

## APPENDIX A

### DEQ STANDARD CONTRACT

#### I. DEFINITIONS

- A. DEPARTMENT shall mean the Department of Environmental Quality of Idaho (DEQ), any division, section, office, unit, or other entity of that DEPARTMENT, or any of the officers or other officials lawfully representing that DEPARTMENT.
- B. CONTRACTOR shall mean that individual, partnership, corporation, or other entity performing services under this CONTRACT. It shall include any subcontractor retained by the prime CONTRACTOR as permitted under the terms of this CONTRACT. It shall mean acting in an independent capacity, not as an officer, employee, or agent of the DEPARTMENT. It shall mean one who can provide the same or similar services to individuals or entities other than the DEPARTMENT.
- C. CONTRACTING OFFICER shall mean that person appointed by the DEPARTMENT to administer this CONTRACT on behalf of the DEPARTMENT. The term includes, except as otherwise provided in this CONTRACT, an authorized representative of the CONTRACTING OFFICER acting within the scope of his/her authority.
- D. CONTRACT shall mean the originally negotiated and executed CONTRACT (including Riders and Appendices), any negotiated and executed AMENDMENT to this contract and/or any TASK ORDER negotiated, executed and implemented pursuant to provisions of this contract.

#### II. RELATION OF PARTIES

- A. The parties intend to establish an Independent Contractor/Principal relationship by this contract.
  - 1. CONTRACTOR certifies that they are an Independent Contractor, and as an Independent Contractor will file all required forms and make the necessary payments appropriate to his Independent Contractor tax status.
  - 2. CONTRACTOR acknowledges that their status as an Independent Contractor complies with Treasury Regulations, Subchapter C, Sec. 31.3121(d)-1
- B. The DEPARTMENT is interested only in the quality of services provided and the final results to be achieved; the conduct and control of the worker will lie solely with the CONTRACTOR.

- C. The CONTRACTOR is not to be considered an agent or employee of the DEPARTMENT for any purpose, and neither the CONTRACTOR nor their employees are entitled to any benefits of employment provided by the DEPARTMENT to its employees.
- D. It is understood that the DEPARTMENT does not agree to use CONTRACTOR exclusively, and that CONTRACTOR is free to contract to perform similar services for other parties while under contract to the Department, so long as there is no interference with the performance of this Contract.

### **III. TERMINATION FOR CONVENIENCE**

- A. The DEPARTMENT or CONTRACTOR may cancel this Contract at any time with or without cause upon thirty (30) days' written notice to the other party, and specifying the date of termination.
- B. Cancellation of the Contract by either party shall terminate the obligations or liabilities of the parties, except that the obligations or liabilities incurred prior to the termination date shall be honored.

### **IV. TERMINATION FOR DEFAULT**

- A. CONTRACTOR default occurs if the CONTRACTOR fails to perform any of the covenants or conditions of this Contract; and the CONTRACTOR does not cure such defects in performance within ten (10) days after receipt of any written notice from the CONTRACTING OFFICER informing the CONTRACTOR of such defects in performance.
- B. Upon default, the DEPARTMENT may cancel this Contract without any notice and may pursue any and all legal, equitable, and other remedies available to the DEPARTMENT.
- C. If termination for default is effected by the DEPARTMENT, an equitable adjustment in the price provided in this CONTRACT shall be made, but:
  - 1. The DEPARTMENT shall withhold any uncommitted funds for work not performed;
  - 2. No amount shall be allowed for anticipated profit on unperformed services or other work; and

3. Any payment due the CONTRACTOR at the time of termination may be adjusted to cover any additional costs to the DEPARTMENT because of the CONTRACTOR'S default.
- D. If termination for default is effected by the CONTRACTOR, or if termination for convenience is effected by the DEPARTMENT, the equitable adjustment shall include a reasonable profit for services or other work performed. The equitable adjustment for any termination shall provide for payment to the CONTRACTOR for services rendered and expenses incurred prior to the termination, in addition to termination settlement costs reasonably incurred by the CONTRACTOR relating to commitments which had become firm prior to the termination.
  - E. Upon receipt of a termination action under paragraphs A. or B. above, the CONTRACTOR shall:
    1. Promptly discontinue all affected work (unless the notice directs otherwise); and
    2. Deliver or otherwise make available to the DEPARTMENT all data, drawings, specification, reports, estimates, summaries and such other information and materials as may have been accumulated by the CONTRACTOR in performing this CONTRACT, whether completed or in process.
  - F. Upon termination under paragraphs A. or B. above, the DEPARTMENT may take over the work and may award another party a contract to complete the work under this CONTRACT.
  - G. If, after termination for default of the CONTRACTOR to fulfill contractual obligations, it is determined that the CONTRACTOR had not failed to fulfill contractual obligations, the termination shall be deemed to have been for the convenience of the DEPARTMENT. In such event, adjustment of the CONTRACT compensation shall be made as provided above in paragraph D.
  - H. In the event of legal action, the prevailing party shall be reimbursed for any and all expenses that are incurred as a result of the default including, but not limited to, legal fees, and losses incurred due to default.

## **V. SPECIAL PROVISIONS**

Are contained in Appendix E of the RFP and will be incorporated as enforceable provisions of the Contract.

## **VI. INDEMNIFICATION**

- A. The CONTRACTOR shall indemnify, defend, and save harmless the STATE OF IDAHO, and the DEPARTMENT, its officers, agents, and employees, from and against all liability, claims, damages, losses, expenses, actions, and suits whatsoever, including injury or death of others or any employee of the CONTRACTOR or subcontractor caused by or arising out of the CONTRACTOR'S negligent performance, act, or omission of any term of this Contract.
- B. The DEPARTMENT shall indemnify, defend and save harmless the CONTRACTOR, its officers, agents, employees and subcontractors from and against all liability, claims, damages, losses, expenses, actions and suits whatsoever, including injury or death of others or any employee of the DEPARTMENT to the extent caused by or arising out of the DEPARTMENT'S negligent performance, act or omission of any term of this CONTRACT. Nothing in this provision shall extend the liability of the DEPARTMENT beyond that provided in the Idaho Torts Claim Act, Idaho Code 6-901 et.seq.
- C. As an Independent Contractor, CONTRACTOR is responsible for all employee-related benefits, such as paid leaves and health insurance, and withholding and payment of F.I.C.A., F.U.T.A., and income taxes for Federal and State purposes. The DEPARTMENT shall not be responsible for these employee related benefits and tax items, and shall be indemnified and held harmless from any liability, cost or expenses, including any interest, penalties and attorney's fees, that may be connected with the CONTRACTOR'S failure to provide or pay such items.

## **VII. ASSIGNMENT AND SUBCONTRACTING**

- A. This CONTRACT is to be binding on the heirs, successors and assigns of the parties hereto and is not to be assigned by either party without first obtaining the written consent of the other. No assignment of this CONTRACT shall be effective until the assignee assumes in writing the obligations of the assigning party, and delivers such written assumption to the other original party to this CONTRACT. Use of SUBCONTRACTORS by the CONTRACTOR, or subsidiary or affiliate firms of the CONTRACTOR, for technical or professional services shall not be considered an assignment of a portion of this CONTRACT.
- B. The parties agree that no services required under this CONTRACT may be performed under SUBCONTRACT unless both parties agree in writing.
- C. Approved subcontracts will contain all appropriate Federal and State requirements and such conditions and provisions as the DEPARTMENT may deem necessary.

- D. The CONTRACTOR understands and agrees to assume sole responsibility for the satisfactory performance of all subcontractors and subcontracted services.

### **VIII. ACCOUNTING, AUDITING, RECORDS RETENTION AND ACCESS TO RECORDS**

- A. The CONTRACTOR shall maintain books, records, documents and other evidence directly pertinent to performance of EPA funded work under this CONTRACT in accordance with generally accepted accounting principles and practices consistently applied, and in accordance with 40 CFR 31.36(i)(10) and (11), in effect on the date this CONTRACT is signed by both parties. Records shall be retained for a period of three (3) years after final payment is made and all other pending matters are closed. If any litigation, claim, negotiation, audit or other action involving the records has been started before the expiration of the three-year period, the records must be retained until completion of the actions and resolution of all issues which arise from it, or until the end of the regular three-year period, whichever is later.

The CONTRACTOR shall also maintain financial information and data used in the preparation or support of the cost submission required under 40 CFR 31.22 (for negotiation of this CONTRACT), or negotiated change order, and a copy of the cost summary submitted to the DEPARTMENT. The CONTRACTOR will obtain written approval from the DEPARTMENT prior to disposal of any records. The U.S. EPA, the Comptroller General of the United States, the U.S. Department of Labor, the DEPARTMENT, any other agency of the State of Idaho or any of their authorized representatives, shall have access to all such books, records, documents and other evidence for purposes of inspection, audit and copying during normal business hours.

The CONTRACTOR will provide proper facilities for such access and inspection. This CONTRACT may be terminated upon any refusal of the CONTRACTOR to allow access to the records as described above.

- B. Audits.
  - 1. Audits conducted under this Section shall be in accordance with generally accepted auditing standards and established procedures and guidelines of any reviewing or audit agency(s).
  - 2. The DEPARTMENT'S monitoring and audit efforts shall include activities aimed at: (1) assessment of agreement operation at a given point in time; (2) comparison of actual performance versus established performance standards; (3) identification of agreement accomplishments and/or deficiencies in operation and administration; and (4) evaluation of agreement results, benefits and impact upon project objectives. The DEPARTMENT shall have the right to evaluate both the management and financial systems of the CONTRACTOR to ascertain

that there is compliance with all of the provisions contained in this contract. In determining the adequacy of these systems, the DEPARTMENT shall utilize internal staff or arrange for an independent certified public accounting firm: (a) survey the CONTRACTOR'S system to obtain information through discussion, inquiry and observation of what the system is stated to be; (b) appraise the adequacy of the system in terms of standards prescribed herein; )c) select a number of transactions and trace them through the records to ascertain whether the system is actually followed and is effective; and (d) interview CONTRACTOR'S staff members to determine management and organizational needs.

- C. The CONTRACTOR agrees to disclose all information and reports resulting from access to records under paragraph A. and B. of this Section to any of the agencies referred to in paragraph A.
- D. Access to records is not limited to the required retention periods. The authorized agencies designated in paragraph A of this Section shall have access to records at any reasonable time for as long as the records are maintained.
- E. This section applies to all records pertaining to this CONTRACT, TASK ORDERS, CHANGE ORDERS and AMENDMENTS:
  - 1. To the extent the records pertain directly to performance of this CONTRACT;
  - 2. If there is any indication that fraud, gross abuse or corrupt practices may be involved; or
  - 3. If the CONTRACT is terminated for default or for convenience.
- F. The CONTRACTOR agrees to account for all expenditures under this CONTRACT in accordance with generally accepted accounting principles, a cash or accrual method of accounting in accordance with 40 CFR 31.41 and to comply with the cost principles contained in 40 CFR 31.22 to determine allowable costs.
- G. It is understood and agreed that in case of the termination of the existence of the CONTRACTOR by bankruptcy or any other reason, that all records in the CONTRACTOR'S possession, program and fiscal, relating to this CONTRACT shall become the property of the DEPARTMENT.
- H. PROPERTY MANAGEMENT

The CONTRACTOR must comply with the property management requirements set forth in 40 CFR 35.6335 through 40 CFR 35.6400, where applicable.

The CONTRACTOR will submit property inventory reports on an annual basis by January 1 of each year, when the property is no longer needed and within 90 days from the end of the contract period. The CONTRACTOR must comply with the requirements for inventory reports set forth in 40 CFR 35.6660, where applicable.

Inventory reports must include the following:

- a. Description of property;
- b. Manufacturer's serial number, model number or other identification number;
- c. Source, including the assistance identification number;
- d. Unit acquisition date and cost; and
- e. Location, use and condition (by site and activity) and the date this information was recorded.

## **IX. PROJECT ASSESSMENT AND CORRECTIVE ACTION**

The CONTRACTOR will maintain an ongoing analysis of project performance as it relates to project goals and objectives. Whenever the CONTRACTOR determines that goals are not being met as specified in the CONTRACT, the CONTRACTOR will develop a corrective action plan to meet those goals. On a monthly basis, the CONTRACTOR will be required to submit a report of the corrective action taken or planned. Unless otherwise specified in the statement of work in an AMENDMENT or TASK ORDER, the report will be due no later than the 10<sup>th</sup> of the following month.

## **X. CONFIDENTIALITY**

- A. Where applicable, such as in the event of litigation, the CONTRACTOR shall not provide, disclose or reveal data, field notes, log books, photographs, computer stored information, drawings, specifications, reports, estimates, summaries or any other information or records including originals, copies, drafts, abstracts or information in any form generated or otherwise obtained in the performance of its responsibilities under this CONTRACT to any party other than the DEPARTMENT except upon compulsion by subpoena or other legal process. The CONTRACTOR shall provide prompt notice of service to the DEPARTMENT. The CONTRACTOR is not responsible for any of the above which may previously have been placed in the public domain. The DEPARTMENT will inform the CONTRACTOR in writing by certified mail when this clause is being invoked and what specific materials are considered confidential.

- B. All such materials shall be the property of the DEPARTMENT and shall be returned to the DEPARTMENT within eighty (80) days of expiration or termination of the CONTRACT or upon written demand of the DEPARTMENT.
- C. The CONTRACTOR shall require all SUBCONTRACTORS to comply with Subsection X.A of this Contract by explicit reference or provision in each SUBCONTRACT.

#### **XI. APPROPRIATION BY LEGISLATURE REQUIRED**

It is understood and agreed that the DEPARTMENT is a government entity, and this Contract shall in no way or manner be construed so as to bind or obligate the State of Idaho beyond the term of any particular appropriation of funds by the State Legislature as may exist from time to time. In the event the Legislature of the State of Idaho fails, neglects, or refuses to appropriate such funds as may be required and designated to continue payment for this Contract, this Contract shall be at such time automatically terminated and at an end. All future rights and liabilities of the parties hereto shall thereupon cease within thirty (30) days after the notice to the CONTRACTOR.

#### **XII. EFFECT OF TERMINATION OF FEDERAL FUNDING**

In the event Federal matching funds are reduced from current prorated levels, or terminated, the financial participation of the State of Idaho may be reduced accordingly or terminated.

#### **XIII. BINDING EFFECT OF FEDERAL PURCHASE OF SERVICE REGULATIONS AND STATE PLANS**

This agreement is subject to the provisions of any relevant Federal regulations and any relevant provisions of the State Plan in effect at the time this Contract is executed, or which thereafter became effective. Such Federal regulations and State plans are on file in the Central Office of the Department of Environmental Quality and are available for inspection by the CONTRACTOR.

#### **XIV. OBLIGATIONS OF THE CONTRACTOR**

##### **A. AUTHORIZATION TO PROCEED**

The CONTRACTOR will not begin work on any services until this CONTRACT, any AMENDMENT(S) or TASK ORDER(S) have been signed by the DEPARTMENT, the

effective date has been filled in and that date has arrived and passed. The CONTRACTOR, SUBCONTRACTOR or their employees shall not render services to the DEPARTMENT under the terms of this CONTRACT until the CONTRACT has been fully signed by each party and the CONTRACT has become effective. Furthermore, the DEPARTMENT is in no way responsible for reimbursing the CONTRACTOR for services rendered prior to the signature of the DEPARTMENT and the arrival of the effective date of this CONTRACT. No employee or agent of the DEPARTMENT may authorize reimbursable services to the CONTRACTOR except the Director of the DEPARTMENT in writing.

For CONTRACTS utilizing TASK ORDERS, authorization to proceed on work as to scope, cost and time for completion shall be in the form previously described for TASK ORDERS. Each TASK ORDER shall have:

1. A preamble referencing the DEPARTMENT, the CONTRACTOR, PROJECT, TASK, TASK ORDER NUMBER and this CONTRACT.
  2. A description of the services to be provided, including work products, and the estimated time schedule for completion.
  3. Any special conditions not covered in this CONTRACT.
  4. ATTACHMENTS and SIGNATURES sections.
- B. The CONTRACTOR'S obligations under this Section are in addition to the CONTRACTOR'S other obligations under this CONTRACT.

## **XV. FEDERAL AND STATE AUDIT EXCEPTIONS**

When Federal or State audits indicate that payments to the CONTRACTOR do not meet the applicable Federal or State rules and regulations, the CONTRACTOR shall refund and pay to the DEPARTMENT any payments made arising from the CONTRACTOR'S ineligible or improper receipt or use of Federal financial participation funds, and the DEPARTMENT must refund such payments to the applicable Federal funding agency.

## **XVI. AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY**

- A. The CONTRACTOR hereby agrees to provide all services funded through or affected by this CONTRACT without discrimination on the basis of race, color, national origin, age or physical/mental impairment, and to comply with all relevant sections of:

1. Title VI of the Civil Rights Act of 1964, as amended;
  2. Section 504 of the Rehabilitation Act of 1973, as amended; and
  3. The Age Discrimination Act of 1975 as amended.
  4. The Americans With Disabilities Act of 1990.
- B. The CONTRACTOR agrees to provide equal employment opportunity and take affirmative action in employment on the basis of race, color, national origin, religion, sex, age, physical/mental impairment and all relevant sections of:
1. Executive Order 11246, as amended by Executive Order 11375;
  2. The applicable provisions of the Department of Labor regulations (48 CFR, Part 22); as amended;
  3. Section 503 of the Rehabilitation Act of 1973, and
  4. Sections 402 of the Vietnam Era Veterans Readjustment Assistance Act of 1974.
- C. The CONTRACTOR agrees to comply with the Civil Rights, equal employment opportunity Labor Law and other requirements under 40 CFR, Part 30, Subpart F and 40 CFR, Part 7.
- D. The CONTRACTOR agrees to comply with the requirements for small, minority women's and labor surplus area businesses in 40 CFR 33.240 in its award of any SUBCONTRACT under this CONTRACT.
1. The CONTRACTOR agrees to assure that each of these business entities is given the opportunity to participate in subcontract awards under this contract. This policy applies to all SUBCONTRACTS for supplies, construction and services under this CONTRACT.
  2. The CONTRACTOR shall file a quarterly report on a form to be provided by the DEPARTMENT, listing all small, minority and women's business enterprises that were subcontracted to during the preceding quarter. A form must be filed even if a small or disadvantaged business was not utilized.
- E. The CONTRACTOR agrees to verify and ensure that all individuals in their employ are eligible under federal and state law to work in the United States.

