cubic meters per second) based on the runoff from the design storm event for the drainage area.
 - ✓ V_{sed} = the settling velocity for the design soil particle in meters per second. Table 38 lists theoretical settling velocities for different particle sizes (#200 sieve).
- For particle sizes of 0.01in. and smaller, the V_{sed}s are so low that the SA becomes extremely large, often making the overall basin size requirement too large to be practical. In this case, extra protection measures should be taken to negate the need for the basin.
- The settling volume requirement is then calculated by multiplying the surface area by the settling depth. The settling depth should be a minimum of 1 ft and a maximum of 4 ft and is governed by a relationship with the basin length (distance from the inlet to the outlet). The ratio of length to settling depth should be greater than 200. For example, if the length was 394 ft, the settling depth should be less than 2 ft to achieve the ratio of greater than 200.
- Typically, a sediment storage depth of 3 ft is appropriate unless large volumes of soil are expected from highly erodible site conditions. In this case, use the universal soil loss equation or other applicable estimating methods to design the storage depth on a site-specific basis.

Determine the final pond dimensions and volume as follows:

- Determine the pond geometry for the sediment settling volume calculated above by adding a sediment storage depth of 3 ft and 3:1 side slopes from the bottom of the basin. The bottom should be level.
- Extend the side slopes (at 3:1) as necessary to obtain the settling zone volume at the settling zone depth determined above.
- Adjust the geometry of the basin to effectively combine the settling zone volume and sediment storage volume while preserving the depth and side slope criteria listed above.

Sediment basins covered by this standard should be limited to the following

category:

- The water surface at the crest elevation of the pipe spillway should not exceed 10 ft measured upward from the original streambed to the crest elevation of the pipe spillway; and the drainage area should not exceed 150 acres.
- Because finer silts may not settle out completely, additional erosion control measures should be used to minimize release of the fine silt. Runoff should enter the basin as far from the outlet as possible to provide maximum retention time.

Construction Guidelines

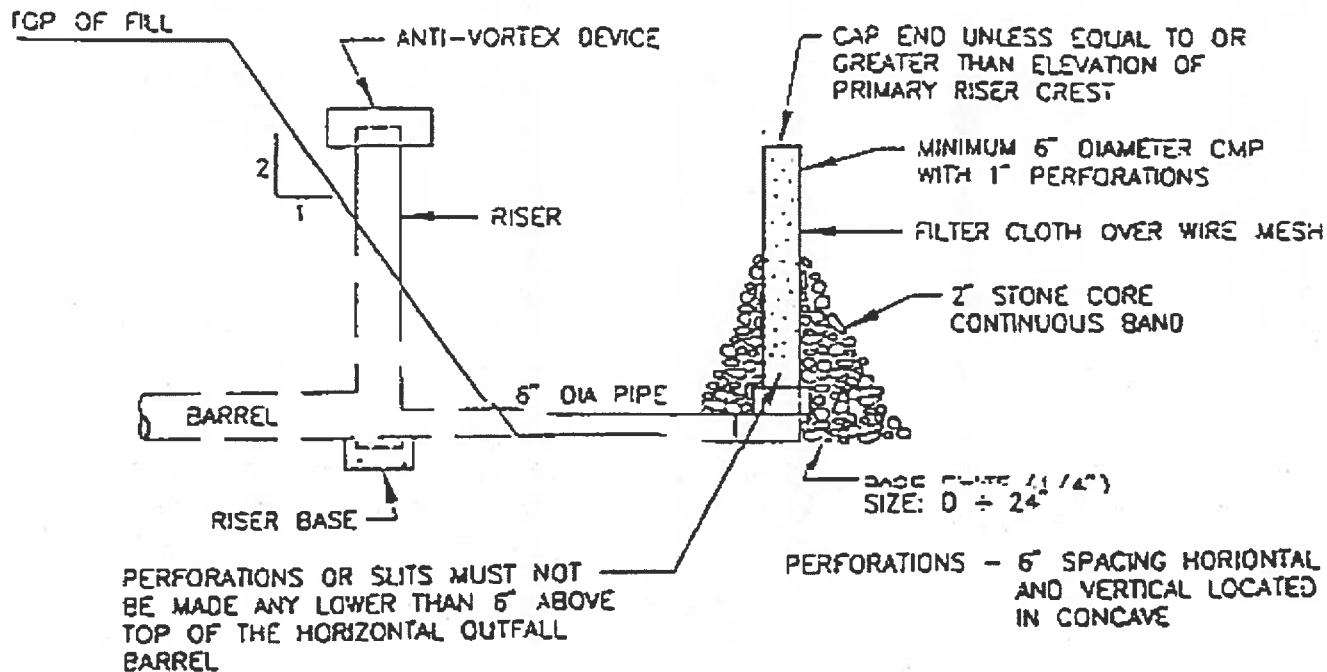
- The temporary sediment basin should be installed before clearing and grading is undertaken. It should not be built within an active stream channel. Putting a dam in such a site could destroy aquatic habitat, and failure of the dam could result in flooding. A temporary sediment basin should be constructed only if there is sufficient space and appropriate topography. The basin should be made large enough to handle the maximum expected amount of site drainage. Fencing around the basin may be necessary for safety reasons or to discourage vandalism.
- The following general construction criteria are critical to successful installation and operation of sediment basins.
 - ✓ Locate the dam to provide maximum volume capacity for silt behind the structure.
 - ✓ Prepare the dam site by clearing vegetation and removing topsoil before beginning dam construction. Areas under the embankment and any structural works should be cleared and grubbed, and the topsoil stripped to remove all trees, vegetation, roots and other objectionable material. To facilitate cleanout and restoration, the pool area (measured at the top of the pipe spillway) should be cleaned of all brush, trees or other debris.
 - ✓ Level the bed for the pipe spillway to provide uniform support through its entire length under the dam.
 - ✓ Construct an emergency spillway (as per design) on undisturbed soil--not on fill. The design width and entrance/exit channel slopes are critical to the spillway's ability to successfully protect the dam with a minimum of erosion hazard in the spillway channel. The spillway should be lined with 4 in. of concrete, reinforced with 6 x 6 in. 10/10 wire mesh extending to a minimum of 36 in. down each face of the embankment. The spillway should be at least 20 in. deep with 1:1.5 slide slopes.
 - ✓ All pipe joints should be securely fastened and watertight. The riser should be rigidly and securely fastened to the barrel and the bottom of the riser should be sealed (watertight). The barrel should be placed on a firm foundation according to the lines and grades shown on the plans.
 - ✓ Place at least 1 ft of hand-compacted backfill (maximum 6 in. lifts) over the pipe spillway before crossing it with construction equipment. The movement of the hauling and spreading equipment over the fill should be controlled so that the entire surface of each lift will be traversed by not less than one tread track of the

- ✓ equipment.
- ✓ The pipe spillway should discharge at ground elevation below the dam, and not more than 12 in. above any streambed.
- ✓ Fill material should be taken from approved designated borrow areas, and should be of the type and quality conforming to that specified for the adjoining fill material. It should be free of roots, woody vegetation, oversize stones, rocks exceeding 6 in. diameter, or other objectionable materials. Do not use frozen material.
- ✓ Areas on which fill is to be placed should be scarified prior to placement of fill. Fill materials should be placed in 6 in. maximum lifts, compacted by construction equipment. The embankment should be raised and compacted to an elevation that provides for anticipated settlement to design elevation (allow at least 10% for settlement). Lifts should be continuous over the entire length of the fill and approximately horizontal.
- ✓ Stabilize the embankment and emergency spillway with revegetation or other stabilization measures.

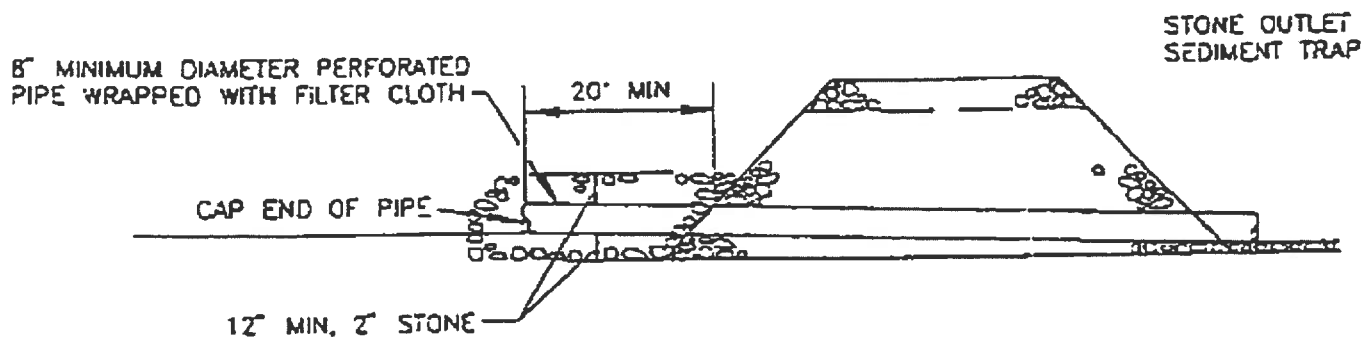
- Maintenance**
- Sediment basins should be readily accessible for maintenance and sediment removal. The sediment maintenance volume should be determined and marked before the basin is used. They should be inspected after each rainfall and be cleaned out when about half the volume has been filled with sediment. Poorly draining basins require maintenance to clean clogged riser or filter cloth. Removed sediment should be disposed of and stabilized in an approved location such that spoils do not re-enter waters of the state. Sediment may not be dumped into any water of the U.S. without appropriate permitting.
 - The sediment basin should remain in operation and be properly maintained until vegetation or other measures permanently stabilize the drainage area. A well-built temporary sediment basin that is large enough to handle the post-construction runoff volume may later be converted to use as a permanent stormwater management structure.
 - If the pond is located near a residential area, it is recommended for safety reasons that a sign be posted and that the area be secured by a fence.

Table 38-1. Theoretical settling velocities for different particle sizes (#200 sieve).

Size (in.)	V _{sed} (in./sec)
0.02	0.0023
0.008	0.00079
0.004	0.00028
0.002	0.000079
0.0008	0.000012
0.0004	0.0000028
0.0002	0.00000079



OPTIONAL SEDIMENT TRAP DEWATERING DEVICE-I
WITH 6" PERFORATED RISER



OPTIONAL SEDIMENT TRAP DEWATERING DEVICE-II

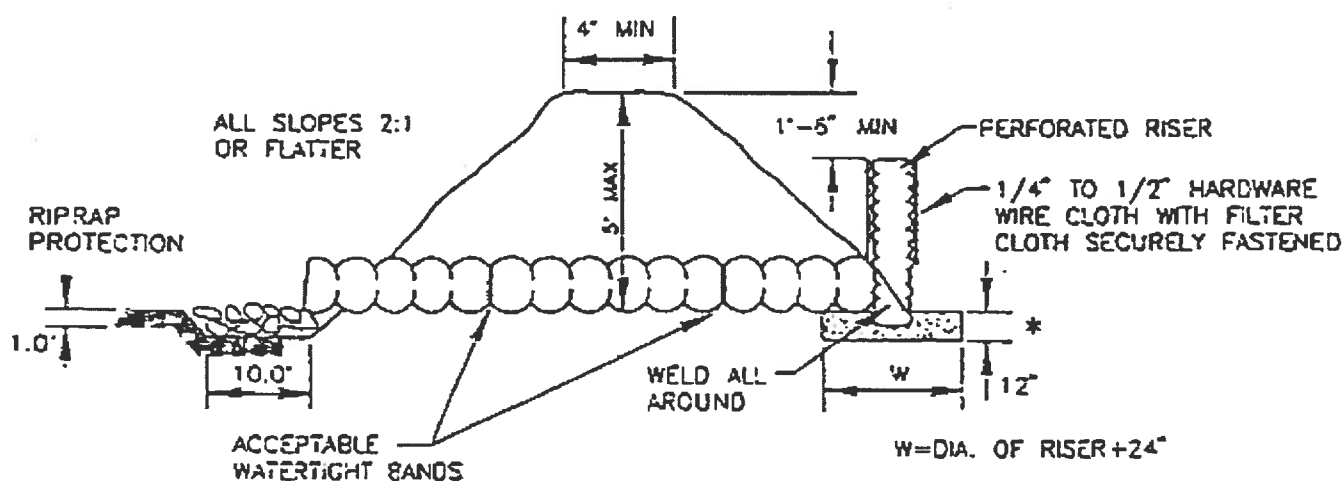
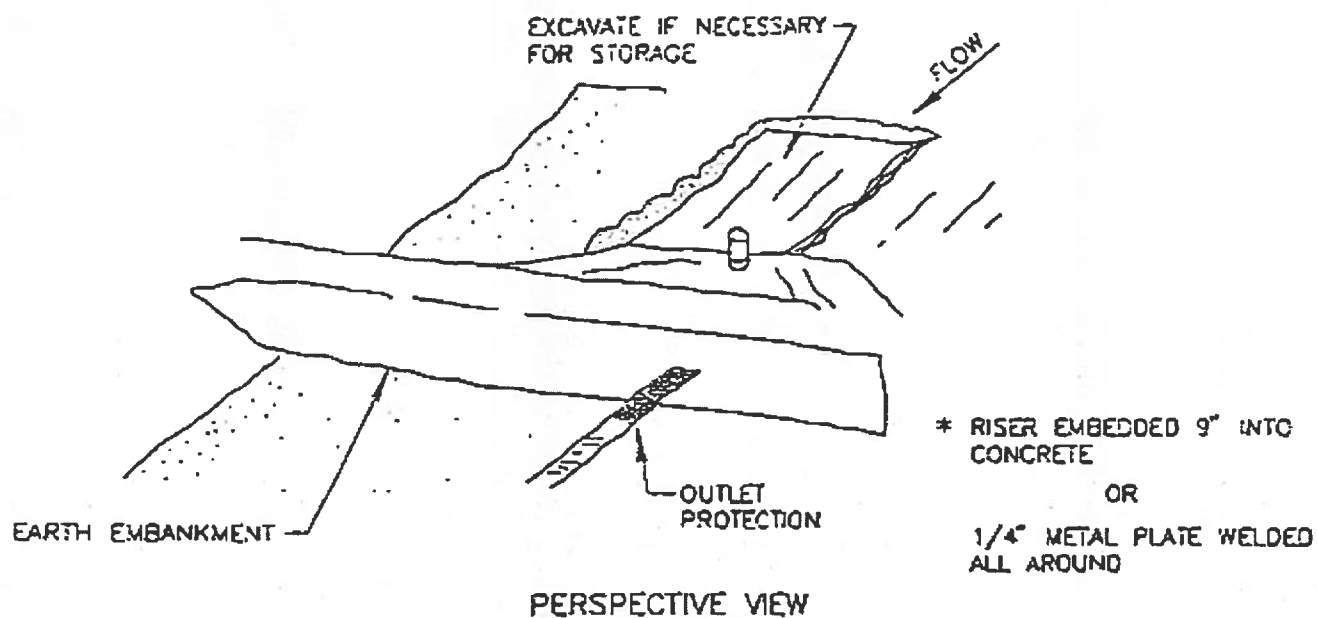
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OPTIONAL SEDIMENT TRAP
 DEWATERING DEVICES

STANDARD
 DRAWING

ST



EMBANKMENT SECTION THRU RISER

SIZES OF PIPE NEEDED

BARREL DIAMETER _____

RISER DIAMETER _____

NOTE:
FOR CONSTRUCTION SPECIFICATION SEE SHEET _____

MAXIMUM DRAINAGE AREA: 5 ACRES

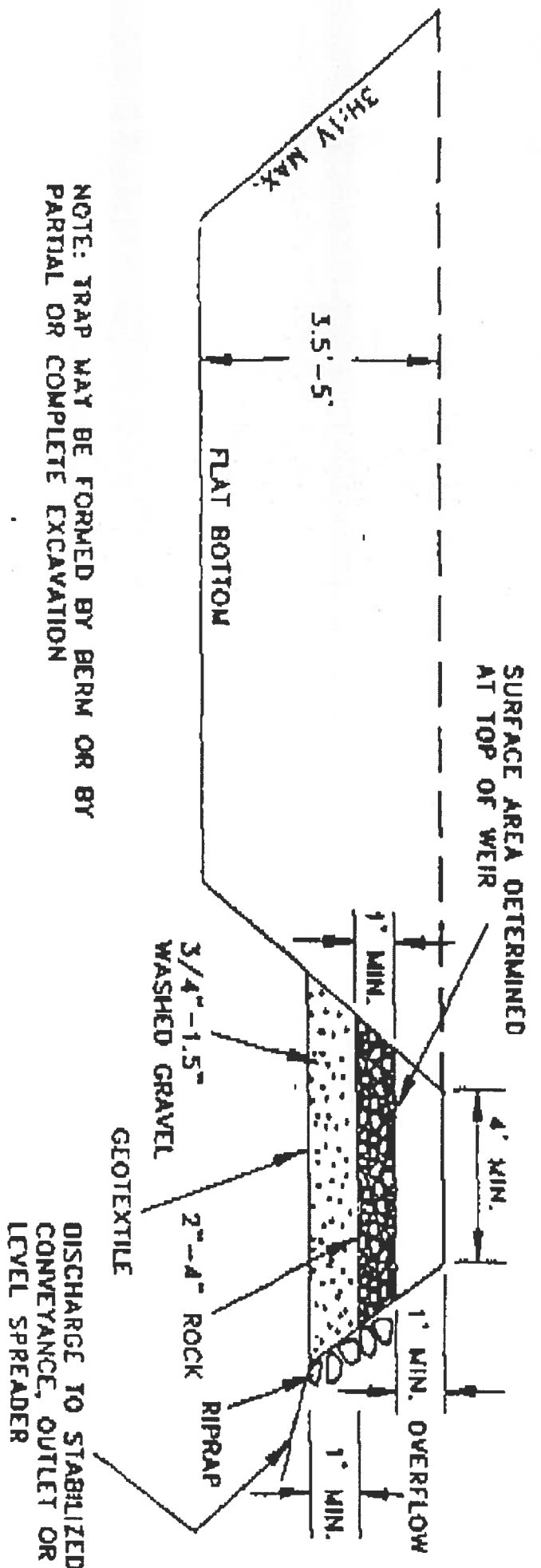
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TOOTHMAN-ORTON ENGINEERING COMPANY
BOISE, IDAHO McALL, IDAHO

PIPE OUTLET
SEDIMENT TRAP

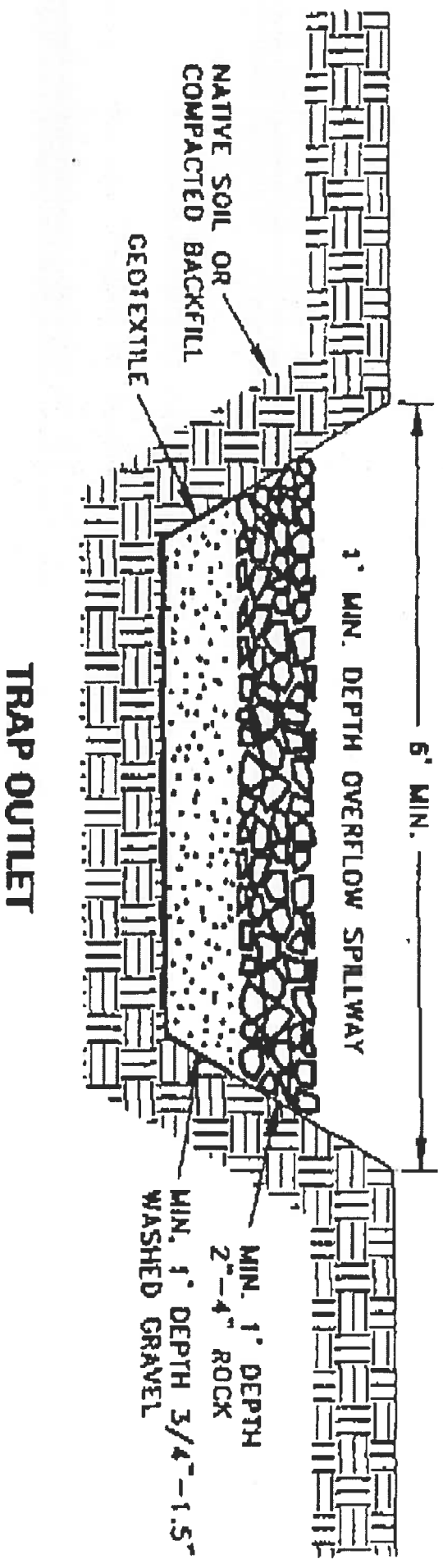
STANDARD
DRAWING

ST-1



NOTE: TRAP MAY BE FORMED BY BERM OR BY PARTIAL OR COMPLETE EXCAVATION

CROSS-SECTION



TRAP OUTLET

Dewatering

BMP 46

Description	To assess and appropriately dispose of rising groundwater or rainwater from excavations and other collection areas.	
Applications	<p>Public or private properties with the following:</p> <ul style="list-style-type: none">▪ Foundation work excavations▪ Utilities and infrastructure installation and repair projects, including installation, repair and maintenance of:<ul style="list-style-type: none">✓ Electrical conduits✓ Vaults/tanks✓ Sewer and storm drain systems✓ Phone and cable lines✓ Gas or other fuel lines▪ Other excavations or graded areas requiring dewatering	
Limitations	Drainage area – N/A Minimum bedrock depth - N/A NRCS soil type – N/A Drainage/flood control – yes	Maximum slope – N/A Minimum water table - N/A Freeze/thaw – N/A
Targeted Pollutants	Sediment	
Design Parameters	<p>Depending on season, flow rate, volume, or residual contamination, the discharge will be allowed to flow to:</p> <ul style="list-style-type: none">▪ The ground in a manner that ensures no runoff leaving the site. This may require a permit or other authorization from the local drainage authority.▪ The storm drain system. A permit or letter of authorization with discharge restrictions may be required.▪ The sanitary sewer. A permit or letter of authorization with discharge restrictions may be required. <p>The site should be assessed for the issues listed below to assist the local drainage authority in determining which discharge option to approve:</p> <ul style="list-style-type: none">▪ Water clarity. If the water is cloudy or turbid, there are dissolved and/or settleable solids in the water that should be filtered or settled out prior to discharge. Determine if contaminants are present in impounded water. Check for odors, discoloration, or oily sheen. Check any soils and/or groundwater testing results.▪ If contamination may be or is present, a certified laboratory should test the proposed discharge waters with results submitted to the local drainage authority. Sampling and testing requirements will be determined on a case-by case basis depending on site history or suspected pollutants. Contact DEQ or the local authority responsible for receiving system before testing to get assistance in identifying the required parameters of concern and any specific sampling requirements. After review, the local drainage authority will specify if any pretreatment is required prior to discharge.	

Construction Guidelines

Sediment should be settled prior to discharge. All settling systems should be engineered and adequately sized for site conditions. In general settling and filtering options include the following:

- Containment in a pond structure for a minimum of 4 hours or until water is clear. Place pump in a gravel bed at bottom of pond.
- Pumping to a settling tank with sampling ports
- Filtering through a sieve or other filter media (swimming pool filter). Simple on-site filter systems can be constructed including: wrapping the ends of the suction and discharge pipes with filter fabric; discharging through a series of drums filled with successively finer gravel and sand; and other filtering techniques like those described in the inlet protection section.
- Manufactured bags, polymers, or other systems. These systems do not always work on fine clay soils, and will only be allowed for use where approved. Chemical treatments should have state approval before they are used.
- The flow path should be lined or protected in some way to prevent mobilization of additional sediment.

Filtered material should be either dried and reused on site in a mixture with other site soils or should be appropriately disposed of based on nature and levels of any contaminants present.

Maintenance

- Remember to check filtering devices frequently to make sure they are unclogged and operating correctly. Adjustments may be needed depending on the amount of sediment in the water being pumping.
- Systems should be filled in or otherwise removed when permanent dewatering controls are in place and connected to an approved treatment and receiving system.

SECTION 01 10 00 – SUMMARY**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Phased construction.
 - 4. Work under separate contracts.
 - 5. Access to site.
 - 6. Work restrictions.
 - 7. Specification and drawing conventions.
- B. Related Requirements:
 - 1. Section 01 50 00 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION

- A. Project Identification: Pioneer Pathway Corridor – Phase 3
 - 1. Project Location: Along S. Pioneer Street between River Street and the Boise River Greenbelt
- B. Owner: RMH Company, 1101 W. River St. Suite 300, Boise, ID 83702
 - 1. Owner: Michael Hormaechea; Ph. (208) 861-9677
 - 2. Public Easement Holder: City of Boise
- C. Contracting Agency: Capital City Development Corporation, 121 N 9th Street Suite 501, Boise, ID 83702
 - 1. Agency Project Manager: Matt Edmond; Ph. (208) 319-1221
 - 2. Agency Contract Manager | Attorney at Law: Mary Watson; Ph. (208) 384-4264
- D. Landscape Architect: The Land Group, Inc., 462 E Shore Drive, Suite 100, Eagle, ID 83616
 - 1. Contact: Doug Russell; Ph (208) 939-4041 Fax (208) 939-4445
- E. Civil Engineer: The Land Group, Inc., 462 E Shore Drive, Suite 100, Eagle, ID 83616
 - 1. Contact: Jason Densmer; Ph (208) 939-4041 Fax (208) 939-4445
- F. Electrical Engineer: E2CO Electrical Engineering Company, 800 S Industry Way, Suite 350, Meridian, ID 83642.
 - 1. Contact: Jeff Smith; Ph (208) 376-4450 Fax (208) 378-4451

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Scope of Work consists of all labor, equipment, materials, products, systems, structure,

finishes, accessories, furnishings, permits, specialists, special construction, taxes, transportation facilities and services, overhead and profit necessary for and reasonably incident to the entire completion of Pioneer Pathway Corridor – Phase 3 and is defined by the Contract Documents and generally consists of the following:

1. The demolition of the existing asphalt pathway and the construction of a new paver pathway, completing the connection from River Street to the Boise River Greenbelt. Site improvements also include site lighting, benches, trash enclosures, landscape and irrigation.

B. Type of Contract.

1. Project will be constructed under a single prime contract between CCDC and the successful bidder.

1.4 PHASED CONSTRUCTION

- A. The Work shall be conducted in 1 phase.

1.5 WORK UNDER SEPARATE CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

1.6 ACCESS TO SITE

- A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. Use of Site: Limit use of Project site to areas identified in the plans. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1.7 WORK RESTRICTIONS

- A. Work Restrictions General: Comply with restrictions on construction operations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work on the site to:
1. Monday through Friday: 7:00am to 8:00pm
 2. Saturday and Sunday: 8:00am to 8:00pm
 3. Low noise impact activities such as surveying, layout and weather protection may be performed at any time.
- C. Exterior lighting and other illuminating equipment or materials shall be positioned, shielded, directed and located to not reflect or impact adjacent residential property and streets.

- D. Contractor shall comply with Boise City Fire Department requirements for water, access, and/or other requirements as determined by the Fire Marshal.
- E. Stipulated Dates: Actual Work to begin at the earliest convenience as allowed by weather conditions and agreed upon by the Agency after issuance of the Notice to Proceed; substantial completion shall not extend beyond December 18, 2015. Refer to the FIXED PRICE CONSTRUCTION CONTRACT for more information.
- F. Existing Utility Interruptions: Do not interrupt utilities serving occupied facilities unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 - 1. Notify Architect and Owner not less than 48 hours in advance of proposed utility interruptions.
 - 2. Obtain Architect's and Owner's written permission before proceeding with utility interruptions.
- G. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise, vibration, odors, or other disruption to the Owner's facilities or neighboring properties.
 - 1. Notify Architect and Owner not less than 48 hours in advance of proposed disruptive operations.
 - 2. Obtain Architect's and Owner's written permission before proceeding with disruptive operations.
- H. Nonsmoking Site: Smoking is not permitted on the construction site.
- I. Controlled Substances: Use of tobacco products and other controlled substances within the existing site is not permitted.

1.8 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

1.12 CONTRACTOR RESPONSIBILITIES FOR COMMUNITY RELATIONS

- A. Prior to commencement of construction, Contractor shall participate with Architect and Agency in developing a communication and community relations plan for resolving day-to-day issues,

concerns, and complaints raised by the general public which may be affected by construction activities during the construction period. Contractor shall:

1. Assume responsibility for communicating the importance of maintaining good community relations during the Project to its employees, subcontractors, and other construction personnel.
2. Enlist employees, subcontractors, and other construction personnel in implementing the community relations plan.
3. Identify a point person employed by Contractor who will represent Contractor and be responsible taking calls from and meeting with the general public.
4. Provide contact information for the point person which can be given to the general public.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END SECTION 01 10 00

SECTION 01 25 00 - SUBSTITUTION PROCEDURES**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Section 01 60 00 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1.3 ACTION SUBMITTALS

- A. Substitution Requests: Submit one electronic PFD copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use form provided in Project Manual.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with ACHD requirements.

- j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven (7) days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within fifteen (15) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than fifteen (15) days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Requested substitution will not adversely affect Contractor's construction schedule.
 - c. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - d. Requested substitution is compatible with other portions of the Work.
 - e. Requested substitution has been coordinated with other portions of the Work.

- f. Requested substitution provides specified warranty.
- g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 25 00

SUBSTITUTION REQUEST

TO:

PROJECT:

SPECIFIED ITEM:

Section	Page	Paragraph	Description
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PROPOSED SUBSTITUTION:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes description of changes to Contract Documents which proposed substitution will require for its proper installation.

The undersigned states that the following paragraphs, unless modified on attachments, are correct:

The undersigned states that the following paragraphs, unless modified on attachments, are correct:

1. The Proposed Substitution does not affect dimensions shown on Drawings.
2. The undersigned will pay for changes to the buildings design, including engineering design, detailing and construction costs caused by the requested substitution.
3. The Proposed Substitution will have no adverse affect on other trades, the construction schedule or specified warranty requirements.
4. Maintenance and service parts will be locally available for the Proposed Substitution.
5. The proposed substitution will not increase contract cost.

The undersigned further states that the function, appearance and quality of the Proposed Substitution are equivalent or superior to the Specified Item.

Submitted By _____

For Use by Design Consultant:

Signature _____

____ Accepted ____ Accepted as noted

Firm _____

____ Not Accepted ____ Received too late

Address _____

By

Date

Date _____

Remarks

Telephone

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

- A. Architect will issue through the general contractor supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms acceptable to Architect.
- B. Contractor-Initiated Work Change Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Work Change Proposal Request Form: Use form acceptable to Architect.

1.4 CHANGE ORDER PROCEDURES

- A. Upon Owner's approval of a Work Changes Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on **AIA Document G701 or similar form acceptable to Architect**.

1.5 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a [Construction] Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the **Construction** Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

SECTION 01 29 00 - PAYMENT PROCEDURES**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
 - 1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Submittal schedule.
 - c. Items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Architect at earliest possible date but no later than seven (7) days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Provide at least one line item for each special provision.
 - 1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Contractor's name and address.
 - d. Date of submittal.
 - 2. Arrange schedule of values consistent with format of AIA Document G703.
 - 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents and special provisions. Provide multiple line items for principal subcontract amounts in excess of five percent (5%) of the Contract Sum.
 - 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 - 5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - 6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

7. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Agency.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Agency and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Submit Application for Payment to Architect by the twenty-fifth (25) day of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
- D. Application for Payment Forms: Use forms provided by Agency for Applications for Payment or an equivalent form acceptable to the Architect.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- F. Transmittal: Submit one (1) signed and notarized original copy and one electronic PDF file of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Agency reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Forms: Submit executed waivers of lien on forms acceptable to Agency.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Submittal schedule (preliminary if not final).
 5. List of Contractor's staff assignments.
 6. List of Contractor's principal consultants.
 7. Copies of permits.
 8. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 9. Initial progress report.
 10. Report of preconstruction conference.
 11. Certificates of insurance and insurance policies.
- I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited to, the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G707-1994, "Consent of Surety to Final Payment."
 6. Evidence that claims have been settled.
 7. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 8. Public Works Contract Release from the Idaho Tax Commission

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

SECTION 01 33 00 - SUBMITTAL PROCEDURES**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements:
 - 1. Section 01 78 23 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
 - 2. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- B. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow fifteen (15) days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow fifteen (15) days for review of each resubmittal.
- C. Paper Submittals: Place a permanent label or title block on each submittal item for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Name of subcontractor.
 - f. Name of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number or special provision number followed by a decimal point and then a sequential number (i.e., 129300.01). Resubmittals shall include an alphabetic suffix after another decimal point (i.e., 129300.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
 4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
 5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received from sources other than Contractor.
 - a. Transmittal Form for Paper Submittals: Use form approved by architect.
 - b. Transmittal Form for Paper Submittals: Provide locations on form for the following information:
 - 1) Project name.
 - 2) Date.
 - 3) Destination (To:).
 - 4) Source (From:).

- 5) Name and address of Architect.
- 6) Name of Contractor.
- 7) Name of firm or entity that prepared submittal.
- 8) Names of subcontractor, manufacturer, and supplier.
- 9) Category and type of submittal.
- 10) Submittal purpose and description.
- 11) Specification Section number and title.
- 12) Specification paragraph number or drawing designation and generic name for each of multiple items.
- 13) Drawing number and detail references, as appropriate.
- 14) Indication of full or partial submittal.
- 15) Transmittal number
- 16) Submittal and transmittal distribution record.
- 17) Remarks.
- 18) Signature of transmitter.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (i.e., LARF-129300.01). Resubmittals shall include an alphabetic suffix after another decimal point (i.e., LARF-129300.01.A).
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Agency, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Name of firm or entity that prepared submittal.
 - g. Names of subcontractor, manufacturer, and supplier.
 - h. Category and type of submittal.
 - i. Submittal purpose and description.
 - j. Specification Section number and title.
 - k. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - l. Drawing number and detail references, as appropriate.
 - m. Location(s) where product is to be installed, as appropriate.
 - n. Related physical samples submitted directly.
 - o. Indication of full or partial submittal.
 - p. Transmittal number.
 - q. Submittal and transmittal distribution record.

- r. Other necessary identification.
 - s. Remarks.
- 5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
 - a. Project name.
 - b. Number and title of appropriate Specification Section.
 - c. Manufacturer name.
 - d. Product name.
- E. Options: Identify options requiring selection by Architect.
- F. Deviations: Identify deviations from the Contract Documents on submittals.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements:
 - 1. Submit electronic submittals via email as PDF electronic files.
 - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
 - 2. Action Submittals: Submit four (4) paper copies of each submittal unless otherwise indicated. Architect will return two (2) copies.
 - 3. Informational Submittals: Submit two (2) paper copies of each submittal unless otherwise indicated. Architect will not return copies.
 - 4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before or concurrent with Samples.
 6. Submit Product Data in the following format:
 - a. PDF electronic file.
 - b. Three (3) paper copies of Product Data unless otherwise indicated. Architect will return two (2) copies.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect's digital data drawing files is otherwise permitted.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 24 by 36 inches.
 3. Submit Shop Drawings in the following format:
 - a. PDF electronic file.
 - b. Three (3) opaque (bond) copies of each submittal. Architect will return one (1) copy.

- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Agency's property, are the property of Contractor.
 5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one (1) full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three (3) sets of Samples. Architect will retain two (2) Sample sets; remainder will be returned.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Submit product schedule in the following format:
 - a. PDF electronic file.
 - b. Three (3) paper copies of product schedule or list unless otherwise indicated. Architect will return two (2) copies.
- F. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01 29 00 "Payment Procedures".

- G. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01 40 00 "Quality Requirements."
- H. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 77 00 "Closeout Procedures."
- I. Maintenance Data: Comply with requirements specified in Section 01 78 23 "Operation and Maintenance Data."
- J. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- K. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- L. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- M. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- N. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- O. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- P. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- Q. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- R. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
- S. Schedule of Tests and Inspections: Comply with requirements specified in Section 01 40 00 "Quality Requirements."
- T. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before

installation of product, for compliance with performance requirements in the Contract Documents.

- U. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- V. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- W. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and three (3) paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 01 77 00 "Closeout Procedures."

- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action required.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01 33 00

SECTION 01 40 00 - QUALITY REQUIREMENTS**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Agency, or authorities having jurisdiction are not limited by provisions of this Section.
 - 3. Specific test and inspection requirements for areas within the ACHD right of way shall be per Ada County Highway District.

1.2 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
 - 1. Laboratory Mockups: Full-size physical assemblies constructed at testing facility to verify performance characteristics.
- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five (5) previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.3 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 INFORMATIONAL SUBMITTALS

- A. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.5 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, and telephone number of representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 5. Other required items indicated in individual Specification Sections.
- C. Permits, Licenses, and Certificates: For Agency's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

- D. **Installer Qualifications:** A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. **Professional Engineer Qualifications:** A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar in material, design, and extent to those indicated for this Project.
- F. **Specialists:** Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. **Testing Agency Qualifications:** An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. **Manufacturer's Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. **Preconstruction Testing:** Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - d. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.
 - 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- J. **Mockups:** Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
 2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
 - a. Allow seven days for initial review and each re-review of each mockup.
 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 6. Demolish and remove mockups when directed unless otherwise indicated.
- K. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Specification Sections.

1.7 QUALITY CONTROL

- A. Agency Responsibilities: Where quality-control services are indicated as Agency's responsibility, Agency will engage a qualified testing agency to perform these services.
1. Agency will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Agency are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Agency, unless agreed to in writing by Agency.
 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a manufacturer's representative to observe and inspect the Work. Manufacturer's representative's services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.

- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Architect, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 - 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - 6. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Delivery of samples to testing agencies.
 - 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.8 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Agency will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Agency, as indicated in Statement of Special Inspections attached to this Section, and as follows:
- B. Special Tests and Inspections: Conducted by a qualified testing agency or special inspector as required by authorities having jurisdiction, as indicated in individual Specification Sections and in Statement of Special Inspections attached to this Section, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS**PART 1 – GENERAL****1.1 SUMMARY**

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Section 01 10 00 Summary for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Portable Sewer Service: Pay portable sewer service use charges for sewer usage by all entities for construction operations.
- C. Electric Power Service: Contractor shall pay electric power service use charges for electricity used by all entities for construction operations. Provide connections and extensions of services as required for construction operations.
- D. Water Services: Contractor shall pay water service use charges for water used by all entities for construction operations. Provide connections and extensions of services as required for construction operations.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. SWPPP: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire prevention program.

1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

- C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

PART 2 – PRODUCTS

1.5 MATERIALS

- A. Portable Chain-Link Fencing: Minimum 2-inch, 9 gauge, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top rails. Provide concrete galvanized-steel bases for supporting posts.

1.6 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Maintain field office until date of Substantial Completion.
- C. Common-Use Field Office: of sufficient size to accommodate needs of construction personnel. Keep office clean and orderly. Furnish and equip office as follows:
 - 1. Furniture required for Project-Site documents.
 - 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120V ac duplex receptacles, with not less than 1 receptacle on each wall. Furnish room with conference table and chairs.
 - 3. Telephone.
 - 4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 65 to 75 deg. F.
 - 5. Lighting fixtures capable of producing standard office lighting levels.