## **XVII. CONFLICT OF INTEREST**

### **A. Organizational Conflicts of Interest**

1. The CONTRACTOR warrants that to the best of the CONTRACTOR'S knowledge and belief, there are no relevant facts or circumstances which could give rise to actual, apparent or potential organizational conflicts of interest or that the CONTRACTOR has disclosed all such relevant information.
2. The DEPARTMENT reserves the right to procure services from contractors other than the CONTRACTOR in the event the CONTRACTOR has an unresolvable conflict of interest which cannot be avoided. Such conflicts may include status as a potentially responsible party; present or proposed contractual arrangement with a potentially responsible party to be studied; present or proposed contractual agreements with a firm that manufactures or sells any substance or item to be studied, or present or proposed contractual agreements with a firm that manufactures or sells any substance or item in competition with a substance or item to be studied under this proposed contract.
3. Upon receipt of a work assignment, the CONTRACTOR shall identify any potential conflict of interest in its performance of services contemplated by the work assignment. If the DEPARTMENT determines that the CONTRACTOR has an unresolvable conflict which cannot be avoided, Section III and/or IV of this Contract will apply. The CONTRACTOR shall provide a Project Team which is qualified and free from potential conflict of interest to perform the services required by this CONTRACT, AMENDMENT(S) and/or task orders(s).

### **B. Individual Conflicts of Interest**

With regard to individual employees performing services under this CONTRACT, the CONTRACTOR shall:

1. Notify the DEPARTMENT of any actual, apparent or potential conflict of interest involving any individual employee proposed to perform services under this CONTRACT, AMENDMENT(S) and/or TASK ORDER(S). In the event of any conflict of interest, the individual employee may be disqualified by the DEPARTMENT from taking part in any services creating the conflict of interest.
2. Require each individual professional employee proposed to work on any TASK ORDER to sign a copy of the "Individual Employee Agreement".

## **XVIII. CONTRACT DATA**

The CONTRACTOR and the DEPARTMENT assure that the cost and pricing data submitted for evaluation with respect to negotiation of prices for negotiated CONTRACTS, lower tier SUBCONTRACTS and change orders are based on correct, accurate and complete data supported by their books and records. If the DEPARTMENT or appropriate Federal agency determines upon agreement by the CONTRACTOR that any price (including profit) negotiated in connection with this CONTRACT, lower tier SUBCONTRACT or AMENDMENT(S) and/or TASK ORDER(S) thereunder was increased by any significant sum because the data provided are incomplete, inaccurate or not current at the time of submission, then such price, cost or profit shall be reduced accordingly and the CONTRACT shall be modified in writing. Failure to agree on a reduction shall be subject to the remedies clause of this CONTRACT.

## **XVIV. EMPLOYMENT**

The CONTRACTOR shall not accept employment from any party other than the DEPARTMENT, or Federal agencies, for work directly related to the Site (services) covered under this CONTRACT for a period of three (3) years from termination of the CONTRACT, or until any litigation related to the Site is completed, whichever is longer, unless it has received written release of this restriction from the DEPARTMENT.

## **XX. SEVERABILITY**

If any term or provision of this CONTRACT is held by the courts to be illegal or in conflict with any Idaho law, the validity of the remaining terms and provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the CONTRACT did not contain the particular term or provision held to be invalid.

## **XXI. NON-WAIVER OF BREACH**

Failure of the CONTRACTOR or the DEPARTMENT to insist upon strict performance of any of the covenants and conditions of this CONTRACT, or to exercise any option herein conferred in any one or all instances, shall not be construed to be a waiver or relinquishment of any such covenant or condition but the same shall be and remain in full force and effect, unless such waiver is evidenced by the prior written consent of the CONTRACTOR or the DEPARTMENT.

## **XXII. LICENSES**

For the duration of this CONTRACT, the CONTRACTOR will remain in effect and have in possession all applicable licenses required by federal and state statutes and county and city ordinances, including an Idaho business license, if so required.

## **XXIII. CLEAN AIR AND CLEAN WATER ACTS**

The CONTRACTOR shall comply with all applicable standards, orders or requirements issued under Section 306 of the Clean Air Act (42 USC 1857(h)), Section 508 of the Clean Water Act (33 USC 1368), Executive order 11738 and the Environmental Protection Agency Regulations (40 CFR, Part 15). All violations are to be reported to the appropriate federal or state agency.

## **XXIV. GOVERNED BY THE LAWS OF THE STATE OF IDAHO**

This CONTRACT shall be governed by the laws of the State of Idaho and performed therein.

## **XXV. NOTICE OF CONTRACT EFFECTIVENESS**

It is understood that this document is not effective until the appropriate CONTRACTING OFFICER has signed the document, the effective date has been filled in by the CONTRACTING OFFICER, and that date has arrived or passed. Neither the CONTRACTOR nor his organization will render services to the DEPARTMENT under the terms of this document until the document has been fully signed by each party and the Contract has become effective. Furthermore, the DEPARTMENT is in no way responsible for reimbursing the CONTRACTOR for services rendered prior to the appropriate signature by the CONTRACTING OFFICER of the DEPARTMENT and the arrival of the effective date of this Contract.

CONTRACTOR'S Initials \_\_\_\_\_ Date

## **XXVI. CERTIFICATION REGARDING LOBBYING**

The CONTRACTOR certifies that:

- A. None of the funds provided by this contract have been paid or will be paid by or on behalf of the CONTRACTOR to any person for influencing or attempting to influence an officer or employee of any governmental agency, a member, officer or employee of Congress or the State legislature in connection with the awarding, continuation, renewal, amendment, or modification of any contract, grant, loan, or cooperative agreement.

- B. If any funds, other than funds provided by this contract, have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any governmental agency, a member, officer or employee of Congress or the State legislature in connection with this contract, the CONTRACTOR shall complete and submit Standard Form LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions, and a copy of Standard Form LLL to the contracting agency.
- C. The CONTRACTOR shall require that the language of this certification be included in any subcontract, at all tiers, (including grants, subgrants, loans, and cooperative agreements) entered into as a result of this contract, and that all subrecipients shall certify and disclose accordingly.
- D. The CONTRACTOR understands that a false statement of this certification may be grounds for rejection or termination of this contract, and that their signature upon this contract is a material representation of fact upon which reliance was placed when this contract was made or entered into. In addition, under Section 1352, Title 31, U.S. Code, a false statement shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such false statement.

**XXVII. COMPLETE STATEMENT OF TERMS**

This Contract, the Request for Proposal, the Request for Proposal Pre-Bid Questions, DEQ Response and Request for Proposal Addendum, the Contractor's bid proposal and related attachments constitutes the entire agreement between the parties hereto and shall supersede all previous proposals, oral or written, negotiations, representations, commitments, and all other communications between the parties. It may not be released, discharged, changed or modified or assigned in whole or in part, and no claim for additional services not specifically provided herein will be allowed by the DEPARTMENT, except to the extent provided by an instrument in writing signed by a duly authorized representative of the CONTRACTOR and the DEPARTMENT.

Any Riders, Appendices, Attachments, and all other information attached to this Contract serve to supplement the terms and conditions of this Agreement, and do not change or eliminate any provision of this Agreement.

IN WITNESS WHEREOF, the parties have executed this agreement.

*(signatures)*

**APPENDIX B**

**CERTIFICATION REGARDING DEBARMENT,  
SUSPENSION AND OTHER RESPONSIBILITY MATTERS**

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

- (A) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency;
- (B) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or contract under a public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (C) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (federal, state, or local) with commission of any of the offenses enumerated in paragraph B of this certification; and
- (D) Have not within a three-year period preceding this contract had one or more public transactions (federal, state, or local) terminated for cause or default.

I understand that false statement on this certification may be grounds for termination of the contract. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

Typed Name and Title of Authorized Representative

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Signature of Authorized Representative

---

Date \_\_\_\_\_

\_\_\_\_\_ I am unable to certify to the above statement. My explanation is attached.





**BID FORM – INSERT HERE**

**BID FORM – INSERT HERE**

**APPENDIX D  
BID PROPOSAL CHECKLIST**

**BID PROPOSAL CONTENTS**

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**Technical Proposal**

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**APPENDIX E**  
**SPECIAL PROVISIONS**

**SPECIAL PROVISIONS**

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## APPENDIX E

### SPECIAL PROVISIONS

This section of the Contract Documents describes the Project and details the Work required as shown on the Drawings. The Technical Specifications for each component of the Project are referenced and the method of measurement and payment is identified. The Technical Specifications referenced to are the *Idaho Standards for Public Works Construction* (ISPWC), 2010 Edition and are contained in Appendix F. Any special conditions applicable to this Project are also identified. Addenda issued after these documents have been proposed shall supplement and/or supersede these contract documents. For any discrepancies between the Special Provisions and the Technical Specifications, the Special Provisions will govern. For any discrepancies between the Special Provisions or the Drawings, the most stringent and detailed provisions shall govern.

#### 1. PROJECT DESCRIPTION

The Project is referred to as the Page Repository, Operations Facilities and WENI Site Preparation Project. The Project is located in Shoshone County, Idaho and is located in Section 33 and 34 of Township 49 North in Range 02 East and in Section 04 of Township 48 in Range 02 East. The Project is divided into two Schedules to allow flexibility in contract bidding and scheduling the work. The two Schedules, A and B, consist of operations facilities constructed on top of Page Repository, development and improvement of access roads, and grading work for a staging/future stockpile area as part of the WENI site preparation.

The Project is located near Smelterville, Idaho between Old Highway 10 and Interstate 90. This construction area, hereon referred to as the Site, consists of two subtasks, Schedule A and B, and potential for individual Task Orders for ongoing operations and maintenance. In general, the Project consists of: construct and manage five (5) facilities on top of Page Repository; construct an access road from the top of the repository down to the Wedge expansion area for seasonal ICP waste; and develop an access road and staging area in preparation for upcoming WENI site work. To reach the general vicinity of Page Repository shown on the Location Map, take I-90 toward Kellogg and take exit 48 toward Smelterville. Travel west on Old Hwy 10. The Page Repository is located on the north side of the road. The WENI area can be reached by turning north off Old Hwy 10 on K Street in Smelterville. Cross over the Trail of the Coeur D'Alenes, where the road becomes Commerce Drive, and shortly thereafter turn left on the access road leading west and to the WENI area.

#### 2. INSPECTION OF SITE AND PRE-CONSTRUCTION CONFERENCE

A bidders Site Visit and Conference are scheduled. The date and time for the conference are found in Section 5.4, Bidder Questions and IDEQ Response of this RFP. The Contract Time for this bid package is found in Section 7.2, Contract Term and Payment.

Prior to proposal submittal, the Contractor shall be satisfied as to the construction conditions by personal examination of the Site of the proposed Work and any other examination and investigation that the Contractor may desire to make as to the nature of the construction and the difficulties to be encountered. Contractor shall promptly report in writing to Owner any conflict, error, or discrepancy that Contractor may discover and shall obtain a written interpretation from Owner before proceeding with the Work.

Within five (5) days after the effective date of the Agreement and before Contractor starts work, Contractor shall attend a pre-construction conference with the Owner, Owner's Consultant, Surveyor, and others as appropriate to establish a working understanding among the parties as to the Work. The purpose of the conference will be to discuss schedules, submittal procedures, safety requirements, communication protocols, contact information, roles, responsibilities, applications for payment, maintaining required records, and other matters related to the Project.

### **3. PROJECT RELATED CONTACTS**

(a) Owner and General Information: Idaho Department of Environmental Quality  
1410 N. Hilton  
Boise, ID 83706  
Telephone: (208) 373-0502  
Fax: (208) 373-0417  
Contact: Bruce Schuld

(b) Owner's Consultant: TerraGraphics Environmental Engineering, Inc.  
108 W. Idaho Avenue  
Kellogg, ID 83837  
Telephone: (208) 786-1206  
Fax: (208) 786-1209  
Contact: Derek Forseth, P.E.

### **4. SPECIAL CONSTRUCTION TECHNIQUES**

Contractor should consider these factors when preparing the Bid and planning and scheduling the Work. It is inherent in the nature of working at the Bunker Hill Super Fund Site that the Contractor will encounter contaminated material and wastes of varying characteristics on the Site. As such, Owner's Consultant cannot predict with substantial accuracy specific locations on-site or material quantities that require special construction techniques. The Contractor shall assume that existing soils are contaminated with mining waste. Contractor may encounter subsurface conditions that require specialized work or handling techniques at any point during the Work (example: layers of saturated material that may require dewatering, water management, double-handling, and/or specialized equipment).

### **5. HEALTH AND SAFETY PLAN**

Contractor and all on-site personnel, including all Subcontractors and their employees, under Contractor's supervision shall comply with all US Department of Labor Occupational Safety and Health Administration (OSHA) Regulations including 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER). Contractor shall ensure and provide documentation to Owner's Consultant that all site workers have completed the 40-hour HAZWOPER course and are current with the annual 8-hour refresher course.

Contractor shall prepare and submit to Owner a site-specific Health and Safety Plan in accordance with the Special Provisions, Paragraph 22, Submittals. Contractor shall prepare the Health and Safety Plan in accordance with the following OSHA standard practices: Safety and Health Standards 29 CFR 1926 (General Industry and Construction Industry), OSHA 29 CFR 1910.120 HAZWOPER, and Occupational Safety and Health Guidance Manual for Hazardous Waste Sites Activities (US Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health [NIOSH]). At a minimum, the Health and Safety Plan shall address the following elements: staff organization, responsibilities, and authorities; site description and identification of hazards; hazard analysis for each Project task and operation; required general and site-specific training; personal protective equipment (PPE); medical surveillance; personal and environmental exposure monitoring; standard operating safety procedures, Engineering controls, and work practices (including a prohibition of single person work crews); communications; illumination; site control measures; personnel hygiene and decontamination; equipment decontamination; emergency equipment and first aid; emergency response and contingency procedures; and logs, reports, and record keeping. The Health and Safety Plan shall include a discussion of training, safety procedures, training certificates, and other requirements necessary to educate all Subcontractors used on the Project.

Contractor shall address all specific safety and operational issues in the site-specific Health and Safety Plan. At a minimum, Contractor shall comply with the following general safety requirements at all times:

- Contractor's employees and Subcontractor's employees shall not operate cell phones while driving.
- Contractor's employees and Subcontractor's employees shall observe a maximum speed limit of 25 miles per hour (mph) when driving on haul roads except alongside the trail where a maximum speed limit of 10 mph is required.
- Contractor's employees and Subcontractor's employees shall wear safety belts at all times when driving a vehicle or operating equipment.
- First aid kits and fire extinguishers are required in all field vehicles and equipment.
- No drugs, alcohol, or firearms are allowed on-site or in employees' vehicles.
- No eating or drinking is allowed in the active portion of the Work area where contaminants are present.

## **6. SPEED AND WEIGHT LIMITS**

Posted speed limits must be observed on all roads leading to the construction area as well as all other public roadways and the Page Repository itself. Haul vehicles and all other vehicles used in the Work shall strictly comply with these limits. Legal weight limits for public roadways and bridges must also be observed in all hauling activities.

For load limit information on roads leading to the construction area, contact the Idaho Department of Transportation, Motor Carrier Services at (208) 362-3020 and/or the Shoshone County Roads Department at (208) 753-5475.

## **7. EROSION CONTROL AND STORMWATER MANAGEMENT**

The contract drawings and specifications will detail the types of BMPs to be used during construction activities their intended purposes and are written in accordance with the guidance documents listed below:

- Idaho Department of Environmental Quality, *Idaho Sediment and Erosion Control – Best Management Practices Manual*, January 2011.
- US Environmental Protection Agency, *Storm Water Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practices*, October, 1992.

Contractor shall meet all stormwater management provisions according to the Drawings, Special Provisions, and Technical Specifications.

## **8. QUALITY CONTROL/QUALITY ASSURANCE**

Quality control in order to assure that construction complies with the requirements of the Project Drawings, Special Provisions, and Technical Specifications is the responsibility of the Contractor. Quality assurance is the responsibility of Owner. Owner or Owner's Consultant will perform quality assurance in the form of construction oversight and additional testing, as necessary, to ensure that the Work performed by Contractor meets all applicable requirements. The Owner's Consultant is responsible for measurement of quantities for payment in accordance with the Bid Items.

Specific Contractor quality control testing, samplings, and analysis requirements, if applicable, are described for each Bid Item in the Work Description, Measurement, and Payment of these Special Provisions and/or in the Technical Specifications. Contractor shall be responsible for overall management of the construction quality. All submittals shall be reviewed and approved by the Owner or Owner's Consultant in accordance with Paragraph 22 of these Special Provisions.

Construction grade and alignment tolerances shall be plus or minus 0.2 feet of line and grade. It is Contractor's responsibility to construct to the established tolerances. Work resulting in grades and alignment not within the specified tolerances will be rejected. Contractor shall remove the rejected or defective Work and complete the Work to the specified requirements or tolerances at Contractor's expense.

Copies of the survey notes and calculations will be supplied to Contractor upon request. Contractor will note any discrepancies between Owner's calculation and Contractor's calculation and notify Owner within five (5) days of receipt of the notes and calculations by Contractor. Discrepancies will be resolved between the parties.