PART 3 - EXECUTION

1.7 INSTALLATION, GENERAL

- A. Locate facilities where they will serve the project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."
 - 2. Location shall be approved by Owner.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

1.8 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system or private system indicated as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- E. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Install electric power service overhead or underground unless otherwise indicated.
 - 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- G. Telephone Service: Provide superintendent and project manager with cellular telephone.
- H. Electronic Communication Service: Provide temporary electronic communication service, including Email, in common-use facilities.

1.9 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
 - 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas as indicated within construction limits indicated on Drawings.
 - 1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- C. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas

in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to special provisions.
3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to special provisions.

D. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

E. Parking: Provide temporary or Use designated areas of Owner's existing parking areas for construction personnel. RMH Company shall approve parking areas.

F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
2. Remove snow and ice as required to minimize accumulations.

G. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Identification Signs: Provide Project identification signs as indicated on Drawings.
2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
3. Maintain and touchup signs so they are legible at all times.

H. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

1.10 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

- C. Temporary Erosion and Sedimentation Control: Comply with requirements of current EPA Construction General Permit or authorities having jurisdiction.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Install temporary fencing outside the drip line of trees within the construction limits of work to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- F. Site Enclosure Fence: Before construction operations begin or Prior to commencing earthwork, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose portion determined sufficient to accommodate construction operations indicated on Drawings.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.
- G. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- H. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- I. Temporary Egress: Maintain temporary egress from existing occupied facilities as required by authorities having jurisdiction.
- J. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

1.11 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 77 00 "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 55 26 - TRAFFIC CONTROL**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including Fixed Price Construction Contract and Division 1 Specifications Sections, apply to this Section.

1.2 REQUIREMENTS

- A. In accordance with Manual on Uniform Traffic Control Devices for Highways, prepared by the National Joint Committee of Uniform Traffic Control Devices or as per local governing authority.

PART 2 - PRODUCTS - N/A**PART 3 - EXECUTION****3.1 TRAFFIC CONTROL**

- A. A construction and traffic control schedule indicating areas and type of work to be performed shall be submitted by the Contractor for review by the City of Boise & CCDC prior to starting work on the Project. This schedule shall include proposed pedestrian and vehicle detours; and any necessary traffic control devices and pavement markings.
 - 1. All traffic control plans shall be in conformance with the Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways and the Ada County Highway District's Standard Details.
 - 2. All traffic control located within the right of way shall be approved by Ada County Highway District.
- B. A minimum of two working days notice shall be given before any changes in the schedule is made.
- C. The Contractor shall provide an individual or individuals trained in traffic control to maintain and monitor required traffic control. Such individual or individuals shall have traffic control as a primary responsibility and duty and shall be available at all times that work is in progress to perform these duties. The Contractor is responsible for monitoring and maintaining traffic control devices during non-working days and non working hours. During non-working days the individual shall visit the site at least once per day and perform maintenance of traffic control devices as necessary. The individual responsible need not be on duty but shall be on call during the construction phase and be available by telephone contact to correct problems and perform maintenance.
- D. Detours. Detours, such as utilization of one or more traffic lanes for construction or maintenance shall be the responsibility of the Contractor. Costs for these items shall be included in the contract price. A detour plan showing the detour route and all applicable detour signing shall be furnished by the Contractor and approved by the governing authority before starting work on the project. Both lanes of traffic shall be open with appropriate construction signing during all non-working hours.
- E. Local and Emergency Traffic. Pedestrian traffic shall be provided access to private properties at all times, except during urgent stages of construction when it is impracticable to carry on the construction and maintain traffic simultaneously.
- F. No private driveway may be closed without the approval of the Agency. No private driveways may be closed for more than eight (8) hours without written approval of the property owner.

- G. Emergency traffic such as police, fire, school bus, mail delivery and disaster units shall be provided reasonable access at all times. The Contractor shall be liable for any damages which may result from his failure to provide such reasonable access.
- H. The Contractor shall keep emergency vehicle dispatchers up-to-date on road detours and closures at all times.
- I. Protection of Pedestrian and Vehicular Traffic. The Contractor shall take every precaution to protect pedestrian and vehicular traffic. Wherever, in the opinion of the Architect/governing authority, the Contractor has not provided sufficient or proper safety precautions and safeguards, he shall do so immediately and to the extent deemed advisable.
- J. The posting of advance warning signs, barricades, traffic cones, flashers, etc., shall be in accordance with the current edition of Part VI of the "Manual on Uniform Traffic Control Devices for Streets and Highways" prepared by the National Joint Committee of Uniform Traffic Control Devices.
- K. Flagmen. The Contractor shall furnish, at his own expense, all flag persons who may be needed.
- L. Dust Control. It shall be the Contractor's responsibility to control dust on the project and on any detour by watering as directed by the Architect. Dust control on the project or on a detour shall be considered incidental to the project. Also see Division 1 requirements and refer to Section 31 20 00 Earth Moving for more information.
- M. Traffic Control Within and Abutting the Project. The Contractor shall place and maintain all signs, barricades and warning lights within the limits of the project on the approach to the work area so that approaching traffic will be aware of construction. Signs which are required shall be furnished by the Contractor.
- N. Barricades shall be furnished by the Contractor. The barricades shall be of a conventional design normally used in road construction work and painted "construction orange" with black stripes.
- O. Traffic Control Signs. Standard traffic control signs required for construction will be furnished by the Contractor. He shall maintain them in a neat condition until the need for them has ceased, after which he shall carefully remove the signs.

END OF SECTION 01 55 26

SECTION 01 60 00 - PRODUCT REQUIREMENTS**PART 1 - GENERAL****1.1 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 012500 "Substitution Procedures" for requests for substitutions.

1.2 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.

1.3 ACTION 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 and title and Drawing numbers and titles.
 - 1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product

request. Architect will notify Contractor through Construction Manager of approval or rejection of proposed comparable product request within fifteen (15) 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 Architect 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.

1.4 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.

1.5 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 Project 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.
 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.

1.6 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 - 3. Refer to other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 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. Agency 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," Architect will make selection.
 - 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
- 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 or 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 or 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 Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect'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 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect 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.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

SECTION 01 73 00 - EXECUTION**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of Owner-installed products.
 - 6. Progress cleaning.
 - 7. Starting and adjusting.
 - 8. Protection of installed construction.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for limits on use of Project site.
 - 2. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.2 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements of Ada County Highway District for limitations on cutting and patching of construction elements.
 - 1. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - 2. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 - 3. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- 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 Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility and Agency that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish limits on use of Project site.
 - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 4. Inform installers of lines and levels to which they must comply.
 - 5. Check the location, level and plumb, of every major element as the Work progresses.
 - 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
 - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
- B. Benchmarks: Establish and maintain a minimum of two (2) permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
- C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- D. Final Property Survey: Engage a land surveyor or professional engineer to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor or professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place 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.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize or prevent interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and

- with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- H. 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 practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical 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 minimize evidence of patching and refinishing.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements"

3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 73 00

SECTION 01 77 00 - CLOSEOUT PROCEDURES**GENERAL****1.1 SUMMARY**

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Demonstration and Training
- B. Related Requirements:
 - 1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
 - 2. Division 01 Section "Execution" for progress cleaning of Project site.
 - 3. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 4. Division 01 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
 - 5. Divisions 12, 31, and 32 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.2 SUBSTANTIAL COMPLETION

- A. The requirements for Substantial Completion shall apply to each individual sub-portion of the project including each intermediate deadline. Reference section 01 10 00 for definition of the required project schedule.
- B. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and the reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
 - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 7. Make final changeover of permanent locks and deliver keys to Owner.
 - 8. Complete startup testing of systems.
 - 9. Submit test/adjust/balance records.

10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
12. Call for complete walk-throughs with Authorities having Jurisdiction as necessary to secure all permits and certificates to allow Owner's use of the project. Authorities having Jurisdiction to be involved in the inspection and certification of the project shall include but not be limited to Ada County Highway District, United Water, and Idaho Power.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

- C. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the bases of requirements for Final Completion.

1.3 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings.
 5. Submit proof of Tax Release from the Idaho State Tax Commission.
- B. Inspection: Submit a written request for final inspection to determine acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order.

2. Include the following information at the top of each page.
 - a. Project name
 - b. Date
 - c. Name of Architect
 - d. Name of Contractor
 - e. Page Number

1.5 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

1.6 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

1.7 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion.
 1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including

landscape development areas, of rubbish, waste material, litter, and other foreign substances.

2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 4. Remove tools construction equipment, machinery, and surplus material from Project site.
 5. Clean all synthetic turf surfaces as recommended by turf manufacturer.
 6. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 7. Leave project clean and ready for occupancy.
 8. Re-clean as often as necessary as may be required by work performed after final cleaning and inspection.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

1.8 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

END OF SECTION 01 77 00

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Operation manuals for systems, subsystems, and equipment.
 - 3. Product maintenance manuals.
 - 4. Systems and equipment maintenance manuals.

1.2 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect will comment on whether content of operations and maintenance submittals are acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
 - 1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.
 - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
 - b. Enable inserted reviewer comments on draft submittals.
 - 2. Three (3) paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect will return two copies.
- C. Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least fifteen (15) days before commencing demonstration and training. Architect and Agency will return copy with comments.
 - 1. Correct or revise each manual to comply with Architect's and Agency's comments. Submit copies of each corrected manual within (15) days of receipt of Architect's and Agency's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information.
- B. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.
- C. Title Page: Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name and contact information for Contractor.
 - 6. Name and contact information for Construction Manager.
 - 7. Name and contact information for Architect.
 - 8. Name and contact information for Agency.
 - 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 - 10. Cross-reference to related systems in other operation and maintenance manuals.
- D. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- E. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- F. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
 - 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 - 2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

- G. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf or post-type binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
 4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 2. Performance and design criteria if Contractor is delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
1. Product name and model number. Use designations for products indicated on Contract Documents.
 2. Manufacturer's name.
 3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.

7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.3 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
 2. Types of cleaning agents to be used and methods of cleaning.
 3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.

- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.4 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
- C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
- D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings.
 - 1. Do not use original project record documents as part of operation and maintenance manuals.
- E. Comply with Section 01 77 00 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 78 23

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. Related Requirements:
 - 1. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.2 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one (1) set(s) of marked-up record prints.
 - 2. Number of Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit one (1) paper-copy set(s) of marked-up record prints.
 - b. Final Submittal
 - 1) Submit one (1) electronic copy of final record drawings.

PART 2 - PRODUCTS**2.1 RECORD DRAWINGS**

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised Drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Record data as soon as possible after obtaining it.
 - c. Record and check the markup before enclosing concealed installations.
 - 2. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 - 3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 - 4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
 - 1. Format: DWG, DXF, or DGN, Version Microsoft Windows operating system.
 - 2. Format: Annotated PDF electronic file with comment function enabled.
 - 3. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 - 4. Refer instances of uncertainty to Architect for resolution.
 - 5. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 - 1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 - 2. Format: Annotated PDF electronic file with comment function enabled.
 - 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 - 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. Note related Change Orders, record Product Data, and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic, file paper copy, or scanned PDF electronic file(s) of marked-up paper copy of Specifications.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product Data as annotated PDF electronic file, paper copy, or scanned PDF electronic file(s) of marked-up paper copy of Product Data.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file, paper copy, or scanned PDF electronic file(s) of marked-up miscellaneous record submittals.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 01 78 39

SECTION 12 93 00 - SITE FURNISHINGS**PART 1 – GENERAL****1.1 SUMMARY**

- A. This section includes the following:
 - 1. Bollards
 - 2. Benches
 - 3. Trash Receptacles
 - 4. Luminaire
 - 5. Luminaire Post
- B. Related Sections include the following:
 - 1. Division 01 Sections
 - 2. Division 32 Section “Concrete Paving” for mounting furnishings

1.2 REFERENCES

- A. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2000.
- B. ASTM A 283/A 283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2000.
- C. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2000.
- D. ASTM A 325M - Standard Specification for High-Strength Bolts for Structural Steel Joints (Metric); 2000.
- E. AWS D1.1 - Structural Welding Code - Steel; American Welding Society; current edition.

1.3 SUBMITTALS

- A. See Division 1 for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product specified, including detailed installation diagrams and recommended installation methods.
- C. Selection Samples: For each product specified, two complete sets of chips representing manufacturer's full range of colors and finishes.
- D. Shop Drawings: Indicate all materials, dimensions, welds, finish, etc. for field fabricated items.
- E. Maintenance Data: For site furnishings to include in O&M Manuals.

1.4 QUALITY ASSURANCE

- A. Furnish paint for touch-up as required.
- B. Install pre-manufactured items, poured-in-place or pre-cast items, and all related materials required to complete the work indicated on the drawings and/or specified.
- C. Materials Inspection: The Contractor shall inspect all items upon delivery to ensure no damage to material or finish. Minor repairs and/or touch up shall be accepted

only upon prior authorization from the landscape architect and shall conform, at minimum, to manufacturer's standards.

1.5 WARRANTY

- A. Contractor shall warrant work as provided by the General and Supplementary Conditions and Division 01 Specifications.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Substitutions or equivalent products shall be in accordance with Division 01 Specifications.

2.2 SITE FURNISHINGS

- A. Bollards:

- 1. Manufacturer: Creative Pipe Inc.
- 2. Model: CBRE-4-RE-SS-F
- 3. Finish: Stainless Steel
- 4. Special Instructions: Model, finish and sleeve to match Phase 1 & 2 work. Contractor to verify prior to ordering.

- B. Bench:

- 1. Manufacturer: Landscape Forms, 1.800.521.2546
- 2. Model: Pac Vue, backed with end arms, surface mounted. Four (4) foot version. No center arm.
- 3. Finish: Pangard II polyester powdercoat
- 4. Color: Titanium
- 5. Special Instructions: Model and finish to match Phase 1 & 2 work. Contractor to verify prior to ordering.

- C. Trash Receptacles:

- 1. Manufacturer: Creative Pipe, Inc. 1.800.644.8467
- 2. Model: Cameo Model CAT-SS-S, 36 gallon capacity. Solid stainless steel sheet sidewall, flange surface mount with lockable side door.
- 3. Finish: Satin
- 4. Color: Stainless Steel
- 5. Special Instructions: Model and finish to match Phase 1 & 2 work. Contractor to verify prior to ordering.

- D. Luminaires:

- 1. Manufacturer: BEGA
- 2. Style: See lighting plan
- 3. Special instructions: Model and finish to match Phase 1 & 2 work. Contractor to verify prior to ordering.

- E. Luminaire Post:

- 1. Manufacturer: BEGA

2. Style: See lighting plan
3. Special Instructions: 14' tall – finish to match Phase 1 & 2 work. Contractor to verify prior to ordering.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.
- B. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.
- C. Install site furnishings level, plumb, true, securely anchored and positioned at locations indicated on Drawings.
- D. Post Setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.
- E. Touch-up paint, as necessary, all blemishes incurred during shipping or assembly, color as designated, to manufacturer's standards.
- F. Reinstallation of existing items shall include the use of all required new fasteners, footings, etc. to result in a fully functional system. Provide touch-up paint as required.

3.3 ADJUSTING

- A. Upon completion of the installation of site furnishings, check each item and verify that all equipment is properly installed; verify that all trim is in place; adjust all components as necessary to ensure proper operation; remove all labels from equipment.
- B. Make necessary adjustments for safe, efficient and smooth operation.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products after Substantial Completion.

3.5 CLEANING

- A. Remove all packing materials from job site.
- B. Clean or restore marred surfaces.

END OF SECTION 12 93 00

SECTION 31 10 00 - SITE CLEARING**PART 1 – GENERAL****1.1 SUMMARY**

- A. Section Includes:
 - 1. Removing existing vegetation.
 - 2. Clearing and grubbing.
 - 3. Removing above- and below-grade site improvements.
 - 4. Disconnecting, capping or sealing, protecting and abandoning site utilities in place.
 - 5. Temporary erosion and sedimentation control measures.
- B. Related Sections:
 - 1. Division 01 Sections
 - 2. Division 31 "Earth Moving"
 - 3. Division 32 sections 32 92 00 "Turf & Grasses"
 - 4. SWPPP Documents

1.2 DEFINITIONS

- A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.
- C. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.3 MATERIAL OWNERSHIP

- A. Except for stripped topsoil and other materials indicated to be stockpiled, reused, or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site. Conform to applicable code for disposal of debris.

1.4 SUBMITTALS

- A. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.5 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Agency and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Agency or authorities having jurisdiction.

- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- C. Utility Locator Service: Notify utility locator service for a complete location of all utilities prior to beginning site clearing operations. Contact locator service at 811 or (208) 342.1585.
- D. Do not commence site clearing operations until temporary erosion and sedimentation measures are in place.
- E. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist. Refer to Geotechnical Evaluation for Soft Subgrade Construction Approach Recommendations.
- F. Dust Control: Per project SWPPP Documents and Agency Having Jurisdiction.

1.6 WARRANTY

- A. Contractor shall warrant work as provided by the General and Supplementary Conditions and Division 01 Specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section "Earthmoving"
 - 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Construction Manager.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to SWPPP Documents and requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 EXISTING UTILITIES

- A. Contractor shall coordinate with Construction Manager to arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing.
 - 1. Verify that utilities have been disconnected and capped before proceeding with site clearing.
- B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.
 - 1. Arrange with utility companies to shut off indicated utilities.
- C. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Construction Manager not less than two (3) days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Construction Managers' written permission.
- D. Excavate for and remove underground utilities indicated to be removed. Backfill & compact excavated utility trenches per specification section 312000.

3.4 CLEARING AND GRUBBING

- A. Remove trees, shrubs, and other vegetation to permit installation of new construction.
- B. Remove obstructions, pipes, ditches, etc. to permit installation of new construction.
- C. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding a loose depth of 6-Inches and compact each layer to a density equal to adjacent original ground.
 - 2. All fill material placed must be compacted and tested. Coordinate with Construction Manager for testing.

3.5 TOPSOIL STRIPPING

- A. Contractor shall remove all organic or disturbed soils beneath proposed buildings, foundations and paved areas.
- B. Exact removal depths should be determined during grading operations by the Geotechnical Engineer and should be based upon subgrade soil type, composition, and firmness or soil stability.
- C. Stripped topsoil may be stockpiled and used in future landscape areas only. Topsoil shall not be used as Structural Fill.

3.6 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
 - 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut adjacent to line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
 - 2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.
- C. If underground storage tanks, underground utilities, wells, or septic systems are discovered during construction activities, they must be decommissioned then removed or abandoned in accordance with governing Federal, State, and local agencies. Excavations developed as a result of such removal must be backfilled with structural fill materials. See section 312000.

3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
- B. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 31 10 00

SECTION 31 20 00 - EARTH MOVING**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes:
 - 1. Excavation and backfilling for slabs-on-grade, walks, pavements and landscape areas.
 - 2. Excavation and backfilling for buildings and structures.
 - 3. Excavation and backfilling trenches where existing utilities are removed or modified.
 - 4. Temporary erosion and sedimentation control measures.
- B. Related Sections:
 - 1. Division 01 Sections.
 - 2. Division 16 Sections for installing underground electrical utilities and electrical structures (see drawing set, sheets E3.0 and E3.1)
 - 3. Division 31 Section "Site Clearing" for site stripping, grubbing, stripping topsoil, and removal of above- and below-grade improvements and utilities.
 - 4. Division 32 Section "Cement-Treated Base" for subbase course at asphalt paving areas.
 - 5. Division 32 Section "Turf and Grasses" for finish grading in turf and grass areas, including preparing and placing planting soil for turf areas.
 - 6. Division 32 Section "Plants" for finish grading in planting areas and tree and shrub pit excavation and planting.
 - 7. Division 33 Sections for underground site utilities.
 - 8. Idaho Standards for Public Works Construction, Current Edition.
 - 9. SWPPP Documents (see drawing set, sheets C1.50 and C1.55).