If Owner and Contractor cannot mutually agree upon the actual quantities, the procedures for resolving disputes shall be as described in Section 7.15 of the RFP. Specifically, if the Contractor objects to any Department notice or disapproval, addendum oversight, accounting or decision made pursuant to this Agreement, the Contractor may notify the Department's Project Manager, in writing, of its objections within fourteen (14) days after receipt of the decision. The Department and the Contractor then have an additional fourteen (14) days to reach agreement. If no agreement is reached after fourteen (14) days (or such other period of time to which all Parties mutually agree) the Department shall notify the Contractor in writing of the Department's decision on the matter. The Contractor may request a determination by the Director of the Department. The Director's determination is the Department's final decision on the matter. Nothing in this Section precludes the Parties from agreeing to use other forms of alternative dispute resolution.

## **9. GENERAL WORK DESCRIPTION**

### **(A) General**

Contractor assumes full and sole responsibility for the capability of selected construction techniques to complete the Work in accordance with the Contract Documents. Contractor also assumes full and sole responsibility for safety and environmental protection with the selected construction techniques. Review of submittals by Owner in no way relieves Contractor of these responsibilities.

Contractor shall respect all right-of-way boundaries and shall protect from damage all monuments, trees, utility poles, wells, culverts, gates and other features existing in or near the Site. Contractor shall protect property corners, section corners, highway monuments, survey monuments, benchmarks, and any other Idaho Department of Transportation highway controls. All such disturbed survey monuments shall be reset by a Professional Land Surveyor licensed in the State of Idaho at no additional cost to Owner.

Contractor shall maintain all existing drainage patterns unless otherwise specified in the Drawings.

Contractor shall contain and store all solid and liquid wastes generated by or used during construction activities in a neat and orderly manner at an approved storage area and dispose all liquid wastes off-site in a legal manner. Liquid wastes may include, but are not limited to: grease, used motor oil, and sanitary waste. Store and handle all wastes in accordance with applicable regulations. All spills shall be reported to Owner and cleaned up immediately. Contractor shall remove all solid wastes from the construction area upon completion of the Work and dispose at a licensed landfill.

No littering will be allowed on the construction area (see Special Provisions, Paragraph 14, Site Cleanup). Contractor shall provide and maintain suitable garbage receptacles at the staging area and other locations within the construction area as appropriate. The garbage receptacles shall be covered and physically secured to prevent loss of contents by weather or wildlife. Contractor shall empty the garbage receptacles as needed and ensure that the garbage is properly disposed at a licensed landfill facility. Contractor shall inform employees and Subcontractors of the locations of the garbage receptacles, instruct them not to litter, and require that all garbage generated on-site is properly disposed.

For public safety, gates, signs, barriers and other control measures shall be in place during construction stoppages greater than two (2) hours.

### **(B) Staging Areas**

Contractor shall construct the equipment and materials staging area(s) at a location approved by the Owner. The exact locations and limits of the staging areas shall be approved by the Owner. Contractor shall limit equipment and materials storage to the smallest area practical. Contractor shall store only equipment and

materials used for the Work on the construction area. Contractor is responsible for security of the staging area(s), hazardous material containment and cleanup for all materials (including, but not limited to: gasoline, diesel fuel, motor oil, hydraulic and transmission fluid, anti-freeze, brake fluid, and all other materials and chemicals used in the maintenance of equipment and machinery), weed control, site drainage, and erosion control. Contractor shall re-grade the area to match adjacent topography at the end of each Task as requested by Owner.

**(C) Construction Office and Other Facilities**

Contractor shall provide all necessary mobile office and sanitation facilities for Contractor's operations. Locate office facilities at the Site and as approved by Owner.

**(D) Fire Restrictions**

Fire season restrictions may be adopted after construction commences. Owner reserves the right to suspend or shut down Work as needed to comply with fire restrictions. Contractor shall comply with all applicable federal, state, and local fire restrictions, if adopted. Appropriate adjustments to the Contract Time will be made if fire restrictions reduce the daily operation hours. Contract Time adjustments will be based on the number of hours per day missed because of the restrictions. The total number of additional Contract Days will be the total number of hours missed divided by the normal number of scheduled daily working hours (e.g., eight (8) or ten (10) hours per day, whichever is appropriate) prior to imposing the restrictions, rounded up to the nearest day. Work hours will be limited to the hours available within normal working hours, defined between the hours of 7:00 a.m. and 7:00 p.m.

**(E) Utility Protection**

Overhead power lines, overhead telephone lines, buried power lines, buried telephone lines, buried water lines, and buried sewer and septic lines may be present within the construction area. Utilities identified on the Drawings are in approximate locations and may not identify all utilities present at the Site. Contractor shall locate all utilities within the work area prior to starting construction. Call Shoshone County One-Call at 800-398-3285 or 811 at least two (2) working days prior to starting construction. Contractor shall locate and protect all utilities and repair at Contractor's expense any damage to utilities caused by Contractor.

Contractor shall provide copies of all written communications with the utility owner(s) to Owner. Contractor shall notify the appropriate utility owner(s) at least five (5) days in advance of excavating near any utility within the construction area. Contractor shall meet and coordinate with the appropriate utility representatives to determine exact locations, crossing requirements, and schedules. Contractor shall provide Owner at least 48 hours advance notice of meetings scheduled with utility owner(s).

Contractor shall notify Owner of all buried utilities encountered during the Work and shall not backfill the area until the type, size, and location of the utility is recorded and mapped.

**10. GENERAL MEASUREMENT AND PAYMENT**

**(A) General**

The total price for each Bid Item of the Contract shall cover all work shown on the Drawings and required by the Special Provisions, Technical Specifications, and other Contract Documents. All costs in connection with the Work, including furnishing all materials, equipment, supplies, and appurtenances; providing all construction equipment, tools, and incidentals; and performing all necessary labor and supervision to fully complete the Work, shall be included in the unit and lump sum prices bid. No item that is required by the Contract Documents for the proper and successful completion of the Work will be paid for outside or in addition to the prices submitted in the bid.

Measurement of all unit price Bid Items will be made by Owner and/or Surveyor.

Contractor shall backfill unauthorized excavation in accordance with the appropriate Technical Specifications at Contractor's expense. Unauthorized excavation consists of removal of materials beyond the indicated removal areas, subgrade elevations, or dimensions without approval of Owner.

**(B) Estimated Quantities**

All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only (i) as a basis for estimating the probable cost of the Work, and (ii) for the purpose of comparing the bids submitted for the Work. Actual quantities may differ from estimated quantities. The basis of payment for Unit Price Work shall be the actual quantity of unit price items supplied. Contractor will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of Work actually performed and materials actually furnished and the estimated amounts herein. The Unit Price of an item of Unit Price Work shall be subject to re-evaluation and upward or downward adjustment in accordance with Section 2.6 of this RFP, Revision of Task Orders.

Lump sum bid items based upon estimated quantities are not subject to adjustment for actual quantities. The lump sum bid price is a fixed price and reflects a reasonable compromise of Owner and Contractor's risk that the actual quantity of services/material supplied may be higher or lower than the estimate.

All estimated quantities designated as cubic yard shall be considered "bank" cubic yard unless otherwise noted. An excavated "bank" cubic yard is the quantity of material removed as measured in its original position.

**(C) Incidentals**

The Work Description, Measurement, and Payment section does not necessarily name all the incidental items and tasks required by the Contract Documents to complete the Work. Incidentals are work activities, labor, materials and/or tools, and equipment necessary to complete the Work for which there is no additional charge. The cost of all such incidentals shall be included in the various related Bid Item(s).

**11. WORK DESCRIPTION, MEASUREMENT, AND PAYMENT**

Contractor shall perform the Scope of Work described below. The Work and associated Bid Items are broken into three categories: (1) Work specific to both Schedule A and B, Bid Item No. 1 through No. 4; (2) Work specific only to Schedule A, Bid Item No. 5 through 17; and (3) Work specific only to Schedule B, Bid Item No. 18 through 20.

**11a. SCHEDULE A, SCHEDULE B, AND TASK ORDERS**

**(A) Bid Item No. 1: Mobilization, Demobilization, Bonding, and Insurance**

**Applicable Technical Specifications:**

Section 1001 – Construction Site Management  
Section 1002 – Construction Site Housekeeping  
Section 2010 – Mobilization

**Applicable Drawings:**

Sheet CS – Project Cover Sheet

**Work Description:**

This Bid Item includes all the Work necessary for the movement of personnel, equipment, supplies, and incidentals to and from the Site. This Bid Item includes preparing, moving, and setting up all structures and equipment for on-site facilities; establishing and decommissioning the staging area(s) and Contractor's

facilities; removing all garbage, equipment, leftover material, and incidentals from the Site; cleaning up the Site; Decontaminating equipment at time of demobilization; and all other work and operations that must be performed or costs incurred before beginning Work on the various items on the construction area. Mobilization and demobilization costs for subcontracted work shall be included in this Bid Item. Mobilization and demobilization costs for Task Order work shall not be included in this Bid Item. Contractor's cost for administration, bonding, insurance, and other documents shall be included in Mobilization, and no separate payment will be made.

This Bid Item also includes all the Work necessary to prepare, implement, maintain, and conduct all the provisions discussed below in, (1) Staging Areas, (2) Road Protection and Maintenance, (3) Weed Control, and (4) Decontamination of Equipment. Contractor shall include the cost for all materials, labor, and equipment necessary to complete the work for this Bid Item, and no separate payment will be made.

- (1) Staging Areas: Equipment and materials staging areas shall be established in locations approved by the Owner. Any additional space needed or modifications to the boundaries of the staging areas shall be subject to approval by Owner. Contractor shall limit equipment and materials storage to the staging areas, unless specifically approved by the Owner. Contractor will be responsible for security of the staging area, hazardous material containment and cleanup, weed control, and drainage and erosion control. Immediately following completion of each Task, the staging area shall be thoroughly cleaned of all trash and debris and re-graded to match adjacent topography as requested by Owner. For each Task, staging areas are to be established and decommissioned at locations identified in writing by the Contractor to the Owner two (2) days prior to commencement of staging. For Bid Items, staging areas will be limited to within the work area identified on the drawings unless otherwise requested by Owner.
- (2) Road Protection and Maintenance: Contractor shall take all necessary precautions to prevent damage to all roads including city, state, and county roads during construction due to heavy vehicle loading (including bridges and cattle guards). All such precautions shall be approved by Owner and Shoshone County. Contractor shall repair any such damage resulting from construction activities (including grading the road to eliminate ruts caused by heavy vehicle loading).
- (3) Weed Control: Contractor shall control the spread of noxious weeds onto and from the Site. Contractor shall:
  - Establish a weed decontamination area at each entrance to the Site;
  - Decontaminate all construction equipment to prevent the spread of noxious weeds by cleaning with high-pressure water before moving equipment into or away from the Site;
  - Decontaminate each piece of equipment used coming from established haul and access routes each time it enters the Site if it has been used at sites other than the construction area since it was last decontaminated;
  - Clean all wheels, tracks, undercarriages, fenders, blades, buckets, and the exterior body of vehicles/equipment prior to entering the Site;
  - Decontaminate all equipment if used in area with noxious weeds (for example, if a dozer is used to strip cover from an area with noxious weeds it should be decontaminated before being used elsewhere on the Site);
  - Owner will mark areas within and adjacent to the Site having large weed populations and Contractor shall restrict vehicle travel through these areas, including walking traffic and light duty vehicles;
  - Provide a parking area for Contractor, employees, suppliers, Owner, and other persons in an area free from weed infestations; and
  - Provide training for all employees on weed control methods and vehicle decontamination procedures.

- (4) Decontamination of Equipment: Contractor shall decontaminate all equipment prior to demobilization. Location of decontamination area shall be verified by the Owner prior to decontamination.

Work includes, at a minimum:

- Mobilize to and demobilize from the Site with all necessary materials, equipment, and personnel to complete the Work;
- Provide insurance and bonding for the Contract;
- Include mobilization and demobilization costs for subcontracted work;
- Protect and maintain public roads during construction;
- Coordinate with all other Work items, as necessary;
- Construct and decommission staging area(s);
- Clean equipment prior to transport to and from the Site to prevent importation of noxious weeds;
- Install and maintain staging and decontamination area(s);
- Wash all equipment transported to the site for Task Order work using high pressured hoses and brushes as necessary to remove all contaminated material;
- Properly dispose of liquid and solid wastes from the construction area;
- Provide, maintain, and remove Contractor structures and sanitation facilities;
- Provide, maintain, and remove trash receptacles;
- Dispose all trash, garbage, and other waste materials generated by Contractor;
- Repair all property damage caused by Contractor; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the Work as specified.

**Measurement (Bid Item No. 1):**

No direct measurement for Bid Item No. 1, Mobilization, Demobilization, Bonding, and Insurance will be made.

**Payment (Bid Item No. 1):**

Payment for Bid Item No. 1, Mobilization, Demobilization, Bonding, and Insurance will be based on the lump sum price bid as shown on the Bid Form of the Contract Documents. Fifty percent (50%) payment for this Bid Item will be allowed once Contractor submits Bonds and Insurance Certificates, fully mobilizes to the Site, and obtains approval on all submittals required before starting construction. Full payment for this Bid Item will be allowed once Contractor completes the Work for the remainder of the contract, completes final cleanup work, and fully demobilizes equipment and materials from the Site. THE LUMP SUM BID PRICE FOR THIS BID ITEM MUST NOT EXCEED TEN PERCENT (10%) OF THE TOTAL BID PRICE.

**(B) Bid Item No. 2: Traffic Control**

**Applicable Technical Specifications:**

Section 1103 – Construction Traffic Control

**Applicable Drawings:**

- Sheet G3 – Overview Map – Schedule A
- Sheet C1 – Access Road Plan and Profile
- Sheet D1 – Petroleum Contaminated Soils Area
- Sheet D2 – Compost Facility
- Sheet D3 – ICP Winter Storage Area
- Sheet C4 – Site Controls – Schedule B
- Sheet D6 – Miscellaneous Details – Schedule A
- Sheet C4 – Site Controls – WENI Site Preparation
- Sheet D8 – Miscellaneous Details – Schedule B

**Work Description:**

This Bid Item includes all work necessary to furnish and install traffic control devices during construction and operation activities for both Schedule A and B. The Contractor shall furnish and install all signs as shown in the Drawings. The table below displays all pertinent information related to the signs. All signs, roadway delineators, and all other traffic control devices shall be in accordance with MUTCD requirements.

Number	Size (Height x Width)	Description	Quantity
1	18" X 36"	OPERATIONS FACILITES	1
2	18" X 36"	AGGREGATE STOCKPILE AREA	1
3	18" X 36"	COMPOST FACILITY	1
4	18" X 36"	ICP WINTER STORAGE	1
5	18" X 36"	PCS STORAGE AREA	1
6	18" X 36"	ICP ACCESS ROAD	2
7	18" X 36"	AUTHORIZED PERSONNEL ONLY	2
8	18" X 36"	CAUTION: CONSTRUCTION ZONE AHEAD	1
9	18" 12"	STAY ON ROAD	3
10	18" 12"	STAY ON TRAIL	3

The contractor shall also furnish and install temporary roadway delineators along both edges of the WENI access road prior to the start of major construction activities. These roadway delineators shall be composed of a highly visible flexible plastic material, minimum 36 inches tall, and spaced a maximum distance of 100 feet apart. Roadway delineators shall also be in accordance with all other MUTCD standards.

Work includes, at a minimum:

- Furnish and install all signs as noted in the Drawings;
- Furnish and install temporary flexible roadway delineators;

- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the Work as specified.

**Measurement (Bid Item No. 2):**

There will be no direct measurement for Bid Item No. 2, Traffic Control.

**Payment (Bid Item No. 2):**

Payment for Bid Item No. 2, Traffic Control, shall be made at the lump sum price as shown on the Bid Form of the Contract Documents. This lump sum price shall constitute full compensation for all labor, equipment, tools, supplies, materials, and incidentals necessary to accomplish the work.

**(C) Bid Item No. 3: Stormwater BMPs**

**Applicable Technical Specifications:**

Division 1000 – Construction Stormwater Best Management Practices (BMPs)

Division 207 – Permanent Stormwater Best Management Practices (BMPs)

**Applicable Drawings:**

Sheet C1 – Access Road Plan and Profile

Sheet D6 – Miscellaneous Details – Schedule A

Sheet C4 – Site Controls – WENI Site Preparation

Sheet D8 – Miscellaneous Details – Schedule B

**Work Description:**

This Bid Item includes all the work necessary for installation of all BMPs as identified on the drawings and as requested by Owner. Anticipated BMPs include fiber rolls, check dams, and slope roughening. Typical installation details and locations are provided on the Drawings for each of these components. Contractor shall perform this Work in accordance with the Technical Specifications, Division 1000 – Construction Stormwater Best Management Practices (BMPs) and Division 200 – Permanent Stormwater Best Management Practices (BMPs). BMPs shall be inspected at least once every seven (7) days and within 24 hours of a storm event that results in runoff. BMPs shall be immediately maintained and repaired, as necessary, to remain in compliance with their intended function and capacity as specified in the Contractor's Erosion Control Plan. Contractor shall remove all BMPs at the end of the Work, unless otherwise requested by Owner or specified herein. **Contractor shall maintain all BMPs that are installed for the duration of the Project. A stop work order may be issued if Contractor fails to install and maintain adequate sediment control BMPs.**

**Bid Item No. 3a: Fiber Rolls:**

Contractor shall install Fiber Rolls as shown on the Drawings and where needed during construction to prevent sediment runoff from the site into any water body or water conveyance system and as requested by Owner.

**Bid Item No. 3b: Gravel Check Dam:**

Contractor shall install Check Dams as shown on the Drawings to provide ditch protection from sedimentation where needed during construction to prevent sediment runoff from the site into any water body. Permanent check dams shall be installed within the existing ditch located east of the ICP Winter Storage Area as shown on the Drawings and as requested by Owner. Contractor shall line ditch upstream of check dam with 0.2 feet depth 2-inch Minus Crushed Rock and shall construct Gravel Check Dams using 1.0 foot of 2-inch Minus Crushed Rock, as shown on Drawings.