1.2 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
 - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe. Initial backfill shall be Bedding Course
 - 2. Final Backfill: Backfill placed over initial backfill to fill a trench. Final Backfill shall be Bedding Course or Granular Structural Fill.
- B. Base Course (Crushed Aggregate Base): Aggregate layer placed between the base course and hot-mix asphalt paving or concrete flatwork or cast in place concrete or pavers.
- C. Subbase Course (Structural Fill): Aggregate layer placed between the subgrade and Base Course.
- D. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.
- E. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- F. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.
- G. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

- H. Fill: Soil materials used to raise existing grades.
- I. Satisfactory Soil: Soil material in compliance with the Geotechnical Engineering Evaluation.
- J. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- K. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, base course or topsoil materials.
- L. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 SUBMITTALS

- A. Product Data: For each type of the following manufactured products required:
 - 1. Geotextiles and warning tapes.
- B. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:
 - 1. Classification according to ASTM D 2487.
 - 2. Laboratory compaction curve according to ASTM D 1557 (for rigid structures) or ASTM D 698 (for flexible pavements).
 - 3. Sieve analysis for all structural fill materials.

1.4 QUALITY ASSURANCE

- A. Pre-excavation Conference: Conduct conference at Project site.
- B. All gravel, base course, subbase, and other imported fill materials other than landscape fill and topsoil shall only be stockpiled in proposed impervious areas. No gravel or rock materials shall be stockpiled or temporarily placed in proposed landscape areas in order to prevent landscape areas from being contaminated with rock materials. If landscape areas become contaminated, the contractor shall restore them to specified requirements at no cost to the Agency.

1.5 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earthwork operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Agency and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Agency or authorities having jurisdiction.
- B. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth moving operations. Contact locator service at 811 or 342.1585.
- C. Do not commence earthwork operations until temporary erosion- and sedimentation-control measures are in place.
- D. Soft Subgrade Conditions: This site consists of native silts and/or clays that are relatively high in moisture content and prone to pumping and rutting from rubber-

tired construction equipment. Earth Moving methods which limit destabilizing areas of the site during earth moving activities shall be employed.

- E. Construction operations during dry, warm weather conditions will help to limit development of unstable subgrade conditions. Construction during wet weather may not be possible, depending on the amount of precipitation.
- F. Dust Control: Per Agency Having Jurisdiction.

1.6 WARRANTY

- A. Contractor shall warrant work as provided by the General and Supplementary Conditions and Division 01 Specifications.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Subbase Course (Structural Fill):
 - 1. Structural Fill: Native, near surface soils are suitable for and may be used for structural fill or backfill in compliance with the Geotechnical Evaluation.
 - 2. Granular Structural Fill: 6-Inch minus select, clean, granular soil with no more than 50 percent oversize (greater than 3/4-Inch) material and no more than 12 percent fines (passing No. 200 sieve). Refer to the ISPWC Section 801 for material gradation and requirements.
 - 3. Cement-Treated Base: Per Specification Section 321113.
- C. Base Course (Crushed Aggregate Base):
 - 1. 3/4" maximum size- complying with ISPWC Section 802 – 3/4-inch (Type I) for material gradation and requirements.
 - 2. Crushed Aggregate Base as defined herein shall be used as Free Draining Granular Mat as indicated by the geotechnical engineering report.
- D. Bedding Course: Type I bedding material Per ISPWC Section 305 – in compliance with the following material gradation:

Sieve Size	Percent Passing
1-inch	100
3/4-inch	80-100
3/8-inch	20-70
No. 4	5-20
No. 8	0-5
No. 200	0-3

- E. Drain Rock: Per ISPWC Section 801 – in compliance with the following material gradation:

Sieve Size	Percent Passing
3-inch	100
1-inch	25-60
3/8-inch	0-4
No. 200	0-2

- F. Filter Sand: Per ISPWC Section 801 – in compliance with the following material gradation:

Sieve Size	Percent Passing
3/8-inch	100
No. 4	95-100
No. 16	45-80
No. 50	10-30
No. 100	2-10
No. 200	0-4

- G. Topsoil Material: ASTM D 5268, pH range of 5.5 to 7.0, free of stones 1/2 inch or larger in any dimension, and other extraneous materials harmful to plant growth.
- Topsoil stripped from existing sod areas is acceptable for reuse as topsoil.
 - Topsoil shall be amended per Division 32 specifications “Turf and Grasses” and “Plants”.

- H. Paver Base Material: Provide drainage course and leveling course base material in compliance with the following material gradation and as shown on the drawings.

Sieve Size	Percent Passing
Bedding and Joint/Opening Filler (ASTM No. 8)	
1/2-inch	100
3/8-inch	85-100
No. 4	10-30
No. 8	0-10
No. 16	0-5
Base Material (ASTM No. 57)	
1 1/2-inch	100
1-inch	95-100
1/2-inch	25-60
No. 4	0-10
No. 8	0-5
Subbase Material (ASTM No. 2)	
3-inch	100
2 1/2-inch	90-100
2-inch	35-70
1 1/2-inch	0-15
3/4-inch	0-5

- I. Decorative Rock Mulch: Per Specification Section 32 93 00.

2.2 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:

1. Red: Electric.
 2. Yellow: Gas, oil, steam, and dangerous materials.
 3. Orange: Telephone and other communications.
 4. Blue: Water systems.
 5. Green: Sewer systems.
- B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
1. Red: Electric.
 2. Yellow: Gas, oil, steam, and dangerous materials.
 3. Orange: Telephone and other communications.
 4. Blue: Water systems.
 5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 EXCAVATION: GENERAL

- A. Identify required lines, levels, contours and datum.
- B. Protect above and below grade utilities which are to remain.
- C. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- D. Following excavation to subgrade and prior to fill placement; subgrade surfaces shall be proof rolled in the presence of the geotechnical engineer. Correct Soft Subgrade Soil areas as identified and directed by the Geotechnical Engineer. Proof rolling of subgrade soils shall be accomplished using a heavy rubber-tired, fully loaded, tandem-axle dump truck or equivalent.
- E. Inspection & compaction testing shall be completed per the Division 01 Specifications.

3.2 EXCAVATION FOR STRUCTURES, BUILDING SLABS AND BUILDING FOUNDATIONS

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
- B. The exposed subgrade shall be proof-rolled and approved by the Geotechnical Engineer.
- C. Repair soft subgrade soil areas as identified and directed by the Geotechnical Engineer.
- D. Excavate to adequate depth for placement of Subbase Course and Base Course Soil Materials.

3.3 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate to indicated lines, cross sections, elevations and subgrades.

- B. The exposed subgrade shall be proof-rolled and approved by the Geotechnical Engineer.
- C. Repair soft subgrade soil areas as identified and directed by the Geotechnical Engineer.
- D. Excavate to adequate depth for placement of Subbase Course and Base Course Soil Materials.

3.4 EXCAVATION

- A. Excavate to indicated lines, cross sections, elevations and subgrades.
- B. The exposed subgrade shall be proof-rolled and approved by the Geotechnical Engineer.
- C. Repair soft subgrade soil areas.
- D. Excavate to adequate depth for placement of Subbase Course, Base Course and Drainage Course Soil Materials.

3.5 EXCAVATION FOR UTILITY TRENCHES

- A. Comply with the requirements of the ISPWC and the City of Nampa Standard Specifications.
- B. Excavate trenches to indicated gradients, lines, depths and elevations. Utility cover shall be per Division 33 and the Drawings.
- C. Excavate trenches to a minimum width of 24" plus pipe or conduit outside diameter. Provide uniform clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.
- D. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.
 - 1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material, 4 inches deeper elsewhere, to allow for bedding course.

3.6 SUBGRADE INSPECTION

- A. Notify Construction Manager when excavations have reached required subgrade elevations.
- B. Prior to placement of fill material at building and paved areas, the exposed subsoil surface should be proof-rolled under the observation of the Geotechnical Engineer.
- C. Cut out soft or otherwise unsuitable areas of subgrade not capable of supporting structural loads. Backfill with Granular Structural Fill and compact to density equal to or greater than requirements for subsequent backfill material. Prior to placing Granular Structural Fill, the geotechnical engineer shall evaluate the over-excavated subgrade to determine if a Geotextile should be placed on the over-excavated subgrade.
- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by the Construction Manager.

3.7 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Protect as necessary to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations.
 - 2. Coordinate stockpile requirements with SWPPP documents and acceptable BMP's.

3.8 STRUCTURAL FILL - GENERAL

- A. Soils for use as Structural Fill include silt and non-expansive clay soils as defined by the Geotechnical Evaluation. Additional Effort and care will be required when dealing with these fine-grained materials. These materials require very high moisture contents for compaction and require a long time to dry out if natural moisture contents are too high. This makes moisture content, lift thickness, and compactive effort difficult to control.
- B. Lift thickness should not exceed 6-inches (loose), and fill material moisture should be closely monitored at both the working elevation and the elevation of material already placed. Moisture contents must not exceed optimum, but be within 4 percent of optimum to facilitate compaction. Overly wet materials must be removed and air-dried or replaced with more suitable material.
- C. Each layer of fill should be compacted by pads-foot or sheeps-foot roller (or equivalent), to a minimum of 95% of maximum dry density, as determined by ASTM D 698. Visual observation should confirm that the surface of each lift minimal indentation after application of the indicated compaction effort.
- D. After placement, fine-grained soils must be protected from degradation resulting from construction traffic or subsequent construction.

3.9 UTILITY TRENCH BACKFILL

- A. Place backfill on subgrades free of mud, frost, snow or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- C. Backfill utility trenches using Bedding Course or Granular Structural Fill, compacted as specified below. Sufficient backfill should be placed over the utility before compacting with heavy equipment to prevent damage.
- D. Subbase Course Fill should be placed and compacted to density equal to or greater than requirements for subsequent backfill material.
- E. Place Subbase Course Fill at the following maximum loose depths prior to compaction:
 - 1. Bedding Course: 6-Inch lifts prior to compaction
 - 2. Granular Structural Fill: 12-Inch lifts prior to compaction.
- F. Place and compact final backfill of satisfactory soil to final subgrade elevation.
- G. Install warning tape directly above utilities, 12-inches below finished grade, except 6-inches below subgrade under pavements and slabs.

3.10 SUBBASE COURSE FILL: ASPHALT PAVING

- A. Upon approved preparation and observed proof-rolling of subgrade, placement of Subbase Course Fill shall proceed.
- B. Place Structural Fill to required elevation to allow for placement of Cement Treated Base, Base Course Fill and Asphalt Paving. Place in maximum 6-inch loose lifts and compact to 95% per ASTM D 698.
- C. Place Cement Treated Base to a minimum compacted depth of 12-inches. Place in maximum 6-inch loose lifts and compact to 95% per ASTM D 698.
- D. Surface of Cement Treated Base shall be smooth, even surface. Remove ridges and fill depressions as required to meet finish grades.
- E. Coordinate placement with Specification Section 321216 and Drawings.

3.11 SUBBASE COURSE FILL: PAVERS

- A. Upon approved preparation and observed proof-rolling of subgrade, placement of Subbase Course Fill shall proceed.
- B. Place Structural Fill to required elevation to allow for placement of Drainage Course Fill and Pavers. Place in maximum 6-inch loose lifts and compact to 95% per ASTM D 698.
- C. Surface of Structural Fill shall be smooth, even surface. Remove ridges and fill depressions as required to meet finish grades.
- D. Coordinate placement with Specification 321413 and Drawings.

3.12 BASE COURSE FILL

- A. Upon approved placement and compaction of Subbase Course Fill, placement of Base Course Fill shall proceed.
- B. Place and compact Base Course material in layers to required elevations.
- C. Place Base Course materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- D. Surface of Base Course shall be smooth, even surface. Remove ridges and fill depressions as required to meet finish grades.
- E. Base Course at Pavement, Curbs, and Walks:
 - 1. Compacted depth as indicated on the drawings.
- F. Place Base Course in maximum 12-inch thick loose lifts to bottom of structure, building slab, retaining wall foundation, pavement, curb or walk. Base Course shall be moisture conditioned to within 2 percent of the optimum moisture.
- G. Compact Base Course to a minimum of 95% per ASTM D 1557.

3.13 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - 1. Turf or Unpaved Areas: Plus or minus 1 inch.
 - 2. Walks: Plus or minus 1 inch.
 - 3. Pavements: Plus or minus 1/2 inch.
- C. Site drainage should be directed away from structural areas, to avoid ponding of waters during storm events.
- D. Grading inside Building Lines: Finish subgrade to a tolerance of 1/4 inch when tested with a 10-foot straightedge.

3.14 FIELD QUALITY CONTROL

- A. Perform field inspection and testing under provisions of Division 1.
- B. Testing Agency: Agency will engage a qualified geotechnical engineering testing agency to perform tests and inspections.
- C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- D. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.
- E. Testing agency will perform compaction testing at the following locations and frequencies:
 - 1. Pavement and Walks: At subgrade and at each compacted fill and backfill layer, at least one test for every 5000 SF (paved areas) but in no case fewer than three tests.
 - 2. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 300 feet or less of trench length, but no fewer than two tests.
- F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; re-compact and retest until specified compaction is obtained.

3.15 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - 1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and re-compact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent

possible.

3.16 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.
- B. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Construction Manager.

END OF SECTION 31 20 00

SECTION 32 12 16 - ASPHALT PAVING**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes:
 - 1. Hot-mix asphalt patching
 - 2. Hot-mix asphalt paving
 - 3. Pavement-marking paint and Preformed thermoplastic pavement markings
- B. Related Sections:
 - 1. Division 31 Section "Earth Moving" for aggregate subbase and base courses and for aggregate pavement shoulders.
 - 2. Idaho Standards for Public Works Construction, Current Edition.

1.2 DEFINITION

- A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.

1.3 SUBMITTALS

- A. Submit under provisions of Division 01 Specifications.
- B. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
- C. Submit design mix under provisions of Division 01.
- D. Submit asphalt mix aggregate under provisions of Division 01.
- E. Submit pavement marking product data under provisions of Division 01.
- F. Material Certificates: For each paving and striping material, from manufacturer.
- G. Material Test Reports: For each paving material.

1.4 QUALITY ASSURANCE

- A. Perform work in accordance with the Current Edition of the Idaho Standards for Public Works Construction.
- B. Mixing Plant: Conform to the Current Edition of the Idaho Standards for Public Works Construction and comply with ASTM D 3515.
- C. Obtain materials from same source throughout duration of project.

1.5 HANDLING

- A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.
- B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
 - 1. Tack Coat: Minimum surface temperature of 60 deg F.
 - 2. Asphalt Single Course: Minimum surface temperature of 40 deg F and rising at time of placement.
- B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for oil-based materials, 55 deg F for water-based materials, and not exceeding 95 deg F.

1.7 WARRANTY

- A. Contractor shall warrant work as provided by the General and Supplementary Conditions and Division 01 Specifications.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Asphaltic Concrete: Asphalt mix design shall meet the requirements of the ISPWC, Section 810 for Class III Plant Mix.
- B. Base Course (crushed aggregate base): Refer to Specification Section 312000.
- C. Subbase Course (cement treated base): Refer to Specification Section 312000.
- D. Asphalt-Aggregate Mixtures: 1/2-inch mix design according to ISPWC Section 803.

2.2 ASPHALT MATERIALS

- A. Asphalt Cement and Bituminous Materials per ISPWC Section 805.
- B. The Contractor shall provide the Engineer with a Mix Design for approval prior to placement of Bituminous Paving Materials.
- C. Plantmix Bituminous Pavement shall be Type 3, unless otherwise specified or approved.
- D. Asphalt Tack Coat: per ISPWC Section 806.
- E. Asphalt Prime Coat: per ISPWC Section 807.
- F. Water: Potable.

2.3 AUXILIARY MATERIALS

- A. Sand: AASHTO M 29, Grade Nos. 2 or 3.
- B. Joint Sealant: AASHTO M 324, Type II of III.
- C. Pavement-Marking Paint: Alkyd-resin type, lead and chromate free, ready mixed, complying with AASHTO M 248; colors complying with FS TT-P-1952.
 - 1. Color: Per the plans.
- D. Glass Beads: AASHTO M 247, Type 1. Roadway pavement markings only.

2.4 PREFORMED THERMOPLASTIC PAVEMENT MARKINGS

- A. Preformed sheets of thermoplastic meeting AASHTO M-249.

1. Color shall be manufactured to conform to standard traffic marking color requirements, ASTM D 6628. Color: White.
2. Skid resistance shall meet ASTM E 303, minimum initial BPN ≥ 45 .
3. Thickness shall be 90 mil.
4. Preformed thermoplastic should be stored indoors at a minimum temperature of 50 deg. F.
5. Thermoplastic shall have glass beads integrated during the manufacturing process.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that Base Course below proposed pavement areas is dry and in suitable condition to begin paving.
- B. Proceed with paving only after unsatisfactory conditions have been corrected.
- C. Verify that utilities, and other items requiring a cut and installation beneath the asphalt surface have been completed and that asphalt surface has been repaired flush with adjacent asphalt prior to beginning installation.

3.2 PATCHING

- A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Re-compact existing unbound-aggregate base course and add additional material to form new subgrade.
- B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.10 gal/sq. yd.
 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- C. Patching: Fill excavated pavements with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

3.3 REPAIRS

- A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.
 1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.
- B. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4 inch.
 1. Clean cracks and joints in existing hot-mix asphalt pavement.
 2. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.
 3. Use hot-applied joint sealant to seal cracks and joints more than 1/4 inch

wide. Fill flush with surface of existing pavement and remove excess.

3.4 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared crushed surfacing below proposed pavement areas is ready to receive paving.
- B. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.10 gal/sq. yd.
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- C. Surface Course: The surface course lift shall be placed as near project substantial completion as possible.
 - 1. Base course pavement shall be cleaned to remove all debris and dust.
 - 2. Visually inspect base course pavement for mechanical or chemical damage. All areas with chemical damage, i.e. dripped fuels, or mechanical damage shall be identified and marked with paint for review by the Architect. All areas determined to require patching shall be patched per 3.2 of this Section prior to placement of surface course.
 - 3. Apply tack coat to base course prior to placement of surface course at a rate of 0.15 gal/sq. yd.

3.5 HOT-MIX ASPHALT PLACING

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - 1. Asphalt: Place hot-mix asphalt in single lift to 2.5-Inch compacted thickness.
 - 2. Spread mix at minimum temperature as required by binder temperature/viscosity curve.
 - 3. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
 - 4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
 - 1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.6 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
 - 1. Clean contact surfaces and apply tack coat to cold joints.
 - 2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
 - 3. Offset transverse joints, in successive courses, a minimum of 24 inches.
 - 4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time.
 - 5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
 - 6. Compact asphalt at joints to a density within 2 percent of specified course density.

3.7 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 - 1. Compaction: 91% - 96% with a minimum average of 92%. Joint density should be at least 90 percent of Rice density.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.8 INSTALLATION TOLERANCES

- A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 - 1. Base Course Asphalt Lift: Plus or minus 1/4-inch.
 - 2. Surface Course Asphalt Lift: Plus 1/4-inch, no minus.

- B. Pavement Surface Smoothness: Comply with ISPWC Section 810. Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 - 1. Base Course Asphalt Lift: 1/4 inch.
 - 2. Surface Course Asphalt Lift: 1/8 inch.
 - 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

3.9 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
- B. Apply per ISPWC Section 1104.
- C. Protect newly applied pavement-marking paint until it has fully cured.
- D. Preformed Thermoplastic Pavement Markings:
 - 1. Ensure asphalt or concrete surface is free of moisture, grease, loose dirt or particulate matter, or other substances which may hinder the mechanical bond to the surface. The surface should be pre-heated to an adequate temperature, and after installation is complete, the thermoplastic should be allowed to cool sufficiently so as to not incur structural deformation, compression, movement, or dirt-pickup.
 - 2. The asphalt or concrete surface should be pre-heated to approximately 275 deg. F. The preformed thermoplastic should then be heated, after being set in place, to approximately 300 deg. F., or until the thermoplastic begins to conform to the surface underneath. Before installing read the manufacturer's writing installation instructions.
 - 3. Utilize "Torch Down" or "Melt Down" installation process per manufacturer's recommendations.

3.10 FIELD QUALITY CONTROL

- A. Testing Agency: Agency will engage a qualified testing agency to perform tests and inspections.
- B. Field inspection and testing will be performed under provisions of Division 1.
- C. Take samples and perform tests in accordance with The Asphalt Institute.
- D. Frequency of Tests: Density Tests: 1 per 2000 sq. ft.
- E. All paved surfaces shall be flooded with water in the presence of the Engineer to verify that all surfaces completely drain and no low depressed areas exist. A minimum of 48 hours notice shall be given.
- F. Excessive rock pockets and/or cold joints (surface irregularities) are not acceptable and shall be corrected in a manner acceptable to the Engineer at no cost to the Agency.
- G. Replace and compact hot-mix asphalt where core tests were taken.
- H. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.11 PROTECTION

- A. Immediately after placement, protect pavement from mechanical and chemical damage until date of Substantial Completion.

3.12 DISPOSAL

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.
 - 1. Do not allow milled materials to accumulate on-site.

END OF SECTION 32 12 16

SECTION 32 13 13 - CONCRETE PAVING**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes:
 - 1. Site flatwork, sidewalks, curbs, and gutters.
 - 2. Bases for light poles, furnishings, and signs.
 - 3. Reinforcing.
 - 4. Joint Filler and Joint Sealant
 - 5. Miscellaneous items shown.

1.2 RELATED SECTIONS

- A. Division 31 Earth Moving
- B. Idaho Standards for Public Works Construction, Current Edition.

1.3 SUBMITTALS

- A. Submit under provisions of Division 01 Specifications.
- B. Product Data: For each type of product indicated.
- C. Shop Drawings: Indicate reinforcing steel sizes, spacing, locations and quantities for reinforcing steel, bending and cutting schedules, splicing, and supporting and spacing devices.
- D. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments. Concrete testing data shall have been completed within 12 months of the submittal date.
- E. Qualification Data: Ready-mix concrete manufacturer and testing agency.

1.4 QUALITY ASSURANCE

- A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
- B. ACI Publications: Comply with ACI 301 and ACI 316 unless otherwise indicated.

1.5 WARRANTY

- A. Contractor shall warrant work as provided by the General and Supplementary Conditions and Division 01 Specifications.

PART 2 - PRODUCTS**2.1 FORMS**

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed

surfaces.

1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less. Do not use notched and bent forms.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

- A. Recycled Content: Provide steel reinforcement with an average recycled content of steel so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.
- B. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, flat sheet.
- C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.
- D. Epoxy-Coated Reinforcing Bars: ASTM A 775/A 775M or ASTM A 934/A 934M; with ASTM A 615/A 615M, Grade 60 deformed bars.
- E. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 plain-steel bars; zinc coated (galvanized) after fabrication according to ASTM A 767/A 767M, Class I coating. Cut bars true to length with ends square and free of burrs.
- F. Tie Bars: ASTM A 615/A 615M, Grade 60, deformed.
- G. Hook Bolts: ASTM A 307, Grade A, internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.
- H. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:
 1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
 2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
- I. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.
- J. Zinc Repair Material: ASTM A 780.

2.3 CONCRETE MATERIALS

- A. Cementitious Material: Provide in accordance with ISPW Division 700. Portland Cement Type I or II.
- B. Normal-Weight Aggregates: ASTM C 33, uniformly graded. Provide aggregates from a single source.
 1. Maximum Coarse-Aggregate Size 3/4 inch nominal.
 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
 3. Use 1/2 inch maximum sized aggregate and high range water reducer in concrete at all round columns and exposed concrete wall to reduce "rock pockets" and surface imperfections. Sack finishing will not be acceptable

to cure surface problems.

- C. Water: Potable and complying with ASTM C 94/C 94M.
- D. Air-Entraining Admixture: ASTM C 260.
- E. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
 - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
 - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.4 CURING MATERIALS

- A. Curing Compound: ASTM C 309, Type 1, Class A, water based.
- B. Pre-Approved Product: W.R. Meadows 1100-Clear.

2.5 JOINT MATERIALS

- A. Joint Fillers:
 - 1. 1/2 thick Fiber Joint Filler as manufactured by W.R. Meadows, or approved equal. Provide resilient and non-extruding type pre-molded bituminous-impregnated fiberboard complying with ASTM D1751.
 - 2. Use with Snap-Cap as manufactured by W.R. Meadows, or approved equal where joint is to be sealed.
- B. Joint Sealant: provide at locations shown on drawings.
 - 1. Tremco THC-901 – High Performance Multi-Component Polyurethane Sealant, or approved equal. Sealant shall meet or exceed the following specifications:
 - a. U.S. Federal Specification TT-S-00227E, Class A, Type I
 - b. ASTM C 920, Type M, Grade P, Class 25, Use T, M, & O
 - 2. Tremco Universal Color Pak or pre-tinted in limestone. Color to match surrounding concrete flatwork.

2.6 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
 - 2. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that meet or exceed requirements.
- B. Proportion mixtures to provide normal-weight concrete with the following properties:
 - 1. Compressive Strength (28 Days): 4000 psi.
 - 2. Maximum Water-Cementitious Materials Ratio at Point of Placement:

- 0.45.
- 3. Slump Limit: 3 inches, plus or minus 1 inch.
- C. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:
 - 1. Air Content: 6 percent plus or minus 1.5 percent for 3/4-inch nominal maximum aggregate size.
- D. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing admixture in concrete as required for placement and workability.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
- E. Cementitious Materials: Limit percentage by weight of cementitious materials other than portland cement according to ACI 301 requirements as follows:
 - 1. Fly Ash or Pozzolan: 25 percent.
 - 2. Ground Granulated Blast-Furnace Slag: 50 percent.
 - 3. Combined Fly Ash or Pozzolan, and Ground Granulated Blast-Furnace Slag: 50 percent, with fly ash or pozzolan not exceeding 25 percent.

2.7 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
- B. Proof-roll prepared subbase surface below concrete curb and paving to identify soft pockets and areas of excess yielding.
 - 1. Completely proof-roll subbase. Limit vehicle speed to 3 mph.
 - 2. Proof-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
 - 3. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch according to requirements in Division 31 Section "Earth Moving."
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- D. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
- E. Zinc-Coated Reinforcement: Use galvanized-steel wire ties to fasten zinc-coated reinforcement. Repair cut and damaged zinc coatings with zinc repair material.
- F. Epoxy-Coated Reinforcement: Use epoxy-coated steel wire ties to fasten epoxy-coated reinforcement. Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M.

3.5 JOINTS

- A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.
 - 1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.
- B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.
 - 1. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.
 - 2. Coordinate with Structural for Doweled Joints at building doorways.
- C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, columns, other fixed objects, new concrete flatwork to old concrete flatwork, and where indicated.
 - 1. Extend joint fillers full width and depth of joint. No plug or sliver of concrete should extend over, under, through, around, or between sections of the filler board.
 - 2. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated. Utilize filler board cap at all sealed joints.
 - 3. Place top of joint filler flush with finished concrete surface if joint sealant is

- not indicated.
- 4. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
- 5. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- 6. Place joint sealant per Manufacturer's written specifications.
 - a. Surfaces must be sound, clean and dry. Apply to surface when temperatures are 40 deg. F or above.
 - b. Mix in accordance with written instructions on product packaging.
 - c. Ensure joint filler is installed properly.
 - d. Excess sealant and smears adjacent to the joint shall be carefully removed in accordance with written instructions.
- D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-third of the concrete thickness, as follows:
 - 1. Grooved Joints: Saw and V-groove joints at locations shown.
 - 2. Contraction Joints shall be constructed at the optimum time to prevent raveling (too early) and cracking (too late). Excessive raveling and chipping of joint edge will be cause for slab replacement.
- E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/2-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.
- F. Coordinate with structural drawings for joints and dowelling at building doorways and foundation.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.
- B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.
- F. Deposit and spread concrete in a continuous operation between transverse joints.
- G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
 - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.
- H. Screed paving surface with a straightedge and strike off.
- I. Commence initial floating using bull floats or darbies to impart an open-textured

and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

- J. Curbs and Gutters: Use design mixture for automatic machine placement. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing.
- K. Slip-Form Paving: Use design mixture for automatic machine placement. Produce paving to required thickness, lines, grades, finish, and jointing.
 - 1. Compact subbase and prepare subgrade of sufficient width to prevent displacement of slip-form paving machine during operations.
- L. Cold-Weather Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.
- M. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
 - 1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 - 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.7 FLOAT FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
 - 1. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.

3.8 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold

- or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection.
 - C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.
 - D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
 - E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these as follows:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period using cover material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas that have been subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.

3.9 PAVING TOLERANCES

- A. Comply with tolerances in ACI 117 and as follows:
 - 1. Elevation: 1/4 inch flatwork
 - 2. Thickness: Plus 3/8 inch, minus 1/4 inch.
 - 3. Surface: Gap below 10-foot- long, unlevelled straightedge not to exceed 1/2 inch.
 - 4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches of tie bar.
 - 5. Lateral Alignment and Spacing of Dowels: 1 inch.
 - 6. Vertical Alignment of Dowels: 1/4 inch.
 - 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches of dowel.
 - 8. Joint Spacing: 3 inches.
 - 9. Contraction Joint Depth: Plus 1/4 inch, no minus.
 - 10. Joint Width: Plus 1/8 inch, no minus.

3.10 FIELD QUALITY CONTROL

- A. Testing Agency: Agency will engage a qualified testing agency to perform tests and

- inspections.
- B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 3. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
 5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
 6. Compressive-Strength Tests: ASTM C 39/C 39M; test one specimen at seven days and two specimens at 28 days.
 - a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.
- C. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- D. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.
- G. Concrete paving will be considered defective if it does not pass tests and inspections.
- H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.11 REPAIRS AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.
- B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.
- C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 32 13 13

SECTION 32 14 00 - UNIT PAVING**PART 1 - GENERAL****1.1 SECTION INCLUDES**

- A. Unit pavers and sand setting bed.
- B. Concrete pavers installed on top of concrete footings for site furnishings.

1.2 REFERENCES

- A. Interlocking Concrete Pavement Institute (ICPI) Tech Spec Technical Bulletins.

1.3 SUBMITTALS

- A. Product Data: For the following:
 - 1. Unit Pavers.
 - 2. Base Aggregates: Sieve Analysis Report.
- B. Samples for Verification: Full-size units of each type of unit paver indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics.
 - 1. Provide Product Samples.
- C. Paver Installation Subcontractor:
 - 1. A copy of Subcontractor's current certificate from the Interlocking Concrete Pavement Institute Concrete Paver Installer Certification program.

1.4 EXTRA MATERIALS

- A. Provide 3 of each paver.

1.5 QUALITY ASSURANCE

- A. Paving Subcontractor Qualifications:
 - 1. Utilize an installer having successfully completed concrete paver installation similar in design, material and extent indicated on this project.
 - 2. Utilize an installer holding a current certificate from the Interlocking Concrete Pavement Institute Concrete Paver Installer Certification program.
- B. Source Limitations: Obtain each type of unit paver, joint material, and setting material from one source with resources to provide materials and products of consistent quality in appearance and physical properties.
- C. Preinstallation Coordination: conduct preinstallation conference with Project Manager, Agency, Paver Installer(s) (both unit paver and stone paver installers if different personnel) and Flatwork Installer at Project site as described in Section 01 10 00 "Summary" prior to commencing general installation of unit pavers. Review installation procedures and coordinate paving work with other work affected by the unit paving work. Prior to starting

installation, Unit Paver Installer(s) shall coordinate critical dimensions of pavers with Flatwork Installer, so that there is minimal paver cutting required. Field verify that layout shown on Drawings coincides with paver critical dimensions by construction mockup as described below. Submit evidence to Project Manager that this coordination work has been completed.

- D. Mockups: Before installing unit pavers, build mockups for each form and pattern of pavers required to verify selections made under sample submittals and demonstrate aesthetic effects and qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for the completed Work, including same base construction, edging, special features for expansion joints, and contiguous work as indicated:
1. Build mockups in the location as directed by Project Manager and of approximately 8 foot by 4 foot size.
 2. Construct at least one mockup to show Contractor's ability to coordinate all the materials consistent with the Drawings. Agency and Project Manager advise that creating a coordinated mockup using all unit pavers in the details pattern prior to general construction is best done at the north end of the Project site, where both materials are in close proximity to each other and are close to an edge that could be used at the starting point for the project.
 3. A coordinated mockup may be used to satisfy the requirement for a mockup showing unit paver construction if approved for this purpose by Project Manager and Agency.
 4. Build mockups in advance of concrete forms being laid out or constructed, so that the critical dimensions of the unit paving work may be coordinated with the surrounding flatwork.
 5. Notify Project Manager 48 hours in advance of dates and times when mockups will be constructed, except if mockup will be constructed on Monday, notify Project Manager on Thursday of the previous week and if mockup will be constructed on a Tuesday, notify Project Manager on Friday of the previous week. (Project Manager shall notify Agency when mockups will be constructed).
 6. Demonstrate the proposed range of aesthetic effects and workmanship.
 7. Obtain Project Manager's and Agency's approval of mockups before starting unit paver installation.
 8. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 9. Demolish and remove mockups when directed.
 10. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING.

- A. General: Comply with Division 1 Product Requirement Section.
- B. Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
- C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers packaging with identification labels intact.
1. Coordinate delivery and paving schedule to minimize interference with normal use of buildings adjacent to paving.
 2. Deliver pavers to the site in steel banded, plastic banded or plastic wrapped packaging capable of transfer by forklift or clamp lift.

Unload pavers at job site in such a manner that no damage occurs to the product or the site.

- D. Storage and Protection: Store materials protected such that they are kept free from mud, dirt, and other foreign materials. (Store paver cleaners and sealers per manufacturer's instructions.)
 - 1. Cover bedding sand and joint sand with waterproof covering if needed to prevent exposure to rainfall or removal by wind. Secure the covering in place.

1.7 PROJECT/SITE CONDITIONS

- A. Environmental Requirements:
 - 1. Do not install sand or pavers during heavy rain or snowfall.
 - 2. Do not install sand and pavers over frozen base materials.
 - 3. Do not install frozen sand or saturated sand.
 - 4. Do not install Unit Pavers on frozen or saturated sand.

1.8 MAINTENANCE

- A. Extra Materials: Provide additional material for use by Agency for maintenance and repair in accordance with Division 1 specifications.
- B. Pavers shall be from the same production run as installed materials

PART 2 - PRODUCTS

2.1 CONCRETE PAVERS

- A. Concrete Pavers:
 - 1. Requirements: Solid, concrete paving units, ASTM C 936, made from normal-weight aggregates in sizes and shapes indicated. Average compressive strength of 8000 PSI with no individual less than 7300 PSI when tested to ASTM C140 standards.
 - 2. The Contractor is hereby advised that some concrete pavers will not be acceptable for use in the Work for any exposed face, edge or corner, and therefore, may require that some of the pavers be rejected for use on this project.
 - a. Permissible Extent of Chippage from Edges and Corners: 1/16 inch. The cumulative length of chips on the exposed face of the paver, and no single chip shall exceed 1/8 inch in length.
 - b. Other than chips, the paver shall be free of cracks, color and other imperfections detracting from the appearance of a designated sample when viewed from a distance of 5 feet.
 - 3. Concrete pavers that show a significant amount of efflorescence will be rejected, removed from the site, and replaced at no additional cost to the Agency.
- B. Concrete unit Paver Performance: Concrete unit pavers shall be high density, hydraulically pressed concrete units, manufactured to 1/8" tolerances and produced by subjecting the concrete mix to a minimum pressure of 1000 pounds per square inch over the entire surface area. Product shall exhibit the density and strength of natural stone. Concrete pavers shall be fabricated of Coplay Cement, Type I, Buff. Aggregates should be a blend from 200 mesh to 5/8" with a light gray color. The aggregate used should have a PA S.R.L. Test of H and a specific gravity of 2.79 and absorption of 2.60. the aggregates should be washed with no deleterious substances, with no thin or elongated pieces. The aggregated should have an L.A. abrasion test of 21 and L.A. rattles loss test of 21.8% (at 500 revolutions). More specifically, the

aggregates should have a wash test of less than 1%. This includes materials lost by washing the aggregate – even those finer than 200 mesh. Mix should be prepared in a stationary mixer to a 5" slump, mixed a maximum time of 2 minutes and placed in the mold in a homogenous state. The whole of the concrete paver is to be of the same design and a single mix system. Hydraulic pressure to be employed should be a minimum of 800,000 pounds without use of any vibration. The concrete pavers are to be integrally colored with custom blended shades.

C. Concrete Paver Types:

1. Concrete Paver Type 1:
 - a. Manufacturer: Hanover Architectural Products, 1.800.426.4242., or approved equal.
 - b. Product: Prest Concrete Brick
 - c. Style: Traditional
 - d. Size: 5 7/8 inches x 11 3/4 inches x 3 inches
 - e. Color: Charcoal
 - f. Finish: Tudor
 - g. Absorption: Less than 5%
 - h. Density: 155lbs/cu ft.
 - i. Compressive Strength: 8,500 psi at 28 days
 - j. Flexural Strength: 1,100 psi
 - k. Efflorescence Resistance, ASTM C67 Section 11
 - l. Performance: Resistant to alkali's, low water absorption (less than 5%) ASTM C 936 5.3, 5.4, 5.5 & 5.6, protection from acid rain, resistance to UV damage ASTM G 154, Stain resistance.
2. Concrete Paver Type 2:
 - a. Manufacturer: Hanover Architectural Products, 1.800.426.4242., or approved equal.
 - b. Prest Concrete Brick
 - c. Style: Traditional
 - d. Size: 5 7/8 inches x 11 3/4 inches x 3 inches
 - e. Color: Tan
 - f. Finish: Tudor
 - g. Absorption: Less than 5%
 - h. Density: 155lbs/cu ft.
 - i. Compressive Strength: 8,500 psi at 28 days
 - j. Flexural Strength: 1,100 psi
 - k. Efflorescence Resistance, ASTM C67 Section 11
 - l. Performance, Resistant to alkali's low water absorption (less than 5%) ASTM C 936 5.3, 5.4, 5.5 & 5.6, protection from acid rain, resistance to UV damage ASTM G 154, Stain resistance.
3. Concrete Paver Type 3:
 - a. Manufacturer: Hanover Architectural Products, 1.800.426.4242., or approved equal.
 - b. Prest Concrete Brick
 - c. Style: Traditional
 - d. Size: 5 7/8 inches x 11 3/4 inches x 3 inches
 - e. Color: Quarry Red
 - f. Finish: Tudor
 - g. Absorption: Less than 5%

- h. Density: 155lb/cu ft.
 - i. Compressive Strength: 8,500 psi at 28 days
 - j. Flexural Strength: 1,100 psi
 - k. Efflorescence Resistance, ASTM C67 Section 11
 - l. Performance, Resistant to alkali's low water absorption (less than 5%) ASTM C 936 5.3, 5.4, 5.5 & 5.6, protection from acid rain, resistance to UV damage ASTM G 154, Stain resistance.
4. Concrete Paver Type 4:
- a. Manufacturer: Hanover Architectural Products, 1.800.426.4242., or approved equal.
 - b. Prest Concrete Brick
 - c. Style: Traditional
 - d. Size: 5 7/8 inches x 11 3/4 inches x 3 inches
 - e. Color: Natural
 - f. Finish: Tudor
 - g. Absorption: Less than 5%
 - h. Density: 155lb/cu ft.
 - i. Compressive Strength: 8,500 psi at 28 days
 - j. Flexural Strength: 1,100 psi
 - k. Efflorescence Resistance, ASTM C67 Section 11
 - l. Performance, Resistant to alkali's low water absorption (less than 5%) ASTM C 936 5.3, 5.4, 5.5 & 5.6, protection from acid rain, resistance to UV damage ASTM G 154, Stain resistance.