**Bid Item No. 3c: Slope Roughening:**

This Bid Item includes all work necessary to establish a rough soil surface by creating horizontal grooves, furrows, depressions or steps running parallel to the slope contour over the entire face of the slope. Face should be prepared in such a way that promotes growth of vegetative cover and reduces runoff velocity. Contractor shall perform Slope Roughening on face of excavations such as Bid Item No. 5, Access Road or as necessary in other locations and as requested by Owner.

**Bid Item No. 3d: Other BMPs Required for Work:**

This Bid Item includes any other BMPs necessary to protect the Site and adjacent waterways by limiting runoff and the discharge of pollutants from exposed areas of the Site as requested by the Owner. Contractor shall provide products and execute the construction of approved/requested additional BMPs while meeting all requirements identified in the Technical Specifications, Division 1000 – Construction Stormwater Best Management Practices (BMPs).

Work includes, at a minimum:

- Supply, install, and maintain BMPs as shown on the Drawings;
- Remove all BMPs (unless permanent structures) upon completion of the Project or when requested by Owner; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the work.

**Measurement (Bid Item No. 3a through 3d):**

Measurement for Bid Item No. 3a, Fiber Rolls, will be by the actual number of linear feet of Fiber Rolls installed, as measured by Owner.

Measurement for Bid Item No. 3b, Gravel Check Dam, will be by the actual number (each) of Gravel Check Dams installed, as measured by Owner.

Measurement for Bid Item No. 3c, Slope Roughening, will be by the actual number of square yards of Slope Roughening installed, as measured by Owner.

Measurement for Bid Item No. 3d, Other BMPs Required for Work will be based on the measurement unit specified in the Technical Specifications, Division 1000 – Construction Stormwater Best Management Practices (BMPs), for specific BMPs actually installed, as measured by the Owner.

**Payment (Bid Item No. 3a through 3e):**

Payment for Bid Item No. 3a, Fiber Rolls, will be based on the unit price bid per linear foot as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 3b, Gravel Check Dam, will be based on the unit price bid per each as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 3c, Slope Roughening, will be based on the unit price bid per square yard as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 3d, Other BMPs Required for Work, will be based on the unit price per measurement unit for the specific other BMPs actually installed during the Work. This unit price for each additional type of BMP will be negotiated and agreed upon by the Contractor and Owner prior to the installation of these features.

**(D) Bid Item No. 4: Provide Water**

**Applicable Technical Specifications:**

Section 202 – Excavation and Embankment

**Applicable Drawings:**

None

**Work Description:**

This Bid Item includes all work necessary to obtain water; to meter water use; to supply, maintain and operate a water truck with a capacity sufficient to apply water at a rate that does not impede construction needs; to apply water for dust control and moisture conditioning during compaction and filling operations; and to wash trucks for weed control and soil removal prior to leaving the site and before entering public rights-of-way. Contractor shall apply water for dust control as requested by Owner at the construction area on all gravel and/or dirt haul roads and at locations identified by Owner or specified elsewhere in these Special Provisions. Water will also be required for compaction of all fill materials and at the staging/decontamination locations to prevent soil from being tracked off-site and provide weed control, and as required by applicable air quality standards.

All costs for water usage are considered incidental to this Bid Item, and no separate payment will be made. Contractor shall ensure that the water supply and watering equipment are prepared and readied for use prior to beginning any work.

Contractor shall provide and have available at all times during construction one truck capable of spreading water uniformly across the surface to be watered and equipped with spray nozzles capable of watering for fire suppression to the satisfaction of Owner. Contractor shall apply water to any area on-site within 30 minutes of any request to do so by Owner. Water, when requested or necessary for construction, shall be applied at the appropriate locations and in the amounts needed to properly complete the work. **Failure to comply with these requirements as specified is cause for immediate work stoppage and/or termination of the Contract.**

Contractor shall apply water to subgrades, embankments, and backfill (including the composting facility and access roads) in quantities and a manner to ensure that the subgrade, embankment, and backfill are compacted at the required moisture content in accordance with these Special Provisions and with Technical Specifications, Section 202 – Excavation and Embankment.

Work Includes, at a minimum:

- Provide and have available at all times during construction fully functional operated water truck with a capacity and water supply sufficient to complete the work;
- Apply water to all gravel/dirt haul roads, site access roads, excavation areas, embankments, and other construction areas as requested by Owner and specified herein;
- Wash trucks and other construction equipment at to prevent soil from being tracked off site and provide weed control; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the work as specified.

**Measurement (Bid Item No. 4):**

No direct measurement for Bid Item No. 4, Provide Water, will be made.

**Payment (Bid Item No. 4):**

Payment for Bid Item No.4, Provide Water, will be based on the lump sum amount bid as shown on the Bid Form of the Contract Documents.

## **11b. SCHEDULE A – Operations Facilities**

### **(E) Bid Item No. 5: Access Road**

#### **Applicable Technical Specifications:**

Section 202 – Excavation and Embankment  
Section 206 – Permanent Erosion Control  
Section 601 – Culvert, Storm Drain and Gravity Irrigation Pipe  
Section 602 – Storm Drains, Inlets, Catch Basins, Manholes, and Gravity Irrigation Structures  
Section 802 – Crushed Aggregates

#### **Applicable Drawings:**

Sheet G3 – Overview Map – Schedule A  
Sheet C1 – Access Road Plan and Profile  
Sheet C2 – Access Road Sections 0+00 to 1+75  
Sheet C3 – Access Road Sections 2+50 to 4+00  
Sheet D4 – Road Details  
Sheet D5 – Sediment Basin Details  
Sheet D6 – Miscellaneous Details

#### **Work Description:**

This Bid Item includes all work necessary to construct a 12-foot wide Access Road approximately 425 feet long as shown on the Drawings. Jersey barriers will line the outer edge of the downhill slope side of the road from Station 1+30 to Station 4+25 and a standard ditch will be installed slope side of the road with riprap from station 0+00 to Station 4+25. The Access Road will follow the alignment as shown on the Drawings from the northeast corner of Page Repository down the west face of Page Repository to the Wedge expansion area at Station 4+25. The Access Road shall be constructed in accordance with the Access Road Plan and Profile sheet displaying the horizontal and vertical geometry. Costs for all work including labor, materials and equipment are considered incidental to this Bid Item and no other payment will be made. Contractor shall request any changes to the alignment in writing and must receive written approval of any such changes from the Owner's Consultant. Under this Bid Item No. 5, Access Road, Contractor shall prepare existing ground; complete all excavation and embankment to subgrade; redistribute cut material as necessary to obtain grade; place all base and surface materials, place riprap and jersey barriers and reclaim and revegetate all areas disturbed by the Contractor during excavation and embankment. Payment for stormwater BMPs, slope roughening, and providing water and dust control shall be paid for separately under Bid Items No. 3, Stormwater BMPs; and No.4, Provide Water.

*Add Alternative No. 1 – Asphalt Surface Regrinds:* Contractor shall install asphalt concrete regrinds at the locations shown on the Plans. Owner shall provide asphalt regrinds. Owner shall stockpile regrinds within the Schedule A work limits. Contractor shall be responsible for haul, placement, and compaction of regrinds to the depths and limits indicated on the Plans.

Owner's Surveyor will verify the vertical and horizontal alignment of the subgrade and final grade of the Access Road. Contractor shall correct any deviations from the design to the vertical and horizontal alignment of the subgrade and final grade of the Access Road as requested by Owner or Owner's Consultant at no additional cost.

#### **Bid Item No. 5a: Excavation and Embankment:**

Contractor shall prepare foundation, rip, excavate, load, haul, place, grade, moisture condition and compact excavation and embankment of material within the Access Road limits of construction as necessary to construct road subgrade for a 12-foot lane width with shoulders, provide placement for Jersey Barriers on outer edge with 1 foot of clearance on outer edge and maintain a cross-slope of 3% toward subgrade with drainage ditch slope cut side, all as shown on Drawings. Contractor shall excavate approximately 414 bank cubic yards and place as embankment fill to construct the Access Road subgrade. The Access Road is designed as a net earthwork balance.

Contractor shall perform all work in accordance with Technical Specifications, Subsection 202 – Excavation and Embankment. All embankment fill shall be placed in loose lifts with a maximum height of 8 inches. Contractor shall test each lift for compaction and moisture content at a rate of 1 test per 300 feet of embankment. Embankment fill shall be compacted to 95% of the standard proctor (ASTM D-698), at plus or minus two percent ( $\pm 2\%$ ) optimum moisture content, and proof rolled to confirm that no soft areas are present after compaction. Excavation and embankment slopes shall be constructed to a slope of 1.5(H):1(V). Contractor shall blend all excavation and embankment intersections with a smooth transition to existing ground slope.

Contractor shall construct subgrade and drainage ditch from Station 0+00 to Station 4+25 of the Access Road to the specifications as shown on the Drawings.

Contractor shall excavate an area 6 feet by 6 feet at approximately Station 3+65.4 for the placement of an inlet standpipe and culvert. These structures will convey water from the ditch, under the access road, and empty into the Sediment Basin, Bid Item No. 15, located off the northwest corner of the Wedge expansion area as shown on the Drawings.

**Bid Item No. 5b: 2-inch Minus Coarse Aggregate Base Material:**

Contractor shall procure, load, haul, place, grade, moisture condition, and compact 2-inch Minus Coarse Aggregate Base Material as described in the Technical Specifications, Section 802 – Crushed Aggregates, and as shown in the Drawings. 2-inch Minus Coarse Aggregate Base Material shall be placed along the entire length of the access road from Station 0+00 to 4+25 with a 3% cross-slope, 12 foot width and 1 foot shoulders at a slope of 2(H):1(V) as shown on the Drawings. Contractor shall compact 2-inch Minus Base Coarse to achieve ninety five percent (95%) of Standard Proctor maximum dry density [ASTM D-698/AASHTO T-99], at plus or minus two percent ( $\pm 2\%$ ) optimum moisture content.

**Bid Item No. 5c: Riprap:**

Contractor shall procure, load, haul, and place 3-inch minus Riprap within drainage ditch from Station 0+00 to 4+25 as shown on the Drawings. Contractor shall place 3-inch minus Riprap within drainage ditch excavated 12 inches below finished grade as part of Bid Item No. 5a, Excavation and Embankment. Contractor shall place 3-inch minus Riprap in accordance with the Technical Specifications, Section 206 – Permanent Erosion Control, for Riprap. Contractor shall finish Riprap to a reasonably planar surface with variations of not more than 3 inches and without gaps larger than 4 inches in diameter.

**Bid Item No. 5d: 12-inch Inlet Standpipe:**

Contractor shall excavate and install a 12-inch inlet standpipe at approximately Station 3+65.4. This structure will convey water from the ditch and surrounding runoff areas into an 18-inch corrugated metal culvert. Install standpipe 6 inches above grade elevation in ditch. Contractor shall place 12-inch Inlet Standpipe in accordance with the Technical Specifications, Section 601 – Culvert, Storm Drain, and Gravity Irrigation Pipe.

**Bid Item No. 5e: 18-inch Corrugated Metal Culvert:**

Contractor shall excavate and install an 18-inch HDPE culvert at approximately Station 3+65.4 and approximate invert elevation of 2207 feet and approximate outlet elevation 2202 feet. This structure will convey

water from the standpipe, under the access road, and empty into the Access Road Sediment Basin, Bid Item No. 15, located off the northwest corner of the Wedge expansion area as shown on the Drawings.

**Bid Item No. 5f: Jersey Barriers:**

Contractor shall procure, load, haul, and place 10-foot long concrete Jersey Barriers on grade from Station 1+30 to 4+25 as shown on the Drawings. Contractor shall place Jersey Barriers on well graded surface to ensure stability of structure. Contractor shall place Jersey Barriers in accordance with Idaho DOT standard drawings G-2-A-2 for 10-foot concrete barriers. Contractor shall place Jersey barrier such that a shoulder offset of 1-foot exists as shown on the Drawings. Jersey Barriers shall be as follows:

- Size: As shown on the plans
- Weight: Approximately 4000 lbs.
- Concrete: Blocks shall be manufactured using surplus concrete rated at 3000 psi minimum.
- Pinned: Barriers must be able to lock in line with pins according to Idaho DOT standard drawings G-2-A-2 for 10-foot concrete barriers.

**Bid Item No. 5g: Hydroseed:**

Contractor shall reclaim and revegetate all areas disturbed by the Contractor during excavation and embankment in accordance with Hydroseed in the Technical Specifications, Section 206 – Permanent Erosion Control. Contractor shall use the following seed mix.

Botanical name	Common Name	Variety	Minimum Percent (by weight)	Maximum Percent (by weight)
<i>Achillea millefolium</i>	Common Yarrow			5
<i>Aster occidentalis</i>	Western Aster			5
<i>Bromus marginatus</i>	Mountain brome		10	15
<i>Clarkia pulchella</i>	Clarkia/Pinkfairies			5
<i>Deschampsia cespitosa</i>	Tufted Hairgrass			10
<i>Deschampsia elongata</i>	Slender Hairgrass			10
<i>Elymus glaucus</i>	Blue wildrye	McCrosky/Jencrops	20	30
<i>Festuca idahoensis</i>	Idaho Fescue		20	30
<i>Galium boreale</i>	Northern Bedstraw			5
<i>Koeleria macanthra</i>	Prairie Junegrass		10	30
<i>Linum lewisli</i>	Lewis Flax			10
<i>Lomatium triternatum</i>	Nine-leaf Lomatium			5
<i>Lupinus sericeus</i>	Silky Lupine			5
<i>Perideridia gairdneri</i>	Gairdner's Yampah			5
<i>Polygonum bistorta</i>	Meadow Bistort			5
<i>Potentilla arguta</i>	Tall Cinquefoil			5
<i>Potentilla gracilis</i>	Slender Cinquefoil			5

<i>Pseudoroegneria spicata</i>	bluebunch wheatgrass	Whitmar or Goldar	10	30
<i>Ranunculus orthorhynchus</i>	Straightbeak buttercup			5
<i>Sidalcea oregana</i>	Oregon Checker Mallow			5
<i>Solidago canadensis</i>	Canada Goldenrod			5
<i>Wyethia amplexicaulis</i>	Mule Ears			5

Seed mix shall be certified weed free and be applied at a rate of four (4) pounds per 1000 square feet.

Work includes, at a minimum:

- Construct the Access Road as shown on the Drawings and described herein;
- Prepare the embankment foundation;
- Excavate and place embankment material;
- Remove and stockpile unsuitable material;
- Prepare the subgrade;
- Procure, load, haul, and place the 2-inch Minus Base Coarse Material;
- Load, haul, and place the Asphalt Surface Regrinds (if available);
- Procure, load, haul, and place the Type 3 Riprap;
- Procure, load, haul, and place the Jersey Barriers;
- Reclaim and revegetate all areas disturbed by the Contractor during excavation and embankment;
- Coordinate with other construction activities; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the Work as specified.

**Measurement (Bid Item No. 5a through 5g):**

Measurement for Bid Item No. 5a, Excavation and Embankment, will be by the bank cubic yards (to the nearest cubic yard) of material excavated and compacted in-place as embankment fill based on the volume generated by comparing the pre-construction topography to the finished subgrade surface as shown on the Drawings and as measured by Owner's Consultant, plus the volume in cubic yards of the unsuitable material stockpile, if generated. Excavation and embankment volumes are not counted separately. One cubic yard of excavated material from one location and placed as embankment fill in another location equals one cubic yard for measurement of this Bid Item.

Measurement for Bid Item No. 5b, 2-inch minus Coarse Aggregate Base Material, will be by the actual number of cubic yards (to the nearest cubic yard) of Aggregate Base Course Material placed, as measured by Owner's Consultant.

Measurement for Bid Item No. 5c, Riprap, will be by the actual number of cubic yards (to the nearest cubic yard) of Loose Riprap placed, as measured by Owner's Consultant.

There will be no direct measurement for Bid Item No. 5d, 12-inch Inlet Standpipe.

Measurement for Bid Item No. 5e, 18-inch Corrugated Metal Culvert, will be by the actual lineal feet (measured to the nearest linear foot), as measured by Owner's Consultant.

Measurement for Bid Item No. 5f, Jersey Barriers, will be by the actual number (each) of Barriers placed, as measured by Owner's Consultant.

Measurement for Bid Item No. 5g, Hydroseed, will be by the acre (to the nearest ¼ acre) of Hydroseed placed, as measured by the Owner's Consultant.

**Payment (Bid Item No. 5a through 5g):**

Payment for Bid Item No. 5a, Excavation and Embankment, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 5b, 2-inch Minus Coarse Aggregate Base Material, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 5c, Riprap, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 5d, 12-inch Inlet Standpipe, will be based on the lump sum price as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 5e, 18-inch Corrugated Metal Culvert will be based on the unit price bid per lineal feet of culvert installed, as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 5f, Jersey Barrier, will be based on the unit price bid per Jersey Barrier as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 5g, Hydroseed, will be by the acres of Hydroseed placed, as shown on the Bid Form of the Contract Documents.

**(F) Bid Item No. 6: Hardened Surface Apron**

**Applicable Technical Specifications:**

Section 802 – Crushed Aggregates

**Applicable Drawings:**

Sheet G3 – Overview Map – Schedule A  
Sheet C1 – Access Road Plan and Profile

**Work Description:**

This Bid Item consists of constructing an apron past the end alignment of the Access Road as a clean cap over contaminated soil. Contractor will procure, haul, place and compact surface material in this area as shown on the Drawings.

**Bid Item No. 6a: 1-inch Minus Crushed Coarse Aggregate:**

Contractor shall blend 1-inch Minus Crushed Coarse Aggregate at the base of the Access Road alignment onto the existing surface of the Wedge as shown on the Drawings. Contractor shall place 8 inches of Crushed Coarse

Aggregate or as needed to maintain clean cap over contaminated material. Contractor shall compact surface material as necessary to maintain placement of material.