2.2 BEDDING AND JOINT SAND

- A. Provide bedding per the plans and in compliance with the ICPI – Selection, Design, Construction and Maintenance Manual.
- B. Provide bedding and joint sand as follows.
 - 1. Washed, clean, non-plastic, free from deleterious or foreign matter, symmetrically shaped, natural or manufactured from crushed rock.
 - 2. Do not use limestone screenings, stone dust, or sand for the bedding sand material that does not conform to the grading requirements of ASTM C 33.
 - 3. Do not use mason sand or sand conforming to ASTM C 144 for the bedding sand.
 - 4. Bedding Sand Material Requirements: Conform to the grading requirements of ASTM C 33 with modifications as shown in Table 1.

Table 1
Grading Requirements for Bedding Sand
ASTM C 33

Sieve Size	Percent Passing
3/8 in.(9.5 mm)	100
No. 4 (4.75 mm)	95 to 100
No. 8 (2.36 mm)	85 to 100
No. 16 (1.18 mm)	50 to 85
No. 30 (0.600 mm)	25 to 60
No. 50 (0.300 mm)	10 to 30
No. 100 (0.150 mm)	2 to 10

No. 200 (0.075 mm) 0 to 1

5. Joint Sand: Techniseal RG+ Polymeric Jointing Sand, or approved equal. Install per manufacture's written specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas indicated to receive paving, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Verify base is dry, certified by General Contractor as meeting material, installation and grade specifications
- B. Verify that base (and geotextile) is ready to support sand, (edge restraints) and, pavers and imposed loads

3.3 INSTALLATION GENERAL

- A. Do not use unit pavers with chips, cracks, voids, discolorations, and other defects that might be visible.
- B. Cut unit pavers with motor-driven masonry saw equipment to provide clean, sharp, unchipped edges. Cut units to provide pattern indicated and to fit adjoining work neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.
- C. Joint Pattern: As indicated on plans.
- D. Tolerances: Do not exceed 1/32-inch unit-to-unit offset from flush (lippage) nor 1/8 inch in 10 feet from level, or indicated slope, for finished surface of paving.

3.4 INSTALLATION

- A. Spread bedding material evenly over the base course and screed to a nominal 2 in. thickness, not exceeding 2-1/2 in. thickness, or per the plans. Spread bedding sand evenly over the base course and screed rails, using the rails and/or edge restraints to produce a nominal 2 in. thickness, allowing for specified variation in the base surface.
 1. Do not disturb screeded material
 2. Screeded area shall not substantially exceed that which is covered by pavers in one day.
 3. Do not use bedding material to fill depressions in the base surface.
- B. Lay pavers in pattern noted above. Place units hand tight without using hammers. Make horizontal adjustments to placement of laid pavers with rubber hammers and pry bars as required.
- C. Provide joints between pavers per manufacturer specifications.
- D. Joint (bond) lines shall not deviate more than $\pm \frac{1}{2}$ in (± 15 mm) over 50 ft. (15 m) from string lines.

- E. Fill gaps at the edges of the paved area with cut pavers or edge units.
- F. Cut pavers to be placed along the edge with a double blade paver splitter or masonry saw.
- G. Adjust bond pattern at pavement edges such that cutting of edge pavers is minimized. All cut pavers exposed to vehicular tires shall be no smaller than one-third of a whole paver. Cut pavers at edges as indicated on the drawings.
- H. Keep skid steer and forklift equipment off newly laid pavers that have not received initial compaction and joint sand.
- I. Use a low-amplitude plate compactor capable of at least minimum of 4,000 lbf (18 kN) at a frequency of 75 to 100 Hz to vibrate the pavers into the sand. Remove any cracked or damaged pavers and replace with new units.
- J. Simultaneously spread, sweep and compact dry joint sand into joints continuously until full. This will require at least 4 to 6 passes with a plate compactor. Do no compact within 6 ft (2m) of unrestrained edges of paving units.
- K. All work within 6 ft (2m) of the laying face must shall be left fully compacted with sand-filled joints at the end of each day or compacted upon acceptance of the work. Cover the laying face or any incomplete areas with plastic sheets overnight if not closed with cut and compacted pavers with joint sand to prevent exposed bedding sand from becoming saturated from rainfall.
- L. Joint sand shall be installed compacted and wetted per manufacture's written specifications. Remove excess sand from surface when installation is complete.
- M. Surface shall be broom clean after removal of excess joint sand.

3.5 FIELD QUALITY CONTROL

- A. The final surface tolerance from grade elevations shall not deviate more than $\pm 3/8$ in. (± 10 mm) under a 10 ft (3m) straightedge.
- B. Check final surface elevations for conformance to drawings
- C. The surface elevation of pavers shall be $1/8$ in. to $1/4$ in (3 to 6 mm) above adjacent drainage inlets, concrete collars or channels
- D. Lippage: No greater than $1/8$ in (3 mm) difference in height between adjacent pavers

3.6 CLEANING AND SEALING

- A. Clean and seal Unit Pavers in accordance with the manufacturer's written recommendations.

3.7 PROTECTION

- A. After work in this section is complete, the General Contractor shall be responsible for protecting work from damage due to subsequent construction activity on the site.

3.1 WARRANTY

- A. Contractor shall warrant work as provided by the General and Supplementary Conditions and Division 01 Specifications.

END OF SECTION 32 14 00

SECTION 32 84 00 - PLANTING IRRIGATION**PART 1 – GENERAL****1.1 SUMMARY**

- A. Section Includes
 - 1. Pipe and fittings, valves, sprinkler heads, accessories, and connections to water source.
 - 2. Control system.
- B. System Description
 - 1. Electric solenoid automatic underground irrigation system.
- C. Related Sections
 - 1. Division 01 Sections
 - 2. Division 31 Sections for Earth Moving
 - 3. Division 32 Sections for Turf and Grasses

1.2 DEFINITIONS

- A. Pipe sizes used in this Section are nominal pipe size (NPS) in inches. Tube sizes are Standard size in inches.
- B. Pressure Piping Main Line: Piping downstream from supply piping to and including control valves. Piping is under irrigation system pressure. Piping in this category includes backflow preventers.
- C. Circuit Piping Lateral Lines: Piping downstream from control valves to irrigation system sprinklers. Piping is under pressure (less than pressure piping) during flow.
- D. Control Valve: Automatic (electrically operated) valve for control water flow to irrigation system zone.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

- A. Location of Sprinklers and Devices: Design location is approximate. Make minor adjustments necessary to avoid plantings and obstructions such as signs and light standards.
- B. Minimum Water Coverage: Not less than:
 - 1. Turf Areas: 100 percent.
 - 2. Landscape Beds: 100 percent.
- C. All flow velocities, within the entire irrigation system, shall not exceed 5 feet per second.

1.4 SUBMITTALS

- A. Product data including pressure rating, rated capacity, settings, and electrical data of all products to be used for this project including but not limited to the following:
 - 1. Valves, including general-duty, underground, automatic control, valve boxes and valve ID tags.
 - 2. Sprinklers.
 - 3. Controls, including controller wiring diagrams.
 - 4. Wiring.

5. Pipe, fittings, etc.
- B. Wiring diagrams for electrical controllers, valves, and devices. Valve numbers shall reflect station numbers within the controller and shall be noted on the as built.
- C. Landscape Establishment Watering Schedule: coordinate with section 32 9200.
- D. Maintenance data for inclusion in "Operating and Maintenance Manual" specified in Division 1 Section "Contract Closeout" for the following:
 1. Seasonal activities of start-up, shut-down and winterization, including blow-out operation of sprinkler system with compressed air.
 2. Automatic control valves.
 3. Sprinklers.
 4. Controllers.
 5. Pump and pump control systems.
 6. Irrigation system record drawings.

1.5 QUALITY ASSURANCE

- A. Comply with requirements of utility supplying water for prevention of backflow and backsiphonage. Comply with appropriated water rights.
- B. Installer Qualifications: Engage an experienced Installer with a minimum of five years experience and who has completed irrigation systems similar in material, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.
- C. Listing/Approval Stamp, Label, or Other Marking: On equipment, specialties, and accessories made to specified standards.
- D. Listing and Labeling: Equipment, specialties, and accessories that are listed and labeled.
 1. The Terms "Listed" and "Labeled": As defined in "National Electrical Code," Article 100.
 2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

1.6 PROJECT CONDITIONS

- A. Perform site survey, research public utility records, and verify existing utility locations. Verify that irrigation system piping may be installed in compliance with original design and referenced standards. Verify that pump and well perform as specified.

1.7 SEQUENCING AND SCHEDULING

- A. Coordinate irrigation systems work with all other trades specified and in the Drawings.

1.8 EXTRA MATERIALS

- A. Deliver extra materials to Owner. Furnish extra materials matching products installed as described on the drawings. Package them with protective covering for storage and label clearly describing contents. See drawings for specific quantities.

1.9 IRRIGATION RECORD DRAWINGS

- A. Provide Record Drawings in compliance with Division 01 Specifications.
- B. Record accurately, on one set of black and white prints of the site plan, all installed work including both pressure and non-pressure lines and pipe sizes.
- C. Upon completion of each increment of work, transfer all such information and dimensions to the print. The dimensions shall be recorded in a legible and workmanlike manner. Maintain as-built drawings on site at all times. Make all notes on drawing in pencil (no ball point pen). When the work has been completed, transfer all information from the field record print to a set of reproducible drawings.
- D. Dimension from two permanent points of reference (buildings, monuments, sidewalks, curbs, pavements, etc.). Locations shown on as-built drawings shall be kept day to day as the project is being installed. All dimensions noted on drawings shall be 1/8 inch in size (minimum).
- E. Show locations and depths of the following items:
 - 1. Point of connection
 - 2. Routing of sprinkler pressure lines
 - 3. Gate valves
 - 4. Sprinkler control valves
 - 5. Quick coupling valves
 - 6. Routing of control wires
 - 7. Sprinkler heads
 - 8. Other related equipment

1.10 WARRANTY

- A. Contractor shall warrant work as provided by the General and Supplementary Conditions and Division 01 Specifications.

PART 2 – PRODUCTS

2.1 SUMMARY

- A. Substitutions or equivalent products shall be in accordance with Division 01 Specifications.
- B. Sprinkler heads, valves and accessories:
 - 1. Acceptable Manufacturers: Contract Documents are based on products by:
 - a. Rain Bird, (800) 724.6247 or www.rainbird.com.
 - b. Hunter Industries, Inc., (760) 744.75240 or www.hunterindustries.com.
- C. Joint Restraints (only on pipes 3-IN or greater):
 - 1. Design Basis: Contract Documents are based on products by:
 - a. Leemco, Inc., (909) 422.0088 or www.leemco.com.
 - b. Products: Per Part 2 of this section.
- D. Valve Boxes:
 - 1. Design Basis: Contract Documents are based on products by:
 - a. NDS, (800) 726.1994 or www.ndspro.com.
 - b. Products: Per Part 2 of this section and the drawings.
- E. Drip Tubing and Accessories:

1. Design Basis: Contract Documents are based on products by:
 - a. Netafim, (888) 638.2346 or www.netafimusa.com.
 - b. Products: Per Part 2 of this section and the drawings.

2.2 PLASTIC PIPE AND ACCESSORIES

A. Pipe

1. Pipe walls shall be uniform, smooth, glossy, and free of interior or exterior extrusion marks; pre-belled or straight to receive solvent-weld couplings; 20 foot standard lengths.
2. Pipe shall be marked with manufacturer's name, class of pipe, NSF seal, and date/shift of manufacturing run.
3. PVC Pipe: ASTM D1785, D2241

B. Fittings: PVC - ASTM D2464, D2466.

C. Irrigation System Plastic Pipe

1. Mainline: 3 inch pipe and larger: PVC class 200 with SDR26 rubber gasket fittings.
2. Mainline: 2 ½ inch pipe and smaller: PVC SCH 40 with SDR26 solvent weld fittings.
3. Laterals: 3 inch pipe and larger: PVC class 200 with SDR26 rubber gasket fittings.
4. Laterals: 2 ½ inch pipe and smaller: PVC SCH 40 with SDR26 solvent weld fittings.
5. Sleeving: ASTM D 2241, SDR 26 rubber gasket Class 200 , polyvinyl chloride (PVC) plastic pipe; ASTM D 2466, Schedule 40, PVC plastic, socket-type fittings; and solvent-cemented joints.
6. Refer to Part 3 Article "Piping Applications" for identification of systems where pipe and tube materials specified below are used.

D. Pipe and Tube Fittings

1. Refer to Part 3 Article "Piping Applications" for identification of systems where pipe and tube fitting materials specified below are used.
2. Polyvinyl Chloride (PVC) Plastic Pipe Nipples: ASTM D 2464, Schedule 80, threaded.
3. Polyvinyl Chloride (PVC) Plastic Pipe Fittings: ASTM D 2467, Schedule 40, socket-type.
4. "Leemco" Push-on joint Ductile Fittings: for all pipes 3" and larger.
5. Dielectric Fittings: Assembly or fitting with insulating material isolating joined dissimilar metals to prevent galvanic action and stop corrosion. These devices are a combination of copper alloy and ferrous metal; threaded- and solder-end types, matching piping system materials.
 - a. Dielectric Unions: Factory-fabricated, union assembly, designed for 250 psig (1725 kPa) minimum working pressure at 180 deg F (82 deg C). Include insulating material isolating dissimilar metals and ends with inside threads according to ASME B1.20.1.
 - b. Transition Fittings: Manufactured assembly or fitting, with pressure rating at least equal to that of system and with ends.

2.3 JOINING MATERIALS

- A. Solvent Cement: ASTM F 656 primer and ASTM D 2564 solvent cement in color other than orange.
- B. In temperatures below 40 degrees Fahrenheit use “weld on 727 hot or cold” with primer.

2.4 VALVES

- A. General: Valves are for general-duty and underground applications. Refer to "Valve Applications" Article for locations of various valve types specified in this Article. Refer to "Control Valves" Article for control valves and accessories.

2.5 CONTROL VALVES

- A. Control Valve Boxes and Cover: Thermo-plastic valve boxes with lockable, snap-top lids. Size as required for application or as noted on drawings, maximum one (1) valve per box. All boxes shall have green lids.
 - 1. Drainage Backfill: Cleaned gravel or crushed stone as shown on the drawings. Cover gravel with layer of filter fabric.
- B. Irrigation System Controls
 - 1. All control wires that are above ground shall be installed in conduit. Electrical wiring shall be installed according to local code. Provide surge protection and grounding per manufacturer’s recommendations.
 - 2. Valves: Electric Solenoid type and size of control valves as noted on the Drawings, including required fittings and accessories.
 - 3. Wire: As noted on the drawings.

2.6 SPRINKLERS

- A. Description: Manufacturer's standard sprinklers designed to provide uniform coverage over entire area of spray shown on Drawings at available water pressure, as follows:
 - 1. Housings: Plastic, except where material is specified.
 - 2. Pop-Up, Spray: Fixed pattern, with screw-type flow adjustment and stainless-steel retraction spring.
 - 3. Pop-Up, Rotary Spray: Gear drive, full-circle and adjustable part-circle type.

2.7 VALVE BOXES

- A. Remote Control Valve: NDS Pro Series Jumbo rectangular box with T-cover, or approved equal, green body with locking green lid.
- B. Gate valves and Quick Coupler Valves: NDS 10” round box, or approved equal, green body with locking green lid.

2.8 CONTROLLER STATION NUMBER IDENTIFICATION TAG

- A. Standard yellow I.D. tags submit product for approval prior to ordering.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Investigate and determine available water supply water pressure and flow characteristics.
- B. Insure that existing irrigation system is providing necessary performance. Notify Landscape Architect of any deviations from design performance.

3.2 PREPARATION

- A. Set stakes to identify proposed sprinkler locations. Obtain Irrigation Designer's approval before excavation.

3.3 PAVING WORK

- A. Install piping in sleeves where crossing sidewalks, roadways, parking lots, playgrounds and railroads.
 - 1. Install piping sleeves by boring or jacking under existing paving, where possible.
 - 2. If it is necessary to cut pavement sections, pavement shall be replaced in cut areas.

3.4 PIPING APPLICATIONS

- A. Refer to Part 2 of this Section for detailed specifications for pipe and fittings products listed below. Use pipe, tube, fittings, and joining methods according to the following applications. Piping in pits and aboveground may be joined with flanges instead of joints indicated.
- B. Use pipe, tube, fittings, and joining methods according to the following applications.
- C. Pressure Piping Underground: Use the following:
 - 1. 2 ½- Inches (DN 80) and Smaller: ASTM D 2241, SDR 26, Schedule 40, polyvinyl chloride (PVC) plastic pipe; ASTM D 2466, Schedule 40, PVC plastic, socket-type pipe fittings; and solvent-cemented joints.
 - 2. 3 -Inches (DN 100) and Larger: ASTM D 2241, SDR 26 rubber gasketed Class 200, polyvinyl chloride (PVC) plastic pipe; ASTM A 536 push on ductile iron fittings.
- D. Circuit Piping: Use the following:
 - 1. All Sizes: ASTM D 2241, SDR 26 Schedule 40, polyvinyl chloride (PVC) plastic pipe; ASTM D 2466, SDR 26 Schedule 40, PVC plastic, socket-type fittings; and solvent-cemented joints.
- E. Sleeves: ASTM D 2241, SDR 26 Class 200, polyvinyl chloride (PVC) plastic pipe; ASTM D 2466, Schedule 40, PVC plastic, socket-type fittings; and solvent-cemented joints. Sleeve diameter shall be two sizes larger than pipe installed in sleeve with minimum sleeve size being 4". Extend sleeves 12" beyond walk or pavement edge.

3.5 JOINT CONSTRUCTION

- A. Threaded Joints: Thread pipes with tapered pipe threads according to ASME B1.20.1, apply tape or joint compound, and apply wrench to valve ends into which pipes are being threaded.
- B. Polyvinyl Chloride (PVC) Piping Solvent-Cemented Joints: Construct joints according to ASTM D 2672 and ASTM D 2855.
 - 1. Handling of Solvent Cements, Primers, and Cleaners: Comply with procedures in ASTM F 402 for safe handling when joining plastic pipe and fittings with solvent cements.
- C. Dissimilar Materials Piping Joints: Construct joints using adapters that are compatible with both piping materials, outside diameters, and system working pressure. Refer to "Piping Systems - Common Requirements" Article for joining dissimilar metal piping.
- D. Provide "Leemco" joint restraints at all gasket fittings where a change of direction occurs. Install all joint restraints per manufacturer's recommendations. Contact Tony Garner @ (208) 631-7787 to provide an installation clinic for all Leemco fittings and joints restraints. Coordinate with Landscape Architect.