Work includes, at a minimum:

- Construct the Hardened Surface Apron as shown on the Drawings and described herein;
- Procure, load, haul, and place the Surface Coarse Material;
- Place surface material such that it blends into the ending alignment of the Access Road;
- Compact Crushed Coarse Material;
- Coordinate with other construction activities; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the Work as specified.

**Measurement of Bid Item No. 6:**

Measurement for Bid Item No. 6a, 1-inch Minus Crushed Coarse Aggregate, will be by the actual number of cubic yards (to the nearest cubic yard) of surface material placed, as measured by Owner's Consultant.

**Payment of Bid Item No. 6:**

Payment for Bid Item No. 6a, 1-inch Minus Crushed Coarse Aggregate, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

**(G) Bid Item No. 7: Auxiliary Road**

**Applicable Technical Specifications:**

Section 802 – Crushed Aggregates

**Applicable Drawings:**

Sheet G3 – Overview Map  
Sheet D4 – Road Details

**Work Description:**

This Bid Item includes all work necessary to maintain the existing west end of the Auxiliary Road and construct the east end of the Auxiliary Road from Point 1a to Point 6a as shown on the Drawings. Contractor shall prepare roadway surface and grade where necessary to maintain a max slope of 3%. Contractor shall haul, place, spread and compact Base Coarse Material for construction of roadway and as necessary for road maintenance.

*Add Alternative No. 1 – Asphalt Surface Regrinds:* Contractor shall install asphalt concrete regrinds at the locations shown on the Plans. Owner shall provide asphalt regrinds. Owner shall stockpile regrinds within the Schedule A work limits. Contractor shall be responsible for haul, placement, and compaction of regrinds to the depths and limits indicated on the Plans.

**Bid Item No. 7a: 2-inch Minus Base Coarse Material:**

Contractor shall procure, load, haul, place, grade, moisture condition, and compact Base Coarse Material in accordance with Technical Specifications, Section 802– Crushed Aggregates and as shown on the Drawings. If available, Asphalt Surface Regrinds, Add Alternative No. 1, should be used in addition to Base Coarse Material and placed in a single 0.3-foot loose lift, graded, and compacted to a uniform surface approximately 1176 feet

long as shown on the Drawings. Surface Coarse Material shall be placed in a single 0.5-foot loose lift, graded, and compacted to a uniform surface approximately 1176 feet long as shown on the Drawings. Contractor shall moisture condition and compact the Surface Coarse Material to achieve ninety five percent (95%) of Standard Proctor maximum dry density [ASTM D-698/AASHTO T-99], at plus or minus two percent ( $\pm 2\%$ ) optimum moisture content.

Work includes, at a minimum:

- Load, haul, and place Base Coarse Material (or Asphalt Surface Regrinds if available) as surfacing material;
- Compact and moisture condition crushed top surfacing; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the Work as specified.

#### **Measurement of Bid Item No. 7**

Measurement for Bid Item No. 7a, 2-inch Minus Base Coarse Material will be by the actual number of cubic yards (to the nearest cubic yard) of Surface Coarse Material placed, as measured by Owner's Consultant.

#### **Payment of Bid Item No. 7:**

Payment for Bid Item No. 7a, 2-inch Minus Base Coarse Material, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

#### **(H) Bid Item No. 8: Maintain Existing Operations Facilities Access Road**

##### **Applicable Technical Specifications:**

Section 802 – Crushed Aggregates

##### **Applicable Drawings:**

Sheet G3 – Overview Map – Schedule A

Sheet D4 – Road Details

##### **Work Description:**

This Bid Item includes all work necessary to maintain this existing Operations Facilities Access Road and extend out the road boundaries to new limits, as shown on the Drawings. Contractor shall haul, place, spread and compact Surface Coarse Material as necessary for road maintenance.

*Add Alternative No. 1 – Asphalt Surface Regrinds:* Contractor shall install asphalt concrete regrinds at the locations shown on the Plans. Owner shall provide asphalt regrinds. Owner shall stockpile regrinds within the Schedule A work limits. Contractor shall be responsible for haul, placement, and compaction of regrinds to the depths and limits indicated on the Plans.

##### **Bid Item No. 8a: 2-inch Minus Base Coarse Material:**

Contractor shall procure, load, haul, place, grade, moisture condition, and compact Base Coarse Material in accordance with Technical Specifications, Section 802– Crushed Aggregates and as shown on the Drawings. If available, Asphalt Surface Regrinds, Add Alternative No. 1, should be used and placed in a single 0.3-foot loose lift, graded, and compacted to a uniform surface approximately 266 feet long as shown on the Drawings. Base Coarse Material shall be placed in a single 0.5-foot loose lift, graded, and compacted to a uniform surface approximately 266 feet long as shown on the Drawings. Contractor shall moisture condition and compact the

Base Coarse Material to achieve ninety five percent (95%) of Standard Proctor maximum dry density [ASTM D-698/AASHTO T-99], at plus or minus two percent ( $\pm 2\%$ ) optimum moisture content.

Work includes, at a minimum:

- Load, haul, and place Base Coarse Material (or Asphalt Surface Regrinds if available) as surfacing material;
- Compact and moisture condition crushed top surfacing; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the Work as specified.

**Measurement of Bid Item No. 8**

Measurement for Bid Item No. 8a, 2-inch Minus Base Coarse Material will be by the actual number of cubic yards (to the nearest cubic yard) of Surface Coarse Material placed, as measured by Owner's Consultant.

**Payment of Bid Item No. 8:**

Payment for Bid Item No. 8a, 2-inch Minus Base Coarse Material, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

**(I) Bid Item No. 9: Compost Facility**

**Applicable Technical Specifications:**

Section 207 – Permanent Stormwater best management Practices  
Section 801 – Uncrushed Aggregates

**Applicable Drawings:**

Sheet G3 – Overview Map – Schedule A  
Sheet D2 – Compost Facility

**Work Description:**

This Bid Item includes all work necessary to construct a Compost Facility that consists of four (4) separate cells, each 30 feet wide by 96 feet long placed over compacted sand. Contractor shall grade Compost Facility area at a slope of 0.5% slope toward the Drainage Ditch, Bid Item No. 14, located northwest of the Compost Facility as shown on the Drawings. Contractor shall place Ecology Blocks two blocks high along the border of each cell staggering one row over the other as shown on the Drawings.

Costs for all work including labor and equipment are considered incidental to this Bid Item and no other payment will be made.

**Bid Item No. 9a: Sand:**

Contractor shall procure, load, haul, place, and grade 12 inches of sand on area designated for the Compost Facility as shown on the Drawings. Sand shall have greater than 85 percent by weight passing the No. 4 sieve and 2 – 10 percent fines.

**Bid Item No. 9b: Ecology Blocks:**

Contractor shall procure, load, haul, and place Ecology Blocks on grade along the border of each composting cell and the border of the Composting Facility as shown on the Drawings. Contractor shall place Ecology Blocks on well compacted surface to ensure stability of structure. Ecology Block shall be as follows:

- Size: As shown on the plans
- Weight: Approximately 4320 lbs.
- Clearance Around Key: ½-inch.
- Lift Provisions: Standard lifting means cast into block by manufacturer
- Surface Finish: Standard grade smooth finish without large blemishes
- Concrete: Blocks shall be manufactured using surplus concrete rated at 2500 psi minimum.
- Interlock: Blocks must be able to lock in line and perpendicular

Work includes, at a minimum:

- Grade area as shown on the Drawings at a 0.5% slope toward the retention basin;
- Place, spread and compact clean sand at 0.5% grade and to allow for drainage;
- Place ecology blocks as shown on Drawings; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the work.

**Measurement (Bid Item No. 9a through 9b):**

Measurement for Bid Item No. 9a, Sand, will be based on the actual number of cubic yards placed (to the nearest cubic yard), as measured by Owner’s Consultant.

Measurement for Bid Item No. 9b, Ecology Blocks, will be by the actual number (each) of Ecology Blocks placed, as measured by Owner’s Consultant.

**Payment (Bid Item No. 9a through 9b):**

Payment for Bid Item No. 9a, Sand, will be based on the unit price bid per cubic yard placed as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 9b, Ecology Blocks, will be based on the unit price bid per Ecology Block as shown on the Bid Form of the Contract Documents.

**(J) Bid Item No. 10: Petroleum Contaminated Soils (PCS) Storage Facility**

**Applicable Technical Specifications:**

Section 202 – Excavation and Embankment  
Subsection 802 – Crushed Aggregates

**Applicable Drawings:**

Sheet G3 – Overview Map – Schedule A  
Sheet D1 – Petroleum Contaminated Soils Area

**Work Description:**

This Bid Item includes all work necessary to construct a Petroleum Contaminated Soils Storage Area which consists of an excavated trench around two (2) layers of sand and a base liner. Contractor shall excavate as shown on the drawings, place and compact 2 inches of sand over the excavated area, and position 40-mil PVC Base Liner over sand so that it extends over both side berms. Contractor shall key in 40-mil PVC Base Liner with 3/4-inch minus gravel as shown on the Drawings. Contractor shall place 6 inches of clean sand over base liner and compact.

**Bid Item No. 10a: Excavation and Embankment:**

Contractor shall prepare foundation by excavating 2 inches below grade over an area 10 feet wide and 30 feet wide and compact using a vibratory roller or other compaction equipment. Contractor shall construct outer berm two feet in height around the excavated area such that a side slope of 1(H):1(V) is maintained with top width of 0.5 feet as shown on the Drawings. Contractor shall excavate a trench 6 inches deep and 6 inches wide around the entire perimeter of outside berm as shown in the drawings. Contractor shall perform all work in accordance with Technical Specifications, Section 202 – Excavation and Embankment.

**Bid Item No. 10b: 3/4-inch Minus Gravel:**

Contractor shall procure, load, haul, and place 3/4-inch Minus Gravel in excavated trench and key 40-mil PVC Base Liner into existing soil as shown on the Drawings.

**Bid Item No. 10c: Clean Sand:**

Contractor shall procure, load, haul, place, and grade clean sand to a total depth of 8 inches. Contractor shall place 2 inches of Clean Sand as a cushion on the 10' x 24' excavated subgrade and compact using vibratory compaction equipment. Contractor shall place 6 inches of clean sand over base liner for drainage and compact using vibratory compaction equipment. Contractor shall place 6 inches of sand over portions of the base liner that extended over side berms as shown on the Drawings.

**Bid Item No. 10d: 40-Mil PVC Base Liner**

Contractor shall place 40-Mil PVC Base Liner over 2-inch sand cushion and extend over outer berm. Contractor shall key in 40-Mil PVC Base Liner with 3/4-inch Minus Gravel as shown on the Drawings.

Work includes, at a minimum:

- Excavate area as shown on the Drawings to construct outer berm and ditch;
- Place sand cushion;
- Place 40-Mil PVC Liner and key into sub-grade around perimeter with 3/4 -inch minus gravel;
- Place Sand cover to protect PVC base liner; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the work.

**Measurement (Bid Item No. 10a through 10d):**

Measurement for Bid Item No. 10a, Excavation and Embankment, will be by the bank cubic yards (to the nearest cubic yard) of material excavated and compacted in-place as embankment fill based on the design volume generated by comparing the pre-construction topography to the finished subgrade surface as shown on the Drawings and as measured by Owner's Consultant, plus the volume in cubic yards of the unsuitable material stockpile, if generated. Excavation and embankment volumes are not counted separately.

Measurement for Bid Item No. 10b, 3/4-inch Minus Gravel will be based on the actual number of cubic yards placed (to the nearest cubic yard), as measured by Owner's Consultant.

Measurement for Bid Item No. 10c, Clean Sand will be based on the actual number of cubic yards placed (to the nearest cubic yard), as measured by Owner's Consultant.

Measurement for Bid Item No. 10d, 40-Mil PVC Base Liner will be based on the actual number of square feet placed (to the nearest square foot), as measured by Owner's Consultant.

**Payment (Bid Item No. 10a through 10d):**

Payment for Bid Item No. 10a, Excavation and Embankment, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 10b, 3/4-inch Minus Gravel, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 10c, Clean Sand, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 10d, 40-Mil PVC Base Liner, will be based on the unit price bid per square foot as shown on the Bid Form of the Contract Documents.

**(K) Bid Item No. 11: ICP Winter Storage Area**

**Applicable Technical Specifications:**

Section 202 – Excavation and Embankment

**Applicable Drawings:**

Sheet G3 – Overview Map – Schedule A  
Sheet D3 – ICP Winter Storage Area

**Work Description:**

This Bid Item includes all work necessary to construct an ICP Winter Storage Facility that consists of grading the designated area and excavating a 2-foot wide ditch, 8 inches below grade, and positioning Ecology Blocks stacked three high as shown on the Drawings. Contractor shall place and position bottom row of Ecology Blocks on the east side such that 4 inches separates each block and allows for drainage of the ICP Winter Storage Facility as shown on the Drawings.

**Bid Item No. 11a: Excavation:**

Contractor shall prepare foundation by excavating a 2-foot wide area for placement of Ecology Blocks, 8 inches below grade and compact using vibratory equipment as shown on the drawings. Excavate and grade facility area to allow for a 0.5% grade slope toward the east side of the facility as shown on the Drawings. Excavated material shall be scarified on-site at a location designated by the Owner and stabilized by compacting with heavy equipment.

**Bid Item No. 11b: Ecology Blocks:**

Contractor shall procure, load, haul, and place Ecology Blocks on subgrade along the border of ICP Winter Storage Area as shown on the Drawings. Contractor shall place bottom layer of blocks on the east side of the facility such that 4 inches separates each block and allows for drainage. Contractor shall stack blocks three (3)

blocks high in a staggered arrangement as shown on the Drawings. Contractor shall place Ecology Blocks on well graded surface to ensure stability of structure.

Work includes, at a minimum:

- Excavate subgrade for Ecology Blocks and grade stockpile area at a 0.5% slope toward existing drainage ditch east of ICP Winter Storage Area as shown on the Drawings;
- Place ecology blocks as shown on Drawings; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the work.

**Measurement (Bid Item No. 11a through 11b):**

Measurement for Bid Item No. 11a, Excavation will be by the bank cubic yards (to the nearest cubic yard) of material excavated and compacted in-place as embankment fill based on the volume generated by comparing the pre-construction topography to the finished subgrade surface as shown on the Drawings and as measured by Owner's Consultant, plus the volume in cubic yards of the unsuitable material stockpile, if generated. Excavation and embankment volumes are not counted separately. One cubic yard of excavated material from one location and placed as embankment fill in another location equals one cubic yard for measurement of this Bid Item.

Measurement for Bid Item No. 11b, Ecology Blocks, will be by the actual number (each) of Ecology Blocks placed, as measured by Owner's Consultant.

**Payment (Bid Item No. 11a through 11b):**

Payment for Bid Item No. 11a, Excavation, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 11b, Ecology Blocks, will be based on the unit price bid per Eco Block as shown on the Bid Form of the Contract Documents.

**(L) Bid Item No. 12: Large Woody Debris Haul**

**Applicable Technical Specifications:**

Section 202 – Excavation and Embankment

**Applicable Drawings:**

Sheet G3 – Overview Map – Schedule A

**Work Description:**

Contractor shall haul and place Large Woody Debris (LWD) material in designated area as shown on the Drawings. Contractor shall coordinate with the owner and move/sort material accordingly. Contractor shall coordinate with other activities occurring in this area (i.e. wood chipping) and haul chipped material to the compost facility and or designated stockpile areas.

**Bid Item No. 12: Haul:**

Contractor shall haul LWD to designated placement area as shown on Drawings. Contractor shall haul LWD that has been chipped to Compost Facility or designated stockpile area as shown on the Drawings.

Work includes, at a minimum:

- Place LWD in designated area;
- Coordinate placement with Owner and other activities (chipping);
- Haul chipped material to Compost Facility or stockpile location designated by owner;
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the work.

**Measurement of Bid Item No. 12:**

Measurement for Bid Item No. 12, Haul, will be based unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

**Payment of Bid Item No. 12:**

Payment for Bid Item No. 12, Haul, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

**(M) Bid Item No. 13: Aggregate Stockpile Haul**

**Applicable Technical Specifications:**

Section 202 – Excavation and Embankment

**Applicable Drawings:**

Sheet G3 – Overview Map – Schedule A

**Work Description:**

Contractor shall haul and place Aggregate on the Aggregate Stockpile Area as shown on the Drawings and distribute to areas requested by the Owner.

**Bid Item No. 13: Haul:**

Contractor shall haul aggregate to designated placement area as shown on Drawings.

Work includes, at a minimum:

- Haul and place Aggregate in designated areas;
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the work.

**Measurement of Bid Item No. 13:**

Measurement for Bid Item No. 13, Haul, will be based unit price bid per cubic yard as shown on the Bid Form of the Contract Documents

**Payment of Bid Item No. 13:**

Payment for Bid Item No. 13, Haul, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

**(N) Bid Item No. 14: Stormwater Retention Basin and Drainage Ditch**

**Applicable Technical Specifications:**

Section 202 – Excavation and Embankment  
Section 206 – Permanent Erosion Control

**Applicable Drawings:**

Sheet G3 – Overview Map – Schedule A  
Sheet D2 – Compost Facility

**Work Description:**

This Bid Item includes all work necessary to construct a stormwater retention basin west of the Compost Facility, Bid Item No. 9, and drainage ditch as shown on Drawings. Contractor shall excavate and compact basin area. Contractor shall construct a retention basin approximately 110 feet long by 64 feet wide and 7 feet deep. Contractor will grade side slopes to a slope of 3(H):1(V) as shown on the Drawings. The subgrade shall be well compacted by rolling the surface with a vibratory roller or equivalent.

Contractor should construct drainage ditch along northwest side of Compost Facility to convey runoff water to the Stormwater Retention Basin as shown in the Drawings. Loose riprap will be placed along ditch channel for the entire length of ditch (42 feet) as shown in Drawings. Contractor shall grade surrounding area such that stormwater runoff is conveyed towards the basin as shown in the Drawings.