3.6 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. General Locations and Arrangements: Drawings indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, and in other design considerations. Install piping as indicated, except where deviations to layout are approved on coordination drawings.
- B. Install components having pressure rating equal to or greater than system operating pressure.
- C. Install piping free of sags and bends. Deflections angles shall not exceed manufacturer's recommendations.
- D. Locate groups of pipes parallel to each other, spaced to permit valve servicing.
- E. Install fittings for changes in direction and branch connections.
- F. Piping Connections: Except as otherwise indicated make piping connections as specified below.
 - 1. Install unions, in piping 2 inches (DN 50) and smaller, adjacent to each valve and at final connection to each piece of equipment having 2-inch (DN 50) or smaller threaded pipe connection.
 - 2. Install flanges, in piping 2-1/2 inches (DN 65) and larger, adjacent to flanged valves and at final connection to each piece of equipment having flanged pipe connection.
 - 3. Install dielectric fittings to connect piping of dissimilar metals.

3.7 PIPING INSTALLATION

- A. Install underground polyvinyl chloride (PVC) plastic pipe according to ASTM D 2774.
- B. Lay piping on solid subbase, uniformly sloped without humps or depressions.
 - 1. Install polyvinyl chloride (PVC) plastic pipe in dry weather when temperature is above 40 deg F (4 deg C). Allow joints to cure at least 24 hours at temperature above 40 deg F (4 deg C) before testing, unless

otherwise recommended by manufacturer.

- C. Minimum Cover: Provide following minimum cover over top of buried piping:
 - 1. Pressure Piping: 18 inches.
 - 2. Circuit Piping: 12 inches.
 - 3. Sleeves: Match Pipe Depth.
 - 4. Refer to drawings for maximum bury depth of irrigation piping.
- D. Install piping under sidewalks and paving in sleeves.
- E. Back-filling
 - 1. Inspection: The trenching shall not be backfilled until inspection and pressure testing has been completed and the pipe installation, including the grade, alignment and jointing has been found to be in compliance with the requirements of the plans and specifications.
 - 2. Around and Over Pipe:
 - a. Select backfill material consisting of sand, fine gravel or select earth, free of large lumps or rocks larger than 3/4 inch shall be used in backfilling around and over the installed pipe.
 - b. The select material shall be obtained from the excavation material removed from the trench and shall be processed by screening, sifting, or selective sorting, so as to produce the type of backfill herein specified. The Contractor may at his option and own expense provide an acceptable imported material.
 - c. Backfill material shall be carefully deposited around and over the pipe in layers not more than 6 inches thick, loose measurement, wetted to optimum moisture content and uniformly compacted to at least 95 percent of the maximum density obtainable at optimum moisture content as determined by AASHTO T99 Method A or D (latest revision), until the pipe has a cover depth of at least 12 inches.
 - 3. Remainder of Trench Backfill:
 - a. The remaining depth of the trench shall be backfilled to existing finish grade, with excavation material removed from the trench, which shall be wetted or dried to near optimum moisture content. Backfill with select material and compact with water to 90% to preclude future settlement.
 - b. Contractor shall be required to repair any settling problems which occur in the trench locations for the duration of the warranty period.
- F. Pipe fittings
 - 1. All piping 3" diameter or greater shall use "Leemco" ductile iron push on type fittings. Provide "Leemco" joint restraints at all gasket fittings where change of direction occurs. See drawings for details.
 - 2. All piping less than 3" diameter shall use Schedule 40 socket type fittings.

3.8 VALVE APPLICATIONS

- A. Drawings indicate valve types to be used.

3.9 VALVE INSTALLATION

- A. Valves: Install underground valves in valve boxes as shown on Drawings.
- B. Control Valves: Install in valve control valve boxes, arranged for easy adjustment and removal. Install union on downstream side. Maximum (1) valve per valve box.
- C. Place 6 inches minimum of gravel below control valves for drainage. Maintain 4 inches minimum between bottom of valves and top of gravel. Place filter fabric barrier between gravel and valves. Valve box shall be free of dirt and debris.

3.10 SPRINKLER INSTALLATION

- A. Sprinklers: Flush circuit piping with full head of water and install sprinklers after hydrostatic test is completed.
 - 1. Install lawn sprinklers at manufacturer's recommended heights.
 - 2. Install shrubbery sprinklers at heights indicated.
 - 3. Locate part-circle sprinklers to maintain a minimum distance of 12 inches from walls and 2 inches (50 mm) from other boundaries, unless otherwise indicated.
 - 4. Sprinkler Head Risers: Rotor pop-up sprinkler shall have an adjustable riser assembly (triple swing joint Rainbird TSJ Series or approved equal). Stationary spray pop-up heads or shrubs spray heads shall have an adjustable riser assembly (triple swing joint) or low-density polyethylene flex pipe as shown on Drawings details. Triple swing joint fittings shall be of Schedule 80 PVC. Flex pipe risers shall be 12 inch long minimum and 18 inch maximum linear low-density polyethylene pipe with spiral barb fittings and 90 degree ell as shown on details on Drawing.
 - 5. Quick coupling valves shall be installed with an adjustable riser assembly (triple swing joint) and a Leemco quick coupler stabilizer, size as necessary.

3.11 AUTOMATIC CONTROL SYSTEM INSTALLATION

- A. Install controllers and controller pedestal according to manufacturer's written instructions and as indicated.
- B. Install control and communication wiring in same trench with piping. Where wiring leaves from piping trenches, install wiring in conduits.

3.12 CONTROLLER STATION NUMBER IDENTIFICATION TAG

- A. Fasten securely to each control valve its corresponding station number I.D tag.

3.13 TRENCHING

- A. Trench Size:
 - 1. Minimum Depth: as necessary to provide 18 inches of cover for mainline, sleeves, and wires.
 - 2. Minimum Depth: as necessary to provide 12 inches of cover for all lateral lines.
 - 3. Minimum Width: 4 inch pipe and larger – 12 inches.
 - 4. Minimum Width: 3 inch pipe and smaller – 9 inches.

- B. Trench to accommodate grade changes and slope to drains.
- C. Maintain trenches free of debris, material, or obstructions that may damage pipe.

3.14 CONNECTIONS

- A. Connect piping to sprinklers, devices, valves, control valves, specialties, and accessories.
- B. Connect water supplies to irrigation systems. Include back-flow preventers on potable water supplies.
- C. Electrical Connections: Connect to power source, controllers, and automatic control valves.

3.15 FIELD QUALITY CONTROL

- A. Testing: Perform test of piping and valves before back-filling trenches. Piping may be tested in sections to expedite work. Architect must be present for testing.
 - 1. Make all necessary provisions for thoroughly bleeding the line of air and debris.
 - 2. Before testing, fill the line with water for a period of at least 24 hours.
 - 3. After valves have been installed, test all live water lines for leaks at a pressure of 100 psi for a period of two hours, with all couplings exposed and with all pipe sections center-loaded.
 - 4. Furnish all necessary testing equipment and personnel.
 - 5. Correct all leaks and retest until acceptance by the Project Landscape Architect.
 - 6. Pressure loss of less than 5 psi in two hours is acceptable.
- B. Sprinkler Coverage Testing:
 - 1. Run each zone for the time required to observe coverage of heads. All zones shall be operated by the control system. Manual operation of valves will not be acceptable for coverage test.
 - 2. Coverage test to be performed prior to installation of plant material seed or sod.
 - 3. Correct coverage issues indicated by the landscape architect.
 - 4. Adjust nozzle spray pattern as required to avoid water spray on building walls, roads or sidewalks.
- C. Control Testing: Operate control system from controller, computer and mobile device to demonstrate compliance with design specifications.
- D. Field inspection and testing will be performed under provisions of Division 1.
- E. Installer's Field Service
 - 1. Prepare and start systems under provisions of Division 1.
 - 2. Provide one complete spring start-up and a fall shutdown, including winterization to blow out entire system with compressed air.
- F. Adjust work under provisions of Division 1.

3.16 CLEANING AND ADJUSTING

- A. Flush dirt and debris from piping before installing sprinklers and other devices.
- B. Adjust automatic control valves to provide flow rate of rated operating pressure required for each sprinkler circuit.

- C. Carefully adjust lawn sprinklers so they will be flush with, or not more than 1-inch above, finish grade after completion of landscape work. Adjust so that sprinklers do not spray on buildings or walls.
- D. Adjust settings of controllers and automatic control valves to insure proper watering of all landscaping.

3.17 COMMISSIONING

- A. Starting Procedures: Follow manufacturer's written procedures. If no procedures are prescribed by manufacturers, proceed as follows:
 - 1. Verify that specialty valves and their accessories have been installed correctly and operate correctly.
 - 2. Verify that specified tests of piping are complete.
 - 3. Check that sprinklers and devices are correct type.
 - 4. Check that damaged sprinklers and devices have been replaced with new materials.
 - 5. Check that potable water supplies have correct type back-flow preventers.
 - 6. Energize circuits to electrical equipment and devices.
 - 7. Adjust operating controls.
- B. Operational Testing: Perform operational testing after hydrostatic testing is completed, backfill is in place, and sprinklers are adjusted to final position.

3.18 DEMONSTRATION

- A. Demonstrate system successful operation before installation of sod or landscaping.
- B. Provide irrigation system demonstration under provisions of Division 1. Record on DVD video format.
- C. Demonstrate to Owner's maintenance personnel operation of equipment, sprinklers, specialties, and accessories. Review operating and maintenance information including start up and winterization procedures.
- D. Provide 7 days written notice in advance of demonstration.

END OF SECTION 32 84 00

SECTION 32 92 00 - TURF AND GRASSES**PART 1 – GENERAL****1.1 SUMMARY****A. Section Includes**

1. Soil Preparation, amendment and fertilization
2. Granular Soil Conditioner
3. Weed Abatement
4. Finish Grading
5. Turf Sodding
6. Turf establishment
7. Maintenance
8. Clean-up

B. Definitions

1. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, Brome Grass, Black Henbane, Buffalobur, Common Crupina, Dalmatian Toadflax, Diffuse Knapweed, Dyer's Woad, Eurasian Watermilfoil, Field Bindweed, Hoary Cress, joined Goatgrass, Leafy Spurge, Matgrass, Meadow Hawkweed, Meadow Knapweed, Milium, Musk Thistle, Orange Hawkweed, Perennial Pepperweed, Perennial Sowthistle, Poison Hemlock, Puncturevine, Purple Loosestrife, Russian Knapweed, Scotch Broom, Scotch Thistle, Silverleaf Nightshade, Skeletonleaf Bursage, Spotted Knapweed, Syrian Beancaper, Toothed Spurge, Yellow Starthistle, Yellow Toadflax.
2. Finish Grade: Elevation of finished surface of planting soil.
3. Planting Soil: Imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
4. Topsoil: material per specifications section 312000.
5. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

C. Related Sections include the following:

1. Specification Section 311000 Site Clearing.
2. Specification Section 312000 Earth Moving.
3. Specification Section 328400 Planting Irrigation.
4. Division 01 Specifications.

1.2 REFERENCES

- A. FS O-F-241 - Fertilizers, Mixed, Commercial.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

- B. Submit seed certification for grass species blend.
- C. Submit sod certification for grass species and location of sod source.
- D. Submit compost testing data to confirm product meets specified parameters.
- E. Granular Soil Conditioner. Submit one quart product sample and product data.
- F. Sod Establishment Irrigation Schedule.
- G. Seed Establishment Irrigation Schedule.
- H. Turf Maintenance Irrigation Schedule.

1.4 QUALITY ASSURANCE

- A. Sod:
 - 1. Minimum age of 12 months, with root development that will support its own weight without tearing, when suspended vertically by holding the upper two corners.
 - 2. Qualifications: Sod Producer shall be company specializing in sod production and harvesting with minimum five years experience.
- B. Regulatory Requirements
 - 1. Comply with regulatory agencies for fertilizer and herbicide composition.
- C. Installer Qualifications (Firm): In order to qualify for the landscape installation work on this project, the following information must be submitted with the Bid Submittal.
 - 1. A signed statement of experience certifying a minimum of five (5) years in business and describing in detail, experience in the installation of a minimum of three (3) projects of similar nature and scope.
- D. Installer Qualifications (Individual): In order to qualify for the landscape installation work on this project, the following information must be submitted with the Bid Submittal.
 - 1. Landscape Installation/Maintenance Supervisor/Manager: This person shall have a minimum of three (3) years experience in handling/maintaining the specified materials, and in sizes specified, in installations/maintenance of similar scope.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Division 1.
- B. Seed and other packaged materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with State and Federal laws, as applicable.
- C. Sod
 - 1. Deliver sod on pallets, in rolls. Protect exposed roots from dehydration.
 - 2. Do not deliver more sod than can be laid within 24 hours.
- D. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.
- E. Bulk Materials:
 - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff, and airborne dust

- reaching adjacent properties, water conveyance systems, or walkways.
- 3. Accompany each delivery of bulk materials with appropriate certificates.

1.6 PROJECT/SITE CONDITIONS

- A. Do not install plant life when ambient temperatures may drop below 45 degrees F or rise above 90 degrees F.

1.7 SEQUENCING AND SCHEDULING

- A. Coordinate work under provisions of Division 1.

1.8 WARRANTY

- A. Contractor shall warrant work as provided by the General and Supplementary Conditions and Division 01 Specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Substitutions or equivalent products shall be in accordance with Division 01 Specifications.
- B. Topsoil: 12-inch compacted depth per Specifications Section 31 20 00.
- C. Turf Sod: ASPA Certified Field grown grade; cultivated grass sod; type indicated below; with strong fibrous root system, free of stones, burned or bare spots; containing no more than 5 weeds per 1000 sf. Sod shall be from an established regionally local grower. Sod shall be a mixture of 70% Kentucky Bluegrass and 30% Perennial Ryegrass.
 - 1. The 70% Kentucky Bluegrass mixture shall be an equal blend of three (3) or four (4) of the following varieties: 'Adelphi', 'Aspen', 'Baron', 'Bonniblu', 'Bristol', 'Continental', 'Flyking', 'Glade', 'Majestic', 'Merit', 'Parade', 'Ram I', 'Rugby', 'Trenton', 'Victa', or as otherwise noted.
 - 2. The 30% Perennial Ryegrass shall be an equal blend of three (3) following varieties: 'Allairell', 'Manhattan II', and 'Patriot II', or as otherwise noted.
- D. Submit sod certification to Boise Parks & Recreation department. This certification shall provide a complete analysis of the seed species, including the percentage of pure seed and its germination rate, other crop seeds; both inert and weed, and the germination test date. All crop seed in excess of one percent (.01) must be itemized.
- E. Soil Amendment: Compost
 - 1. Compost shall be measured by the cubic yard at the point of loading.
 - 2. Compost shall be a well decomposed, stable, weedfree organic matter source. It shall be derived from agricultural, food, or industrial residuals; biosolids (treated sewage sludge); yard trimmings or source-separated or mixed solid waste. The product shall contain no substances toxic to plants, will possess no objectionable odors and shall not resemble the raw material from which it was derived.
 - 3. Compost shall meet the following parameters:

- a. pH – Acceptable Range: 6.0 – 8.4 (1:5 by weight)
- b. Soluble Salts – Acceptable Range: 0-7 mmhos/cm (1:5 by weight)
- c. Maturity Indicators:
 - 1) Ammonia N / Nitrate N Ratio - < 4
 - 2) Carbon to Nitrogen Ratio < 12
- d. Particle size: 98% pass through 1/2-inch screen.
- e. Physical contaminants (inert matter): less than 1%
- f. Submit lab testing indicating compliance with the parameters above. Lab testing shall also provide the following information: Bulk Density; % Inorganics; % Moisture; Particle Size Distribution, Primary & Secondary Nutrients; Trace Elements; Organic Matter Expressed in Percentage and Pounds per CY.
- F. Soil Amendment: Fertilizer
 - 1. Elemental Sulfur 90%: Tiger 90CR, NutraSul 90 Keg River, or approved equal.
 - 2. Soil Amendment NPK Fertilizer: 16-20-0 13S fertilizer.
 - 3. Humic Acid: B.A. Humus, Activate 80, First Choice Humic 65G, or equal.
- G. Soil Amendment: Turf Starter Fertilizer
 - 1. Turf Starter NPK Fertilizer: 15-15-15.
- H. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.
- I. Pre-Emergent Herbicide: Tupersan Herbicide Wettable Powder. PBI Gordon Corporation, (800) 821.7925.
- J. Weed Control Herbicide: Approved broad-leaf weed killer.
- K. Turf maintenance Fertilizer: NPK: 16-16-16.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify that prepared topsoil is ready to receive the work of this Section.
- B. Beginning of installation means acceptance of existing site conditions.
- C. All planting areas shall be weed free at the time of seed and sod and seed installation.

3.2 SOIL AMENDMENTS

- A. Soil Amendments: After approximate finished grades have been established soil shall be conditioned and fertilized in the following manner. Soil amendments shall, at the following rate, be uniformly spread and cultivated thoroughly by means of mechanical tiller into the top soil layer; minimum 4 Inch depth and maximum 6 Inch depth.
 - 1. Application Rates:
 - a. Soil Amendment: Compost – 2 CY per 1000 SF
 - b. Soil Amendment: Humic Acid – 3 lbs per 1000 SF
 - c. Soil Amendment: Sulfur – 5 lbs per 1000 SF
 - d. Soil Amendment: NPK – 5 lbs per 1000 SF
 - 2. Placement and blending of Soil Amendments shall occur prior to Weed Abatement operations.

- B. Placement and tilling of soil amendments listed in this section must be observed and approved by the landscape architect prior to sod placement or seeding. Contractor shall photo document installation of all soil amendment application and tilling and provide to the landscape architect for review and approval. Contractor shall provide product receipts for all products specified in this section for review and approval by the landscape architect prior to granting of Substantial Completion.

3.3 FINISH GRADING

- A. Upon completion of soil amendment operations, finish grading operations shall begin.
- B. Coordinate with Section 312000, Earth Moving.
- C. Grade topsoil to smooth, even surface with loose, uniformly fine texture. Remove ridges and fill depressions, as required to meet finish grades. Finish grade of topsoil related to adjacent site elements shall be:
 - 1. Sod Areas: 1-inch below top of adjacent pavement, valve box, vault, etc.
 - 2. Planter Bed Areas: 3-inches below top of adjacent pavement, valve box, vault, etc.
- D. Remove all roots, weeds, rocks and foreign material on the surface. Coordinate with Section 328400 for removal of debris brought to the surface during trenching operations.
- E. Tolerance: Top of Topsoil – Plus .5-inch, no minus.

3.4 WEED ABATEMENT

- A. All areas to be seeded or sodded shall have weed abatement operations performed after placement of soil amendments and Finish Grading and prior to seeding/sodding operations.
- B. Upon completion of Finish Grading, the contractor shall confirm all areas are visibly weed free. Contractor shall spray all exposed weeds with combination of 2,4-D and Roundup. Comply with mixing instructions on product label.
- C. Irrigate all landscape areas to apply 1-inch of precipitation over a 2 day period. At conclusion of this watering period, discontinue watering for seven (7) days.
- D. After the seven day period inspect the site. Apply application of combination 2,4-D and Roundup to all visible weeds. Apply in strict conformance with manufacturer's product label. Do not water for at least three (3) days, remove all exposed weeds from the site.
- E. Weed Abatement operations shall be sequenced to be complete no more than 7 days prior to seeding or sodding operations. It is acceptable to phase weed abatement areas to match phased installation of seed and sod areas.

3.5 SOD PLACEMENT

- A. General:
 - 1. Topsoil placement, soil amendments placement and tilling, soil conditioner placement and tilling, compaction, finish grading and weed abatement shall be completed and approved by the landscape architect prior to sod placement.

2. Sod placement shall occur within 7 days of the completion of Weed Abatement operations.
3. Do not place sod when ground is too wet or too dry.
4. Temperature shall be between 55 F and 85 F for a 24 hour period.
5. Wind shall be less than 20 mph.
- B. Turf Sod Placement:
 1. Moisten prepared surface immediately prior to laying sod.
 2. Lay sod immediately after delivery to site to prevent deterioration.
 3. Lay sod tight with no open joints visible, and no overlapping; stagger end joints 12 inches minimum. Do not stretch or overlap sod pieces.
 4. Lay smooth. Align with adjoining grass areas.
 5. Place top elevation of sod ½ inch below adjoining edging paving, curbs and sidewalks.
 6. On 3:1 or greater slopes, lay sod perpendicular to slope and secure every row with wooden pegs at maximum 2 feet on center. Drive pegs flush with soil portion of sod.
- C. Soil Amendments Turf Starter: Final operation after laying sod and prior to irrigation, apply to the sod surface. Water into sod with irrigation system.
 1. Application Rates:
 - a. Turf Starter NPK: NPK 15-15-15 – 5 lbs. per 1000 SF.
- D. Placement of Turf Starter fertilizer listed in this section must be observed and approved by the landscape architect. Contractor shall photo document installation of all turf starter fertilizer and provide to the landscape architect for review and approval prior to Substantial Completion. Contractor shall provide product receipts for all products specified in this section for review and approval by the landscape architect prior to granting of Substantial Completion.
- E. Water sodded areas immediately after installation of turf starter fertilizer.
- F. After initial irrigation of sod, allow soil to dry sufficiently for rolling. Roll sodded areas to ensure good bond between sod and soil and to remove minor depressions and irregularities. Roller not to exceed 100 lbs.

3.6 SOD ESTABLISHMENT

- A. General: Starting immediately after sod placement, turf grass establishment will begin and continue through the grow-in period. Irrigation, mowing, weed control and fertilization shall be the responsibility of the contractor as defined herein. Protect sodded area with signs to prevent traffic throughout the establishment period.
- B. The establishment period shall have a duration of 30 days.
- C. Irrigation:
 1. Water shall be applied to moisten the soil to approximately 2-inch depth but avoid overwatering and creating areas of standing water or under watering and creating areas of dry soil.
 2. Contractor shall submit for approval a proposed “Sod Establishment Irrigation Schedule”. This schedule shall include Zone designation, days per week, cycles per day and cycle run time. Include targeted daily and weekly precipitation rates for each zone based on current climatic conditions.
 3. Contractor shall monitor irrigation daily to identify areas receiving too much or too little precipitation.

4. Slopes shall be monitored for erosion and corrective action taken immediately.
 5. Once the sod has been mown three times, approximately 3 weeks, the frequency of irrigation shall be reduced and run times increased to provide water deeper into the soil.
- D. Mowing:
1. Mowing shall begin when the grass blades reach a height of approximately 2.5-Inches.
 2. All cutting equipment shall be sharp and mowers shall be adjusted precisely to the proper mowing height.
 3. Mowing heights during the establishment period shall be 1.75-Inch to 2-Inch.
 4. Mowing shall occur every 7 days or more often if growth dictates. At no point shall the height of the turf grass be more than 2.5-Inches.
 5. Grass clippings shall be collected and removed from the site.
 6. Coordinate irrigation schedule with mowing schedule. At no time shall mowing occur if soil is wet and rutting may occur.
- E. Weed Control:
1. Control growth of weeds throughout establishment period.
- F. Fertilization:
1. Turf Maintenance Fertilizer shall be applied at a rate of 5 lbs per 1000 SF, 30 days following placement of sod.
- G. Upon completion of the establishment period the Turf Maintenance period shall begin.

3.7 TURF MAINTENANCE

- A. Maintenance shall be according to the following standards. All areas shall be mown, weeded and cultivated at intervals of not more than seven (7) days. Watering, trash and debris removal, mowing, rolling, edging, trimming, fertilization, spraying and pest control, as required, shall be included in the maintenance period. Cleaning of street gutters and sidewalks shall be included. The Contractor shall be responsible for maintaining adequate protection of the area. Damaged areas shall be repaired at the Contractor's expense. The Contractor shall reseed all spots or areas within the lawn where normal turf growth is not evident.
- B. The Turf Maintenance Period shall continue until the date of Substantial Completion.
- C. Irrigation:
1. Water shall be applied to moisten the soil appropriately for the current, seasonal climatic conditions. Avoid overwatering and creating areas of standing water or under watering and creating areas of dry soil.
 2. Contractor shall submit for approval a proposed "Turf Maintenance Irrigation Schedule". This schedule shall include Zone designation, days per week, cycles per day and cycle run time. Include targeted daily and weekly precipitation rates for each zone based on current, seasonal climatic conditions.
 3. Irrigation shall be monitored weekly to identify areas receiving too much or too little precipitation.
 4. Slopes shall be monitored for erosion and corrective action taken

immediately.

D. Mowing:

1. Mowing shall occur at intervals of not more than seven (7) days or more often if growth dictates.
2. All cutting equipment shall be sharp and mowers shall be adjusted precisely to the proper mowing height.
3. Mowing heights during the maintenance period shall be:
 - a. Athletic Fields: 1.75-Inch – at no point shall the height of the turf grass be more than 2.5-inches.
 - b. Common Areas: 2.25-Inch – At no point shall the height of the turf grass be more than 3-inches.
4. Grass clippings shall be collected and removed from the site.
5. Coordinate irrigation schedule with mowing schedule. At no time shall mowing occur if soil is wet and rutting may occur.
6. Edges shall be trimmed as needed for neat appearance.

E. Weed Control:

1. Control growth of weeds throughout maintenance period. Inspect turf areas every 14 days for weed growth.
2. Utilize 2,4-D broadleaf weed killer to control weeds in all turf areas.

F. Fertilization:

1. Two applications of Turf Maintenance Fertilizer shall be applied at a rate of 5 lbs per 1000 during the maintenance period. Timing of application will be determined by the landscape contractor and landscape architect during the maintenance period.

G. Continuously maintain the entire project area during the progress of work until the date of Substantial Completion.

3.8 CLEANING

- A. After all seeding and sodding operations have been completed; remove all trash, excess soil or rubbish from the property. All scars, ruts or other marks in the ground caused by this work shall be repaired and the ground left in a neat and orderly condition throughout the site. Contractor shall pick up all trash resulting from this work no less frequently than each day before leaving the site. All trash shall be removed completely from the site. The Contractor shall leave the site area broom-clean and shall wash down all paved areas within the Contract area, leaving the premises in a clean condition acceptable to the Architect and Construction Manager.

3.9 PROTECTION

- A. Protect seeded and sodded areas with warning signs until date of Substantial Completion.

END OF SECTION 329200

SECTION 32 93 00 - PLANTS**PART 1 – GENERAL****1.1 SUMMARY****A. Section Includes**

1. Tree and Shrub Planting Pits.
2. New trees and shrubs and accessories.
3. Soil amendments and fertilizer.
4. Bark mulch.
5. Maintenance.

B. Definitions

1. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, Brome Grass, Black Henbane, Buffalobur, Common Crupina, Dalmatian Toadflax, Diffuse Knapweed, Dyer's Woad, Eurasian Watermilfoil, Field Bindweed, Hoary Cress, Joined Goatgrass, Leafy Spurge, Matgrass, Meadow Hawkweed, Meadow Knapweed, Milium, Musk Thistle, Orange Hawkweed, Perennial Pepperweed, Perennial Sowthistle, Poison Hemlock, Puncturevine, Purple Loosestrife, Russian Knapweed, Scotch Broom, Scotch Thistle, Silverleaf Nightshade, Skeletonleaf Bursage, Spotted Knapweed, Syrian Beancaper, Toothed Spurge, Yellow Starthistle, Yellow Toadflax.
2. Plants: Living trees, plants, and ground cover as specified in this Section and indicated on Drawings, and described in ANSI Z60.1.

1.2 REFERENCES

- A. ANSI Z60.1 - Nursery Stock.
- B. NAA (National Arborist Association) - Pruning Standards for Shade Trees.
- C. FSO-F-241 - Fertilizers, Mixed, Commercial.

1.3 SUBMITTALS

- A. Provide submittals per Division 01 Specifications.
- B. Submit list of plant life sources and confirmed availability.
- C. Bark Mulch: 1-gallon bag with sample name and product material for each type and size of mulch.
- D. Product Data: Provide Manufacturer's (catalog) product information.
 1. Tree Stakes.
 2. Tree Ties.
 3. Soil Amendments and Fertilizer.
 4. Liquid Humic Acid.
 5. Pre-emergent herbicide.
- E. Tree and Shrub Establishment Irrigation Schedule.
- F. Tree and Shrub Maintenance Irrigation Schedule.

1.4 QUALITY ASSURANCE

- A. Nursery Qualifications: Company specializing in growing and cultivating the plants with three years experience.
- B. Installer Qualifications: Company specializing in installing and planting the plants with three years experience.
- C. Maintenance Services: Performed by installer.
- D. Regulatory Requirements
 - 1. Comply with regulatory agencies for fertilizer and herbicide composition.
 - 2. Plant Materials: Certified by state department of agriculture; Described by ANSI Z60.1; free of disease or hazardous insects.
- E. Quality
 - 1. Plants shall be 100% sound, healthy, vigorous, and free from plant disease, insect pests or their eggs, noxious weeds, and have healthy, normal root systems. Container stock shall be well established and free of excessive root-bound conditions.
 - 2. Do not prune plants or top trees prior to delivery.
 - 3. Plant materials shall be subject to approval by Architect as to size, health, quality and character. Architect reserves the right to inspect trees and shrubs either at place of growth or at site for compliance with requirements.
 - 4. Bare root trees are not acceptable.
- F. Measurements
 - 1. Measure height and spread of specimen plant materials with branches in their normal position as indicated on Drawings or Plant List.
 - 2. Measure caliper of trees 6 inches above surface of ground.
 - 3. Where caliper or other dimensions of plant materials are omitted from Plant List, plant materials shall be normal stock for type listed.
 - 4. Plant materials larger than those specified may be supplied with approval of Architect
 - a. If complying in all other respects.
 - b. If at no additional cost to Owner.
 - c. If sizes of roots or balls are increased proportionately.
 - 5. Shape and Form - Plant materials shall be symmetrical or typical for variety and species and conform to measurements specified in Plant List.
 - 6. Provide plant materials from a licensed nursery.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Division 1.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.
- C. Protect and maintain plant life until planted.
- D. Deliver plant life materials immediately prior to placement. Keep plants moist.

1.6 PROJECT/SITE CONDITIONS

- A. Do not install plant life when ambient temperatures may drop below 40 degrees F or rise above 90 degrees F.
- B. Do not install plant life when wind velocity exceeds 20 mph.

1.7 SEQUENCING AND SCHEDULING

- A. Coordinate work under provisions of Division 1.
- B. Install plant life after and coordinate with installation of underground irrigation system piping and watering heads specified in Section 328400.
- C. Coordinate plant installation work with irrigation work specified and in the Drawings.

1.8 WARRANTY

- A. Contractor shall warrant work as provided by the General and Supplementary Conditions and Division 01 Specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Substitutions or equivalent products shall be in accordance with Division 01 Specifications.
- B. Topsoil: Material per Specifications Section 312000.
 - 1. Depth at sod areas: 12-Inch.
 - 2. Depth and volume as required for tree and shrub pits as noted in this section and on the drawings.
- C. Trees, Plants and Ground Cover:
 - 1. Species and size identifiable in plant schedule on the Drawings, grown in climatic conditions similar to those in locality of the Work.
- D. Soil Amendment Materials
 - 1. Fertilizer:
 - a. Commercial Grade Compost. Refer to Section 329200.
 - b. Humic Acid: B.A. Humus, Activate 80, First Choice Humic 65G, or equal.
 - c. Planting tablet fertilizer: 21 gram – Agriform, AgriTab, CoreTect, or equal.
 - 2. Water: Clean, fresh, and free of substances or matter which could inhibit vigorous growth of plants.
- E. Maintenance Fertilizer: HuMate Concentrate Liquid Humus – 12% Humic Acid derived from Leonardite Ore. Submit for approval.
- F. Pre-emergent Herbicide: Approved pre-emergent prior to use.
- G. Pesticide: Approved pesticide prior to use.

2.2 ACCESSORIES

- A. Stakes: As noted on the Drawings.
- B. Bark mulch: 3-inch minimum depth of bark mulch. Mulch shall be free of weeds, seed, sawdust, and splinters. Shall not contain resin, tannin, or other compounds detrimental to plant life. Color shall be: Dark Brown. Submit sample for approval prior to installation.
- C. Tree Ties: Cinch-Tie as manufactured by V.I.T. Products, Inc. 1-800-729-1314. Length as required per manufacturer's specifications. Submit manufacturer's catalog cut sheet for approval prior to ordering.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify that prepared topsoil is ready to receive work.
- B. Verify that required underground utilities are available, in proper location, and ready for use.
- C. All planters shall be completely filled with topsoil to within 3-inch of adjacent curb, walk, etc.

3.2 SOIL PREPERATION

- A. Tree Pit Backfill Planting Mix: Blend topsoil and soil amendments and fertilizer for tree pit backfill at the following rates. Blend amendments with thoroughly with soil backfill. See drawings for size of planting pit. Blend topsoil and amendments with native soil at bottom and edge of pit.
 - 1. Application Rates:
 - a. Humic Acid: 20 lbs per Tree Pit
 - b. Commercial grade compost – 15 cubic feet per Tree Pit
 - c. Planting Tablet Fertilizer – 4 tablets per Tree Pit
- B. Shrub Pit Backfill Planting Mix: Blend topsoil and soil amendments and fertilizer for shrub pit backfill at the following rates. Blend amendments thoroughly with soil backfill. See drawings for size of planting pit. Blend topsoil and amendments with native soil at bottom and edge of pit.
 - 1. Application Rates:
 - a. Humic Acid: 5 lbs per Shrub Pit
 - b. Commercial grade compost – 5 cubic foot per Shrub Pit
 - c. Planting Tablet Fertilizer – 2 tablets per Shrub Pit
- C. Placement and blending of soil amendments listed above must be observed and approved by the landscape architect prior to planting of any plant material in planter beds. Contact landscape architect a minimum 48 hours in advance to placement of amendments.
- D. Contractor shall photo document installation of all soil amendment application and tilling and provide to the landscape architect for review and approval prior to granting of Substantial Completion. Contractor shall provide product receipts for all products specified in this section for review and approval by the landscape architect prior to granting of substantial completion. Product receipts shall list date

of delivery, delivery address and location, project name, quantity delivered and product delivered.

- E. Placement of Trees and Shrubs and tree pit backfill operations must be observed and approved by the landscape architect.
- F. All plant material must be delivered to the site for review and approval by the landscape architect prior to installation. Any plant material placed without prior approval is subject to removal at no cost to the owner.

3.3 EXECUTION

- A. Place plants for best appearance for review and final orientation by Architect.
- B. Set plants vertical.
- C. After placement cut all string, wires, etc. and remove string, wire and burlap from top and sides of root ball before backfilling.
- D. Set plants in pits or beds, partly filled with prepared plant soil mix. Backfill soil mixture in 6 inch layers. Maintain plant materials in vertical position. Add fertilizer tablets in plant pit (at 2/3 full) as per manufacturer's recommendations.
- E. Saturate soil with water when the pit or bed is half full of topsoil and again when full.
- F. Installation of Accessories
 - 1. Apply pre-emergent herbicide to planting areas after completion of planting. Planting areas shall be free of existing weed growth prior to application of herbicide. Apply herbicide in accordance with Manufacturer's recommendations.
 - 2. Place decorative cover mulch over landscape planting bed areas. See drawings for location and depth.
- G. Plant Support
 - 1. Brace plants vertically with tree ties and stakes to the following:

a. Tree Caliper	Tree Support Method
b. 1 inch (25 mm)	1 stake with one tie
c. 1 - 2 inches (25 - 50 mm)	2 stakes with two ties
d. 2 - 4 inches (50 - 100 mm)	3 guy wires [with eye bolts and turn buckles]
e. Over 4 inches (100 mm)	4 guy wires [with eye bolts and turn buckles]

3.4 TREE AND SHRUB ESTABLISHMENT

- A. General: Starting immediately after tree and shrub placement, establishment will begin and continue through the grow-in period. Irrigation and weed control shall be the responsibility of the contractor as defined herein. Protect planter areas with signs to prevent traffic throughout the establishment period.
- B. The establishment period shall have a duration of 30 days.
- C. Irrigation:
 - 1. Water shall be applied to moisten the root ball and the soil adjacent to the root ball. Avoid overwatering and creating areas of standing water.
 - 2. Contractor shall submit for approval a proposed "Tree and Shrub Establishment Irrigation Schedule". This schedule shall include Zone designation, days per week, cycles per day and cycle run time. Include

- targeted daily and weekly precipitation rates for each zone based on current climatic conditions.
3. Irrigation shall be monitored daily to identify areas receiving too much or too little precipitation.
- D. Weed Control:
1. Control growth of weeds throughout establishment period. Hand pull weeds weekly.
 2. Chemical herbicide shall not be used in shrub areas during the establishment period.
- E. Upon completion of the establishment period the maintenance period shall begin.

3.5 TREE AND SHRUB MAINTENANCE

- A. Maintenance shall be according to the following standards. All areas shall be weeded and cultivated at intervals of not more than seven (7) days. Watering, trash and debris removal, fertilization, spraying and pest control, as required, shall be included in the maintenance period. Cleaning of street gutters and sidewalks shall be included. The Contractor shall be responsible for maintaining adequate protection of the area. Damaged areas shall be repaired at the Contractor's expense.
- B. Irrigation:
1. Water shall be applied to moisten the soil appropriately for the current, seasonal climatic conditions. Avoid overwatering and creating areas of standing water.
 2. Contractor shall submit for approval a proposed "Tree and Shrub Maintenance Irrigation Schedule". This schedule shall include Zone designation, days per week, cycles per day and cycle run time. Include targeted daily and weekly precipitation rates for each zone based on current, seasonal climatic conditions.
 3. Irrigation shall be monitored weekly to identify areas receiving too much or too little precipitation.
- C. Weed Control:
1. Control growth of weeds throughout maintenance period. Inspect turf areas every 14 days for weed growth.
 2. Utilize weed killer and hand pulling to control weeds in all planter areas.
- D. Fertilization:
1. Two applications of Maintenance Fertilizer shall be applied during the maintenance period. Timing of application will be determined by the landscape contractor and landscape architect during the maintenance period.
 2. Maintenance fertilizer shall be applied at the following rate:
 - a. Trees: blend 24 liquid oz. HuMate with 3 gallons water
 - b. Shrubs: blend 8 liquid oz. HuMate with 1 gallon water.
 3. Apply HuMate / water mixture to root ball and area directly adjacent to root ball.
- E. Tree Stakes: Stakes shall remain in place through the extended warranty period and are to be inspected to prevent girdling of trunks or branches and to prevent rubbing that causes bark wounds.
- F. Insect and Disease Control: Maintain a reasonable level of control with approved

materials.

- G. Plant material replacement: Replace dead, dying and missing plants with plants of a size, condition and variety to match plans and as acceptable to the Architect at Contractor's expense under the provisions Division 01 Specifications.
- H. Continuously maintain the entire project area during the progress of work until the date of Substantial Completion.

3.6 CLEANING

- A. After all planting, establishment and maintenance operations have been completed; remove all trash, excess soil or rubbish from the property. All scars, ruts or other marks in the ground caused by this work shall be repaired and the ground left in a neat and orderly condition throughout the site. Contractor shall pick up all trash resulting from this work no less frequently than each day before leaving the site. All trash shall be removed completely from the site. The Contractor shall leave the site area broom-clean and shall wash down all paved areas within the Contract area, leaving the premises in a clean condition acceptable to the Architect and Construction Manager.

3.7 PROTECTION

- A. Protect planter areas with warning signs until date of Substantial Completion.

END OF SECTION 329300