**Bid Item No. 14a: Excavation:**

Contractor shall excavate area 110 feet long by 64 feet wide and 7 feet deep for the retention basin and compact the excavation and embankment of material within and around the basin limits of disturbance as necessary to maintain side slopes and dimensions as shown in Drawings. Excavation and embankment slopes shall be constructed to a slope of 3(H):1(V). Contractor shall blend all excavation and embankment intersections with a smooth transition to existing ground.

Contractor shall excavate ditch along the northwest side of the Compost Facility and compact excavation as necessary to construct a ditch that is 3 feet wide and 12 inches deep with side constructed to a slope of 1(H):1(V), as shown in the Drawings.

Contractor shall perform all work in accordance with Technical Specifications, Section 202 – Excavation and Embankment.

**Bid Item No. 14b: 3-inch Minus Riprap:**

Contractor shall procure, load, haul, and place 3-inch Minus Riprap the entire length of drainage ditch along on the northwest side of the Compost Facility as shown on the Drawings. Contractor shall place 3-inch Minus Riprap in the drainage ditch excavated 12 inches below finished grade as part of Bid Item No. 14a, Excavation. Contractor shall place 3-inch Minus Riprap in accordance with the Technical Specifications, Section 206 – Permanent Erosion Control. Contractor shall finish Riprap to a reasonably planar surface with variations of not more than 3 inches and without gaps larger than 4 inches in diameter.

Work includes, at a minimum:

- Excavate area for pond as shown on the Drawings;
- Grade sides of pond to slope of 3:1;
- Compact pond excavation;
- Excavate area for ditch as shown on the Drawings;
- Place riprap in ditch channel;
- Grade existing surrounding area as necessary to drain stormwater runoff into pond; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the work.

**Measurement (Bid Item No. 14a and 14b):**

Measurement for Bid Item No. 14a, Excavation, will be by the bank cubic yards (to the nearest cubic yard) of material excavated and compacted in-place as embankment fill based on the volume generated by comparing the pre-construction topography to the finished subgrade surface as shown on the Drawings and as measured by Owner's Consultant, plus the volume in cubic yards of the unsuitable material stockpile, if generated. Excavation and embankment volumes are not counted separately. One cubic yard of excavated material from one location and placed as embankment fill in another location equals one cubic yard for measurement of this Bid Item.

Measurement for Bid Item No. 14b, Loose Riprap, will be based on the actual number of cubic yards placed (to the nearest cubic yard), as measured by Owner's Consultant.

**Payment (Bid Item No. 14a and 14b):**

Payment for Bid Item No. 14a, Excavation and Embankment, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 14b, Loose Riprap, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

**(O) Bid Item No. 15: Sediment Basin**

**Applicable Technical Specifications:**

Section 202 – Excavation and Embankment  
Section 206 – Permanent Erosion Control

**Applicable Drawings:**

Sheet G3 – Overview Map – Schedule A  
Sheet C1 – Access Road Plan and Profile  
Sheet D5 – Sediment Basin Details

**Work Description:**

This Bid Item includes all work necessary to construct a Sediment Basin northwest of the Wedge expansion area such that the Wedge and western toe of Page Repository form two of the four boundaries of the basin as shown on the Drawings. Contractor shall construct the remaining two sides using berms 4 feet high with sides sloped at 3(H):1(V). Contractor shall construct a sediment basin approximately 80 feet long by 22 feet wide and 4 feet deep. Contractor shall construct a rock armored weir at the north end of the sedimentation basin that is 3 feet high and 6 feet wide, as shown on the drawings.

**Bid Item No. 15a: Embankment:**

Contractor shall embank the area around the 80 feet long by 22 feet wide by 4 feet deep sediment pond to a height of 4 feet with a side slope of 3(H):1(V) as shown on the Drawings. Contractor shall compact embankment slopes as necessary to maintain side slopes and dimensions as shown in Drawings. Embankment slopes shall be constructed to a slope of 3(H):1(V). Contractor shall blend all embankment intersections with a smooth transition to existing ground. If additional imported fill material is required, Owner shall approve fill prior to importing additional material to the Site.

Contractor shall perform all work in accordance with Technical Specifications, Section 202 – Excavation and Embankment.

**Bid Item No. 15b: Haul:**

Contractor shall haul cut material from excavation of the Stormwater Retention Basin and Drainage Ditch, Bid Item No. 14, and place for sediment basin berms as shown on the Drawings.

**Bid Item No. 15c: Additional Fill Material:**

Contractor shall procure, haul, load, and place additional fill material for sediment basin berms as necessary to construct berms according to plan sheets.

**Bid Item No. 15d: 3-inch Minus Riprap:**

Contractor shall construct a rock armored weir on the north end of the sedimentation basin that is approximately 4 feet high and 2 feet wide. The Contractor shall procure, load, haul, and place 3-inch minus riprap over the weir in such a way that will maintain the integrity of the structure. The rock armored weir shall be constructed in conformance with plans and Technical Specifications, Section 206 – Permanent Erosion Control. Contractor shall finish Riprap to a reasonably planar surface with variations of not more than 3 inches and without gaps larger than 2 inches in diameter.

Work includes, at a minimum:

- Excavate area for pond as shown on the Drawings;
- Grade sides of pond to slope of 3:1;
- Compact the embankments/berms; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the work.

**Measurement (Bid Item No. 15a through 15d):**

Measurement for Bid Item No. 15a, Embankment, will be by the bank cubic yards (to the nearest cubic yard) of material placed compacted in-place as embankment fill.

Measurement for Bid Item No. 15b, Haul, will be by the cubic yard (to the nearest cubic yard) hauled, as measured by Owner's Consultant.

Measurement for Bid Item No. 15c, Additional Fill Material, will be by the cubic yard (to the nearest cubic yard) hauled, as measured by Owner's Consultant.

Measurement for Bid Item No. 15d, 3-inch Minus Riprap, will be by the cubic yard (to the nearest cubic yard) placed, as measured by Owner's Consultant.

**Payment (Bid Item No. 15a through 15d):**

Payment for Bid Item No. 15a, Embankment, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 15b, Haul, will be based on the unit price bid cubic yard as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 15c, Additional Fill Material, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 15d, 3-inch Minus Riprap, will be based on the unit price bid per cubic yard as shown on the Bid Form of the Contract Documents.

**(P) Bid Item No. 16: Install Fence**

**Applicable Technical Specifications:**

Section 2040 – Fencing

**Applicable Drawings:**

Sheets G3 – Overview Map – Schedule A  
Sheets D6 – Miscellaneous Details – Schedule A

**Work Description:**

This Bid Item includes all work necessary to use recycled guard rail posts to install woven wood fences adjacent to the existing repository road and long-term placement of the Large Woody Debris (LWD) Stockpile area, as shown on the drawings. These guard rail posts will be delivered in bundles to Page by ITD's contractor. The Contractor shall sort through guard rail posts to determine which are damaged or deteriorated and set aside. Any portion of the fence which is damaged or deteriorated due to initial condition of guard rail posts, as determined by Owner, shall be replaced with the same type during construction of the fence. Any deteriorated or damaged fencing material shall be stockpiled in a temporary stockpile on site location approved by Owner.

Contractor shall construct woven fence by criss-crossing posts in an alternating manner at an angle of 120 degrees with 1 foot of overlap on the end as shown on the Drawings. Contractor shall install two pieces of rebar to secure each end portion of fence as shown on the Drawings.

Work includes, at a minimum:

- Install new woven wood fence using recycled ITD guard rail posts;
- Provide 12-foot gaps every 100 straight-line feet of fence;
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the Work as specified.

**Measurement (Bid Item No. 16):**

Measurement for Bid Item No. 16, Install Fence, will be by the actual number of linear feet (to the nearest foot) of fence installed, as measured by Owner.

**Payment (Bid Item No. 16):**

Payment for Bid Item No. 16, Install Fence, will be based on the unit price bid per linear foot as shown on the Bid Form of the Contract Documents.

**(Q) Bid Item No. 17: 12" Corrugated Metal Culvert**

**Applicable Technical Specifications:**

Section 601 – Culverts

**Applicable Drawings:**

Sheets G3 – Overview Map – Schedule A

**Work Description:**

Contractor shall procure two (2) 12-inch corrugated metal culverts to be placed on the north and east side of the Future LWD stockpile area as shown on the Drawings. Contractor shall stockpile on site at a location verified by the owner for future use. Culverts shall be as follows:

- Size: 12" diameter, 20 feet long.
- Gauge of Metal: Heavy
- Shall comply with ASSHTO M 36

**Measurement (Bid Item No. 17):**

Measurement for Bid Item No. 17, 12" Corrugated Metal Culvert, will be by the actual linear feet of metal culvert purchased by the contractor (to the nearest linear foot), as measured by the Owner.

**Payment (Bid Item No. 17):**

Payment for Bid Item No. 17, 12" Corrugated Metal Culvert, will be based on the unit price bid per length foot as shown on the Bid Form of the Contract Documents.

**11c. SCHEDULE B – WENI Site Preparation**

**(R) Bid Item No. 18: WENI Area Access Road**

**Applicable Technical Specifications:**

Section 201 – Clearing and Grubbing and Removal of Obstructions

Section 202 – Excavation and Embankment

Section 2050 – Construction Geotextiles

**Applicable Drawings:**

Sheet G4 – Overview Map – Schedule B

Sheet C5 – Design Road East Plan & Profile

Sheet C6 – Design Road West Plan & Profile

Sheet D7 – Stormdrain Crossing and Staging Area

Sheet D8 – Miscellaneous Details – Schedule B

**Work Description:**

This Bid Item includes all work necessary to upgrade/improve 3,000 feet of existing road and construct 1,800 feet of 12 foot wide road providing access to the WENI area, as shown on the Drawings. For the road upgrades/improvements (from Station 0+00 to 30+00), the Contractor shall blade and compact the existing road surface to achieve a well-compacted and smooth road surface. The Contractor shall construct three (3) pull-out areas in the locations shown on the Drawings. The contractor shall apply dust abatement in accordance with Bid Item 18f. From Station 30+00 to 48+29, the Contractor will develop the access road following a design horizontal alignment where no existing road resides. The majority of this road construction will require grading of small cut and fill volumes of the existing ground to achieve a flat and well-compacted 12 foot wide dirt road surface. This segment of road is designed as a net earthwork balance. The Contractor shall perform excavation and embankment work in order to redistribute cut material as necessary to obtain specified grades. A portion of the design road requires additional Work components, including: (1) development of a road crossing with an existing 4-foot diameter HDPE storm drain pipe at Station 31+50, and (2) construction of a road turn-around from Station 44+73 to 48+00. Contractor shall control dust in this road section (30+00 to 48+29) using water only.

The access road shall be constructed in accordance with the road plan and profile's horizontal and vertical geometry, as shown on the drawings. Additional road components shall be constructed at the locations detailed on the Drawings and as specified herein and in accordance with applicable Technical Specifications. Costs for all work including labor, materials, and equipment are considered incidental to this Bid Item and no other payment will be made. Contractor shall request any changes to the alignment in writing and must receive written approval of any such changes from the Owner. Payment for stormwater BMPs and providing water for dust control shall be paid for separately under Bid Item No. 3, Stormwater BMPs and No. 4, Provide Water.

**Bid Item No. 18a: Existing Road Upgrades/Improvements**

Contractor shall repair and improve the existing road from Station 00+00 to 30+00, as indicated on the Drawings. The Contractor shall re-grade and blade smooth the existing ground surface. The re-graded road shall be 12 feet in width, have a cross-slope of -0.5% from the centerline in both directions, follow the provided horizontal alignment, and blend well with the adjacent existing ground. For this portion of the access road, the vertical alignment approximately follows the existing grade, while providing smooth and straight grade transitions. Following the Work, the Contractor shall apply the specified dust abatement procedures to this road section as indicated in Bid Item No. 18f, Dust Abatement.

**Bid Item No. 18b: Pull-out Areas**

The Contractor shall construct three (3) pull-out areas along the Existing Road Upgrades/Improvements section as indicated on the Drawings at Stations: 5+00, 18+00, and 30+00. The Contractor shall develop these pull-outs by grading the designated trapezoidal areas at a 0.5% slope away from the access road. Each pull-out area will be 100 feet long directly adjacent to the upgraded road edge, 15 feet wide (perpendicular to the road), and 65 feet long along the outer edge of the pull-out area and parallel to the road. The existing topography is relatively flat and will require minor grading to achieve the design surface. Following the Work, the Contractor shall apply the specified dust abatement procedures to these pull-out areas as indicated in Bid Item No. 18f, Dust Abatement.

**Bid Item No. 18c: Design Road Construction**

From Station 30+00 to 44+73, the Contractor shall construct the 12 foot wide access road with a 0.5% cross-slope towards the WENI area and following the design horizontal alignment where no existing road resides. For this work, the Contractor must first perform minor clearing and grubbing along the proposed road surface area. Clearing and grubbing activities shall be completed in accordance with the Technical Specifications, Section 201 – Clearing and Grubbing and Removal of Obstructions with excess material hauled to Page Repository for disposal. While some vegetation clearing and grubbing is necessary, the Contractor shall avoid removal of established woody vegetation and perform minimal clearing or grubbing of existing herbaceous plants and grasses. The WENI area will be turned into a wetland in the future and care should be taken to

protect existing vegetation. Material generated from this task shall be hauled to Page Repository for disposal. The Contractor shall work closely with the Owner's Consultant to assure minimal but adequate clearing and grubbing occurs. Water shall be provided by Contractor for dust control purposes along this portion of the road in accordance with Bid Item No. 4, Provide Water. Clearing and grubbing activities will be considered incidental to this Bid Item.

From Station 30+00 to 33+00 (the segment east of the WENI area), grading and smoothing will be the primary mechanism of road construction as the existing topography is relatively flat. From Station 33+00 to 44+73 (the segment north of the WENI area), the Contractor shall be required to perform cut and fill operations. The Contractor shall excavate and place material as embankment fill to construct the design access road subgrade. This portion of design access road is designed as a net earthwork balance and will require no import or export of fill material. Any unsuitable material shall be transported to Page Repository and measured by Owner's Consultant before disposal is complete.

Contractor shall perform all work in accordance with the Technical Specifications, Subsection 202 – Excavation and Embankment. The Contractor shall excavate, move, place, grade, moisture condition, and compact the excavation and embankment of material within the design access road limits of disturbance as necessary to construct the road to subgrade, as shown on the Drawings. All embankment fill shall be placed in loose lifts with a maximum height of 8 inches. Contractor shall test each lift for compaction and moisture content at a rate of 1 test per 300 feet of embankment. Embankment fill shall be compacted to 95% of the Standard Proctor (ASTM D-698), at plus or minus two percent ( $\pm 2\%$ ) optimum moisture content. Excavation and embankment slopes shall be constructed to a slope of 2(H):1(V). Contractor shall blend all excavation and embankment intersections with a smooth transition to existing ground.

#### **Bid Item No. 18d: Storm Drain Crossing**

At Station 31+50, the design access road crosses an existing 4-foot diameter corrugated HDPE (CHDPE) storm drain pipe. The Contractor shall expose, cut, and remove approximately 45 feet of the existing CHDPE pipe and construct an at-grade swale crossing as shown on the drawing.

The Contractor shall expose approximately 45 feet of the CHDPE pipe by removing the existing cover soil. This cover soil shall be kept on-site and used as needed or worked into the grading of the stockpile area. The pipe will be cut off at this location and a swale constructed from the new outfall towards the WENI area for a length of 45 feet. Dimensions for the trapezoidal swale are 2.5 feet deep, 10 feet wide with side slopes of 2(H):1(V). Compact the subgrade of swale excavation as necessary to maintain shape and support rock and establish the specified side slopes and dimensions. Contractor shall perform all work in accordance with Technical Specifications, Section 202 – Excavation and Embankment, taking care to protect the storm drain pipe and other utilities that are not to be disturbed. The approximate volume of bank excavated material is approximately 185 CY to expose the pipe and construct the swale.

Once the swale subgrade is compacted and approved by the Owner's Consultant, the Contractor shall place geotextile along the swale bottom in accordance with Technical Specifications, Section 2050 – Construction Geotextiles. On this subgrade, the Contractor shall use geotextile meeting the required properties listed for subgrade separation geotextile. Rock will then be placed on the geotextile in accordance with the Technical Specifications and compacted inside the swale from the new pipe outfall west for a length of 45 feet. Contractor shall procure, load, haul, and place 3 to 6-inch rock in the bottom 2.5 feet of the swale atop the geotextile. Care should be taken during placement of rock to protect the underlying geotextile. If damaged, the Contractor shall replace and repair the geotextile at no cost to the Owner. Contractor shall compact the rock as necessary to ensure that it will not settle and finish the rock surface to a reasonably planar surface. Riprap/erosion control geotextile will be placed above the 3 to 6-inch rock also in accordance with the Technical Specifications, Section 2050 – Construction Geotextiles along the alignment of the access road as shown in the Drawings. Then, a layer of 2-inch minus crushed rock shall be placed above the geotextile at a thickness of 0.5 feet along the swale, serving as the finish grade for the design road. Contractor shall procure, load, haul, place, and compact the 2-inch minus rock to achieve a firm, unyielding surface that is a suitable hauling surface.

#### **Bid Item No. 18e: Turn-Around Area**

From Station 44+73 to 48+29, the design road construction includes development of a 50-foot centerline radius turn-around area. The design vertical alignment approximately follows the existing ground surface such that grading and smoothing will be the primary road construction activity. The graded road shall be 12 feet in width, have a cross-slope of 0.5% towards the center of the turn-around, follow the provided horizontal alignment, and blend well with the adjacent existing ground. Clearing and grubbing required along this design road segment shall be considered incidental to this Bid Item and be performed as described for Bid Item No. 18c, Design Road Construction.

**Bid Item No. 18f: Dust Abatement**

Following existing road upgrades/improvements (Station 0+00 to 30+00) and construction of the three pull-out areas, the Contractor shall treat these surfaces with Lignosulfonate (“Ligno”) dust suppressant from Lyman Dust Control, Inc., or approved equal, for dust abatement purposes and to ultimately provide a durable road surface. Ligno is a wood derived polymer and a 100% biodegradable dust abatement solution. Prior to application of Ligno to the road surface, Contractor shall pre-dampen the dirt surface with water using approximately ½ gallon per square yard. Dilute the Ligno road binder with water to a ratio of 50/50 (water/Ligno) or according to manufacturer’s directions to yield a 23% solution and apply to the specified dirt surfaces at the rate of 0.5 gallons per square yard. The Contractor shall follow additional procedures in accordance with Manufacturer’s recommendations. Contractor shall avoid uncontrolled releases of this material. In the event of a spill, mechanically collect and remove the spilled material and wash the area with water. Dispose and transport recovered materials in accordance with applicable laws and regulations.

Contractor shall NOT apply Lingo dust suppressant to the road surface beyond 30+00. All dust abatement for the road beyond 30+00 shall use water only. Water shall be applied and paid in accordance with Bid Item 4, Provide Water.

Work includes, at a minimum:

- Construct the WENI area access road as shown on the Drawings and described herein;
- Perform clearing and grubbing activities;
- Prepare embankment foundation where applicable;
- Excavate and place embankment material where applicable;
- Remove unsuitable material;
- Prepare the subgrade;
- Procure, load, haul, and place rock material for Storm Drain Crossing;
- Furnish and install geotextile for Storm Drain Crossing;
- Apply Ligno dust suppressant over existing road improvement areas and on turn-out surfaces;
- Apply water for dust abatement over constructed road beyond station 30+00;
- Coordinate with other construction activities; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the Work as specified.

**Measurement (Bid Item No. 18a through 18f):**

Measurement for Bid Item No. 18a, Existing Road Upgrades/Improvements, will be by the actual linear feet of existing road upgraded (to the nearest linear foot), as measured by the Owner.

Measurement for Bid Item No. 18b, Pull-out Areas, will be by the actual number (each) of Pull-out Areas constructed, as measured by Owner.

Measurement for Bid Item No. 18c, Design Road Construction, will be by the actual linear feet of design road constructed (to the nearest linear foot), as measured by the Owner. The length of the road segment over the storm drain crossing (Bid Item No. 18d) will not be included in this measurement, nor will the length of road specified as the Turn-Around area under Bid Item No. 18e.

Measurement for Bid Item No. 18d, Storm Drain Crossing, will primarily be by the actual quantity of materials utilized to complete the work under this Bid Item; this includes the square yards of geotextile used, cubic yards of -3 to 6-inch rock placed, and cubic yards of 2-inch minus rock placed. No direct measurement for the pipe removal, excavation, and all other associated labor under Bid Item No. 18d will be made. The Contractor shall use the provided quantity estimates for excavation and pipe removal to provide an accurate estimate for lump sum payment.

Measurement for Bid Item No. 18e, Turn-Around Area, will be by the actual center-line linear feet of the road turn-around area (to the nearest linear foot), as measured by the Owner.

Measurement for Bid Item No. 18f, Dust Abatement, will be by square yard of dust suppressant solution applied, as measured by the Owner.

**Payment (Bid Item No. 18a through 18f):**

Payment for Bid Item No. 18a, Existing Road Upgrades/Improvements, will be based on the unit price per linear foot as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 18b, Pull-out Areas, will be based on the unit price per pull-out area constructed as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 18c, Design Road Construction, will be based on the unit price per linear foot as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 18d, Storm Drain Crossing, will be based on the material unit prices and lump sum price as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 18e, Turn-Around Area, will be based on the unit price per linear foot of road turn-around as shown on the Bid Form of the Contract Documents.

Payment for Bid Item No. 18f, Dust Abatement, will be based on the unit price per square yard applied of dust suppressant solution as shown on the Bid Form of the Contract Documents.

**(S) Bid Item No. 19: Staging Area**

**Applicable Technical Specifications:**

Section 201 – Clearing and Grubbing and Removal of Obstructions  
Section 202 – Excavation and Embankment

**Applicable Drawings:**

Sheet G4 – Overview Map – WENI Site Preparation  
Sheet C4 – Site Controls – WENI Site Preparation  
Sheet C6 – Design Road West Plan & Profile  
Sheet D7 – Stormdrain Crossing and Staging Area

**Work Description:**

This Bid Item includes all work necessary to develop a relatively flat staging area near the WENI area. This staging area will be used for staging and stockpiling purposes during future construction activities in this area. This work includes clearing and grubbing within the proposed staging area limits and grading of the staging area such that the area slopes slightly southwest towards the WENI area as indicated on the Drawings. Clearing and grubbing activities shall be completed in accordance with the Technical Specifications, Section 201 – Clearing and Grubbing and Removal of Obstructions with excess material hauled to Page Repository for disposal. The WENI area will be turned into a wetland in the future and care should be taken to protect existing vegetation outside the staging area. Grading shall be completed in accordance with Section 202 – Excavation and Embankment. Contractor shall blend all grading intersections with a smooth transition to existing ground. The existing topography is relatively flat and will require minor grading to achieve the design surface. Contractor shall incorporate excess cover material removed from construction activities for the storm drain crossing into this grading to achieve a net balance for all excavation work.

Work includes, at a minimum:

- Perform clearing and grubbing activities;
- Grade staging area to the limits, dimensions, and grade indicated on the Drawings;
- Coordinate with other construction activities; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the Work as specified.

**Measurement (Bid Item No. 19):**

There will be no direct measurement for Bid Item No. 19, Staging Area.

**Payment (Bid Item No. 19):**

Payment for Bid Item No. 19, Staging Area, shall be made at the lump sum price as shown on the Bid Form of the Contract Documents. This lump sum price shall constitute full compensation for all labor, equipment, tools, supplies, materials, and incidentals necessary to accomplish the work.

**(T) Bid Item No. 20: Gate Installation****Applicable Technical Specifications:**

Section 2040 – Fencing

**Applicable Drawings:**

Sheet C4 – Overview Map – WENI Site Preparation  
Sheet D7 – Stormdrain Crossing and Staging Area  
Sheet D8 – Miscellaneous Details – Schedule B

**Work Description:**

Under this Bid Item the Contractor shall furnish and install a single swing metal gate as indicated on the design drawings and specified herein. Contractor shall construct the gate at the location shown on the plans and in accordance with the manufacturer's erection/installation drawings and instructions that detail proper assembly and materials for the gate design. Contractor shall submit erection/installation drawings along with the manufacturer's catalog data for complete gate assembly in accordance with Paragraph 22, Submittals. All materials used in the construction of the gate shall be new materials. Contractor shall furnish and install one Behlen/Farmaster 14-foot, 1-5/8-inch tubular gate (model 40113148), or approved equal. Posts for the gate

shall be metal, set in concrete, compatible with the gate. Provide concrete conforming to ASTM C 94/C 94M, and obtaining a minimum 28-day compressive strength of 3,000 psi. All hardware and accessories shall be galvanized or as specified on the plans.

Contractor shall ensure that final grading and established elevations are complete prior to gate installation. Following excavations for the post footings, the sizes of which are shown on the drawings, set gate posts plumb, backfilled and firmly tamped. Install gate plumb, level, and secure, with full opening without interference. Install the gate in accordance with manufacturer's instructions and these specifications. Adjust hardware for smooth operation and lubricate where necessary.

Provide posts that are straight and plumb within a vertical tolerance of ½ inch. Provide a gate installation that is true to line with no more than ½ inch deviation for the established centerline between posts. Repair defects as directed. Cost added due to gate adjustments shall be done at no cost to the Owner.

Work includes, at a minimum:

- Supply materials and equipment to install the gate;
- Install gate; and
- Provide all labor, tools, equipment, materials, and incidentals necessary to complete the Work as specified.

**Measurement (Bid Item No. 20):**

There will be no direct measurement for Bid Item No. 20, Gate Installation.

**Payment (Bid Item No. 20):**

Payment for the metal gate procurement and installation under Bid Item No. 20 shall be made at the lump sum price as shown on the Bid Form of the Contract Documents. This lump sum price shall include all labor, equipment, posts, accessories, gate material, and all hardware to construct and install the gate as shown on the plans.

**12. CONSTRUCTION STAKING**

The Owner will provide all construction staking. Contractor shall preserve all primary and other control coordinate stakes. Surveyor costs for resetting control stakes carelessly or willfully destroyed or disturbed by Contractor will be charged to Contractor and such costs will be deducted from the payment for the Work. Control points located within areas that must be disturbed can be removed without replacement at Owner's discretion.

**13. USE OF PREMISES**

Contractor shall confine equipment, storage materials, and construction operations to the areas approved by Owner (staging, excavation, haulage, etc.) or as set forth in this RFP. Contractor shall store only equipment and materials used for the Work on the Project at the Site. Contractor shall not unreasonably encumber the construction area or public rights-of-way with materials and construction equipment. Contractor shall obtain written approval from Owner to work outside the designated construction limits shown on the Drawings. Contractor shall comply with all reasonable instructions of Owner and the ordinances and codes of government agencies regarding signs, traffic, fire restrictions, burning, explosives, danger signals, and barricades.

**14. SITE CLEANUP**

Periodically, or as requested by Owner during the course of the Work, Contractor shall remove and dispose of all surplus construction materials, debris, and garbage and keep the Project and public rights-of-way reasonably clean.

No littering is allowed on the Site. Upon completion of the Work, Contractor shall remove all temporary construction facilities, debris, garbage, and unused materials provided for or generated by the Project leaving the Site in a neat and clean condition. Contractor's costs for all cleanup work are incidental to the Work, and no separate payment will be made. Contractor shall dispose of all construction related debris and wastes generated by Contractor off-site in a licensed waste management facility.

#### **15. RESTORATION OF DISTURBED AREAS BY CONTRACTOR**

Contractor shall restore all areas disturbed by Contractor's operations such as, but not limited to, access roads, staging areas, and water loading operations to the original contours as set forth in the Contract Documents. Contractor's costs for restoring disturbed areas is incidental to the Work, and no separate payment will be made unless specifically provided for elsewhere in the Contract Documents.

#### **16. MAINTENANCE OF FENCES**

Fences are to be maintained to the satisfaction of the abutting property owners. Any adjacent fence removed or destroyed during the course of this Contract that is not shown on the Drawings or specified in the Special Provisions to be removed or destroyed during the Work shall be reinstalled or reconstructed in like kind at no cost to Owner. The cost for this work shall be considered incidental, and no separate payment will be made.

#### **17. MOISTURE AND COMPACTION TESTING**

Contractor shall conduct in-place moisture and compaction density testing using portable nuclear gauge testing procedures during the construction process for certain sub-grades and embankments, as described in the Technical Specifications. Moisture testing will be conducted in accordance with ASTM Method D-3017, and density testing will be conducted in accordance with ASTM Method D-2922. Compacted sub-grades and embankments that do not meet the specifications must be removed or scarified, moisture conditioned if necessary, and/or replaced at Contractor's expense. Copies of the test results shall be provided to Owner upon completion of the testing. All costs will be at Contractor's expense.

The Contractor shall provide for laboratory compaction testing, by a certified laboratory, of materials to determine maximum dry density and optimum moisture content. The testing methods shall be ASTM D-698/AASHTO T-99. Contractor shall provide for density testing at a minimum rate of one test per each 0.2 acre of disturbed area per lift or a minimum of three (3) tests per each change in material type, whichever provides the greatest number of tests. Owner will use compaction testing results to determine if compaction specifications are achieved. Copies of the results shall be provided to the Owner and Contractor upon completion of the testing. The cost for this testing shall be considered incidental to the work, and no separate payment will be made.

#### **18. USE OF EXPLOSIVES**

The use of explosives is prohibited under this Contract.

#### **19. WEED CONTROL**

Prior to mobilizing equipment on the construction area, Contractor shall clean all equipment and vehicles with a high-pressure washer to ensure no weeds are imported to the work areas. Equipment components requiring cleaning include: wheels, tracks, undercarriages, fenders, blades, and buckets. If weeds are present at the construction area, Contractor shall clean all equipment prior to moving to a new site.

#### **20. DUST CONTROL**

Contractor shall be responsible for dust control during the Work. Contractor shall water or otherwise treat dust-generating surfaces as often as necessary to prevent visible dust. The Contractor shall apply water at the locations and in the amounts needed to properly complete the Work. The Contractor is responsible for providing watering equipment with sufficient capacity and capability to assure uniform application of water in the amounts required, as

applicable. Prior to commencing any work, Contractor shall submit a written plan for Dust Control procedures, identifying at a minimum the following:

- Times and nature of dust generating activity on roads or at the construction area;
- Nature of dust abatement measures to be used;
- Methods of application of dust control methods;
- Time schedule for application of dust control measures; and
- Procedures/availability of equipment to address dust control at other than scheduled times, if necessary.

All dust control measures, except application of dust suppressant under Bid Item No. 18f, Dust Abatement, will be paid for and considered incidental to Bid Item No. 4, Provide Water.

## **21. UNDISCOVERED AND UNDOCUMENTED HISTORIC PROPERTIES**

Contractor shall adhere to the following procedures for all undiscovered and undocumented historic properties encountered during construction.

During construction activities, previously undiscovered and undocumented historic properties may be encountered. In such an event, Contractor shall notify Owner, and stop construction activities in the immediate area of the find to the extent such stoppage will not create an undue risk of harm to human health or the environment. Owner will then contact the Community Historic Preservation Officer, a qualified historian, or an archaeologist to examine the find, verify its significance, and conduct preliminary recordation as necessary. Any changes to the Work (other than construction sequencing) will be made in writing by Change Order.

## **22. SUBMITTALS**

Contractor shall submit all shop drawings, laboratory sample results, product samples, plans, and other submittals required by the Contract to Owner in accordance with the Contract Documents. Contractor shall provide material specifications, product cut sheets, and manufacturers' installation instructions to Owner for all products and materials installed as a portion of the Work. The list below is provided as an aid to Contractor; this list is not considered to be exhaustive and additional submittals may be requested by Owner.

<u>Submittal</u>	<u>Submittal Description</u>
Health and Safety Plan	Contractor is responsible for developing and enforcing a site-specific Health and Safety Plan as described in Paragraph 5 of these Special Provisions.
Material Submittals	Contractor must provide submittals at the time of the Preconstruction Conference for all materials imported to the construction area that are not provided by Owner. This includes, but is not limited to: geotextile, riprap, aggregate material, gravel material, and PVC liner.
Contractor Documents	Contractor must submit at the Pre-construction Conference the following documents as required in the Special Provisions: list of employees, job classifications, and current OSHA 29 CFR 1910.120 certificates for all site workers, and résumés.
Payroll Record	Contractor shall maintain payroll records weekly in accordance with Contract Documents. These records shall be submitted to Owner on a monthly basis.
Project Close-out	Refer to Supplementary Conditions.
Laboratory samples	Laboratory sample results shall be submitted as required by the Special Provisions and Technical Specifications.

Equipment and  
Labor Rates

Contractor must submit a list of all equipment and labor anticipated for use on the Project along with the hourly rates for each piece of equipment and labor category.

Instruction Schedule, List of Subcontractors, and Schedule of Values.

All submittals shall be provided to Owner within five (5) days after Notice to Proceed unless otherwise noted in these Contract Documents.

## **APPENDIX F**

### **TECHNICAL SPECIFICATIONS**

- SECTION 201 – CLEARING AND CRUBBING AND REMOVAL OF OBSTRUCTIONS
- SECTION 202 – EXCAVATION AND EMBANKMENT
- SECTION 206 – PERMANENT EROSION CONTROL
- SECTION 207 – PERMANENT STORMWATER BEST MANAGEMENT PRACTICES
- SECTION 601 – CULVERT, STORM DRAIN AND GRAVITY IRRIGATION PIPE
- SECTION 602 – STORM DRAIN INLETS, CATCH BASINS, MANHOLES, AND GRAVITY IRRIGATION STRUCTURES
- SECTION 802 – CRUSHED AGGREGATES
- SECTION 1001 – CONSTRUCTION SITE MANAGEMENT
- SECTION 1002 – CONSTRUCTION SITE HOUSEKEEPING
- SECTION 1003 – SEDIMENT COLLECTION
- SECTION 1004 – RUNOFF DIVERSION
- SECTION 1005 – SLOPE PROTECTION
- SECTION 1006 – STORM DRAIN AND CHENNEL PROTECTION
- SECTION 1007 – SLOPE STABILIZATION
- SECTION 1103 – CONSTRUCTION TRAFFIC CONTROL
- SECTION 2010 – MOBILIZATION
- SECTION 2020 – SURVEY MONUMENTS
- SECTION 2040 – FENCING
- SECTION 2050 – CONSTRCUTION GEOTEXTILES

## SECTION 201

### CLEARING AND GRUBBING AND REMOVAL OF OBSTRUCTIONS

#### **PART 1 GENERAL**

##### 1.1 SECTION INCLUDES

###### A. Clearing and Grubbing

1. Removing and disposing of existing features.
2. Removing and disposing of trees, stumps, brush, roots, shrubs, logs and windfalls.
3. Stripping and disposing of the top layer of plants and grasses down past the root zone. 4-inch minimum depth or as recommended in the geotechnical report, or directed by Engineer.
4. Removing and disposing of all miscellaneous debris and other objectionable matter.

###### B. Removal of Obstructions

1. Removal of building, irrigation boxes, pipes, bridges, abandoned utilities, fences, drop inlets, culverts, and any other structures designated for removal on the Plans or by the Owner.

##### 1.2 RELATED SECTIONS

- A. Section 202 – Excavation and Embankment.

##### 1.3 REGULATORY REQUIREMENTS

- A. Conform to applicable code for disposal of debris.
- B. Coordinate clearing work with utility companies.

#### **PART 2 MATERIALS**

NOT USED

## **PART 3      WORKMANSHIP**

### **3.1      CLEARING AND GRUBBING**

#### **A.      Protection.**

1.      Locate and protect all aboveground and belowground utilities or relocate as directed by the Contract.
2.      Protect benchmarks and survey monuments from damage and displacement.
3.      Protect adjacent private and public land and crops in adjacent fields from damage.
4.      Protect existing roads, railroad and irrigation canals from damage.
5.      Retain, protect and water any desirable trees or vegetation on or adjacent to the site using the following procedures.
  - a.      Existing trees not designated for removal should be protected before site demolition begins.
    - 1      Protection should consist of a highly visible, barrier to be placed at or outside the drip line of the tree(s).
    - 2      Unless approved by the Engineer, no equipment, vehicles, building materials, chemicals, stockpiles or debris shall be placed inside the protection barriers.
  - b.      Unless otherwise approved by the Engineer, disruption of the irrigation facilities serving trees will not be allowed.
  - c.      Before the Contractor leaves the site, all existing trees which have been significantly damaged due to construction activities shall be replace or repaired by a certified arborist at the expense of the Contractor.
  - d.      No changes in grade should be made within the protection area around trees.
  - e.      Should excavation damage or break roots greater than 1 inch in diameter, make a clean saw cut through the undamaged portion of the root behind the break perpendicular to the root.
  - f.      If required by the property Owner of Engineer, hire an approved tree service to trim trees, prior to beginning excavation.
6.      The Contractor is responsible for damage resulting from construction operations.

7. Take reasonable care to avoid damage by construction operations to streams and lakes adjacent to the construction area.
8. Preserve and protect all vegetation and ground cover not within the construction area, including areas not requiring grading, as directed.

B. Removal and Disposal

1. Complete clearing and grubbing to the limits defined by a line drawn 5 feet outside the grading area, unless shown on the Contract Documents or as directed.
2. Preserve and protect trees within the construction area not designated for removal in an approved manner as directed. Paint cut and scarred retained trees or shrubs with an asphaltum base paint prepared especially for tree surgery.
3. Unless otherwise provided, all merchantable timber in the clearing area not removed from the right-of-way prior to the beginning of construction becomes the property of the Contractor.
4. Remove all brush and shrubs from the site including the roots. Dispose of the shrubs and brush off-site at a location provided by the Contractor. Do not dispose of brush and shrubs by burning or burial in backfill or trenches.
5. Strip all soils, heavy growths of grass, and sod that comprise the organic root-zone. Complete stripping 4 inches deep or as recommended by the Engineer. Berm the stripped material to line and grade as depicted on the Contract Documents. Do not use the stripped material as backfill or trench backfill.
6. Unless otherwise directed remove all stumps within the clearing limits.
7. Dispose of materials at locations that comply with all Federal, State, and Local Regulations.

C. Cleanup

1. Upon completion of the site work and project, clean the entire work area. Remove all excess excavated material, rocks, boulders, brush, trees, pipe, or debris of any type from the site and dispose at a site acceptable to Federal, State, and Local Regulations.

## 3.2 REMOVAL OF OBSTRUCTIONS

### A. Protection

1. Locate and protect all live Utilities from damage.
2. Protect benchmarks and survey monuments from damage and displacement.
3. Exercise care to ensure areas outside the construction limits remain undisturbed.
4. Satisfactorily restore any damage to existing facilities or structures resulting from carelessness or negligence by the Contractor to their original condition at the Contractor's expense.

### B. Removal and Disposal

1. Complete the Removal of Obstructions to the limit shown on the Plans and Specifications or as directed by the Engineer.
2. Unless otherwise specified, all removed material shall become the responsibility and property of the Contractor.
3. Dispose of unusable material outside the construction limits in an approved location in accordance with all local, state and federal regulations.
4. Dispose unusable material in such a manner that no unsightly appearance will result.
5. Copies of the disposal agreements with property owners are to be furnished to the Owner upon request.

### C. Salvage

1. Carefully remove all items specified to be salvaged in one piece and take to a place identified in the Plans or Special Provisions; salvage shall become the property of the person or organization identified on the Plans or in the Special Provisions.

### D. Preparations After Removal

1. Fill basements or cavities left by structure removal to the level or the surrounding ground and, if within the prism of the construction, compacted as described in the Plans and Special Provisions or as directed by the Engineer.

- E. Traffic Control
  - 1. Do not remove bridges, culverts and other drainage structures under the existing roadway until satisfactory arrangements have been made for the detouring of traffic.

#### **PART 4 MEASUREMENT AND PAYMENT**

- 4.1 Use one of the following unit price options as designated on the Bid Schedule. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items.
  - A. Clearing and Grubbing: By the acre in accordance with stakes set by the Engineer. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized in the Bid Schedule.
    - 1. Bid Schedule Payment Reference: 201.4.1.A.1.
    - 2. Bid Schedule Description: Clearing and Grubbing...acre (AC).
  - B. Clearing and Grubbing: By the lump sum. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized in the Bid Schedule.
    - 1. Bid Schedule Payment Reference: 201.4.1.B.1.
    - 2. Bid Schedule Description: Clearing and Grubbing...lump sum (LS).
  - C. Removal of Obstructions: By the lump sum (LS). Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized in the Bid Schedule.
    - 1. Bid Schedule Payment References: 201.4.1.C.1.
    - 2. Bid Schedule Description: Removal of Obstructions...lump sum (LS).
  - D. Removal of \_\_\_\_\_: By the horizontal square yard. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized in the Bid Schedule.
    - 1. Bid Schedule Payment References: 201.4.1.D.1
    - 2. Bid Schedule Description: Removal of \_\_\_\_\_... square yard (SY).
  - E. Removal of \_\_\_\_\_: By the horizontal lineal foot. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized in the Bid Schedule.
    - 1. Bid Schedule Payment References: 201.4.1.E.1.
    - 2. Bid Schedule Description: Removal of \_\_\_\_\_ ..lineal foot (LF).

- F. Removal of \_\_\_\_\_: By the per each. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized in the Bid Schedule.
1. Bid Schedule Payment References: 201.4.1.F.1.
  2. Bid Schedule Description: Removal of \_\_\_\_\_...each (EA).

END OF SECTION

## SECTION 202

### EXCAVATION AND EMBANKMENT

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Excavation.
- B. Controlled Blasting.
- C. Cut Slope Finishing.
- D. Subgrade.
- E. Maintenance of Subgrade and Drainage.
- F. Excavation of Unsuitable Materials.
- G. Embankment Construction.
- H. Borrow.
- I. Classes of Compaction and Density Requirements.
- J. Haul.
- K. Dust Abatement.

##### 1.2 RELATED SECTIONS

- A. Section 201 – Clearing and Grubbing.
- B. Section 203 – Soil Materials.
- C. Section 204 – Structural Excavation and Backfill.
- D. Section 205 – Dewatering.
- E. Section 206 – Permanent Erosion Control.
- F. Section 2040 - Fencing.

##### 1.3 REFERENCES

- A. AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregates.
- B. AASHTO T 88: Particle Size Analysis of Soils.

- C. AASHTO T 89: Determining the Liquid Limits of Soils.
- D. AASHTO T 90: Determining the Plastic Limit and Plasticity Index of Soils.
- E. AASHTO T 99: Moisture-Density Relations of Soils using a 5.5 pound Rammer with a 12-inch Drop.
- F. AASHTO T 176: Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test.
- G. AASHTO T 180: Moisture-Density Relations of Soils using a 10-pound Rammer and an 18-inch Drop.
- H. AASHTO T 191: Density of Soil In-Place by the Sand-Cone Method.
- I. AASHTO T 205: Density of Soil In-Place by the Rubber-Balloon Method.
- J. AASHTO T 238: Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).
- K. AASHTO T 239: Moisture Content of Soil and Soil Aggregate In-Place by Nuclear Methods (Shallow Depth).
- L. AASHTO T 265: Laboratory Determination of Moisture Content of Soils.
- M. ASTM C 136: Method for Sieve Analysis of Fine and Coarse Aggregates.
- N. ASTM D 698: Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 pound Rammer and 12-inch Drop.
- O. ASTM D 1557: Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, using a 10-pound Rammer and 18-inch Drop.
- P. ASTM D 422: Standard Test Method for Particle Size Analysis of Soils.
- Q. ASTM D 2049: Test Method for Relative Density of Cohesionless Soils.
- R. ASTM D 2216: Laboratory Determination of Water (moisture) Content of Soil and Rock.
- S. ASTM D 2487: Classification of Soils for Engineering Purposes.
- T. ASTM D 2922: Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- U. ASTM D 3017: Test Methods for Moisture Content of Soils and Soil-Aggregate Mixtures in place by Nuclear Methods (Shallow Depth).
- V. ASTM D 4318: Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

- W. ITD T-74: Compaction Standard for Coarse Granular Materials by Use of the Vibratory Spring-Load Compactor.
- X. AASHTO T 310: In-Place Density and Moisture Content of Soil and Soil Aggregate by Nuclear Methods.
- Y. Occupational Safety and Health Standards for Excavations.
- Z. AASHTO T 255: Total Moisture Content of Aggregate by Drying.
- AA. AASHTO T 224: Correction for Coarse Particles in the Soil Compaction Test.

1.4 SUBMITTALS

- A. Submit Blasting Plan for Engineer's approval.

**PART 2 MATERIALS**

NOT USED

**PART 3 WORKMANSHIP**

3.1 PREPARATION

- A. Verify that survey benchmarks and intended elevations for the work are as indicated.
- B. Identify required lines, levels, contours, and datum.
- C. Locate, identify, and protect utilities that remain, from damage.
- D. Notify utility company to remove and relocate utilities.
- E. Protect benchmarks, existing structures, and fences, from excavation equipment and vehicular traffic.

3.2 EXCAVATION

- A. Description.
  - 1. The work consists of excavation, disposal, (or compaction) of all material not being removed under another bid item, which is encountered within the limits of the work necessary for the construction in accordance with the specifications and in reasonably close conformity with the lines, grades, and typical cross sections shown on the Contract Documents or as otherwise specified.

2. Unless a separate bid item is provided, excavation includes all required clearing and grubbing; the removal and disposal of structures or other obstructions which are visible or are indicated on the Contract Documents which obstruct the work; compaction; shaping and sloping of cuts, embankments, subgrades, shoulders, gutters, ditches, intersections, approaches and driveway entrances; backfilling ditches, depressions and areas behind sidewalks, curbs and/or curbs and gutters; satisfactory disposal of all unsuitable and surplus materials; and construction of approaches to structures.
3. Excavation includes all excavation performed under this item regardless of the material encountered. Complete excavation as "Excavation, Schedule No. 1," or "Excavation, Schedule No. 2," etc., when it is divided into appropriate schedules on the Contract Documents. Rock excavation, when anticipated, may be included in the Bid Schedule. Refer to Section 302.2.2 for definition of Rock Excavation.
4. For Structural Excavation refer to Section 204 – Structural Excavation and Backfill.

B. Construction Requirements.

1. Complete clearing and grubbing within the excavation area. Use all suitable materials removed from excavation in the formation of the embankment, subgrade, shoulders, and as designated or directed.
2. Remove all stumps, roots, logs or other timber more than 3 inches in diameter, and all brush, matted roots and other debris within the grubbing limits not suitable for embankment or backfill to a depth of not less than 6 inches below the original ground or 12 inches below subgrade, whichever is greater.
3. Dispose of all material resulting from the clearing and grubbing operations as specified in Section 201 – Clearing and Grubbing. Backfill and compact with suitable material, all depressions below subgrade or below the final surface of the ground resulting from the clearing and grubbing operations, as directed.
4. Remove and satisfactorily dispose of unsuitable, unstable materials from the foundation for embankments to the depth shown on the Contract Documents or as directed.
5. Waste and dispose of any excavated material not suitable for use on the project. Unless otherwise specified, the Contractor is responsible for locating, placing waste materials in, and final leveling and clean-up of disposal areas in compliance with Federal, State, and local rules for disposal.
6. Machine slope banks to angle of repose or less, unless shored.

7. Grade top perimeter of excavation to prevent surface water from draining into excavation.
8. Remove and properly dispose of lumped subsoil, boulders, and rock.
9. Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work. Proceed with unaffected work.
10. Correct areas over-excavated by error in accordance with Section 202.3.8.
11. Categorize material into one of the five material classifications as set forth in Section 203 – Soil Materials and reuse or stockpile these materials in the areas designated and as depicted on the Contract Documents.
12. Provide dewatering as required per Section 205 – Dewatering.

C. Protection.

1. Locate, identify and protect excavations by methods required to prevent cave-in or loose soil from falling into excavation.
2. Protect all above-ground and below-ground utilities from damage.
3. Protect benchmarks and survey monuments from damage and displacement.
4. Protect all private and public property both within and adjacent to project limits.
5. Protect existing roads, railroad and irrigation canals from damage.

### 3.3 CONTROLLED BLASTING

A. General.

1. Controlled blasting consists of drilling and shooting a series of line holes for controlling the neat line of the back slope along the excavation line of the construction.
2. Controlled blasting is required in the excavation of rock or cemented materials where cut slopes, shown on the Contract Documents, are steeper than 3/4 horizontal to 1 vertical (3/4:1), regardless of the rippability of the material.
3. All blasting shall conform to the requirements of Section 302.

B. Blasting Techniques.

1. Presplitting involves drilling a single row of the line holes along the neat excavation line of the slope; properly load to minimize overbreak, and fired simultaneously in advance of the production round blasting. When line holes for presplitting are simultaneously detonated with the production round, use suitable millisecond delays in the production round blasting.
2. Cushion blasting involves leaving in place an undisturbed buffer section approximately 10 feet thick, between the neat excavation line of the slope and the production round blasting or ripping. After removal of the materials composing the production zone, trim the undisturbed section off the slope by firing simultaneously a single row of line holes drilled on the neat excavation line.

C. Controlled Blasting Provisions.

1. Line holes for controlled blasting are a minimum of 2 inches and a maximum of 3 inches in diameter with a 40-foot, maximum depth, and slope measurement. They are loaded with sufficient explosive charges to effect clean splitting of the materials between adjacent drill holes and a minimum of shattering or overbreak. Explosive charges include properly spaced cartridges, securely fastened to detonating cord with holes completely stemmed with free flowing sand or other approved materials.
2. Presplit or cushion blast a short test line of holes, as changes in conditions warrant, to determine the loading, spacing, and depth of lift required to obtain the desired result. Space drill holes as nearly parallel one to another as possible.
3. If drill holes do not remain open full depth or deviate more than 1 foot from a line formed by the intersection of the plane of the staked slope and a vertical perpendicular plane through the collar of a slope drill hole, reduce the lift until an open hole can be maintained or the deviation can be controlled within the 1-foot tolerance.
4. Successive sets of line holes may have their collars offset up to 1 foot, but be so inclined that all sets closely approximate the staked slopes.
5. Do not use lifters or springing of line holes in controlled blasting operations.
6. The end result of these specifications is intended to produce a cut face sheared along the staked slope line with a minimum of overbreak and little or no material shattered or loosened back of the finished slope. The amount and type of explosives, methods of loading, delay patterns, and other features not otherwise specified, are to meet the above requirements.

7. Furnish a blasting plan showing pattern and depth of drill holes, type and amount of explosives used, loading pattern, and sequence of firing to the Engineer prior to drilling.

### 3.4 CUT SLOPE FINISHING

- A. Remove loosened or shattered rocks that are not expected to remain in their natural position from the slopes.
- B. Do not proceed beyond the dimensions and elevations established, and do not remove material prior to staking and cross-sectioning the site.
- C. When necessary to remove fencing, replace it in an equal to or better than condition as it was originally and confine livestock and other domestic animals in conformance to Section 2040 – Fencing.

### 3.5 SUBGRADE

- A. After the earthwork has been substantially completed and after all underground utilities, manholes, etc., have been installed or adjusted to grade; bring the subgrade to the lines, grades, and cross sections shown on the Contract Documents and compact to the required density.
- B. Remove all soft and unstable material and other portions of the subgrade, that cannot be compacted satisfactorily, as directed.
- C. Backfill all holes created by removal of soft or unstable material in accordance with Section 202.3.8. Providing and placing backfill is incidental to the excavation work and no separate payment will be made for it, unless otherwise specified.
- D. Remove boulders appearing in the excavation to a depth of at least 4 inches below subgrade. Bring all rock sections to grade by placing a satisfactory cushion material to the depth specified.
- E. When the surface of an existing roadbed conforms approximately to the surface of the finished subgrade, scarify it for the full width of the subgrade to a sufficient depth to eliminate all depressions and to permit uniform reshaping and compaction.
- F. Grade intersecting streets and approaches to the project as shown on the Contract Documents, or as directed, with acceptable materials so that a smooth-riding and satisfactory approach or intersection is produced.
- G. Maintain ditches and drains along the subgrade to drain effectively. Reshape and reroll subgrade if rutting of 2 inches or more in depth occurs. Do not place surface course or pavement on frozen or muddy subgrade.

- H. Compact the top 12 inches of the subgrade to the minimum compacted density specified for “Embankment in section 202.3.8”. The finished grade not to deviate more than 0.10 foot at any point from the staked elevation and the algebraic sum of the deviations from true grade of any 2 points not more than 30 feet apart, not to exceed 0.10 foot.
- I. Obtain Owner approval of the subgrade.

### 3.6 MAINTENANCE OF SUBGRADE AND DRAINAGE

- A. Maintain drainage, including drainage ditches, gutters, etc., for the subgrade during the construction of street improvements to avoid damage to embankments by erosion.
- B. Provide and maintain temporary, drainage, sewer, underdrainage, etc., facilities until permanent facilities are completed.
- C. Protect and preserve all existing water mains and appendages, drains, sewers, or other subsurface drains, conduits, gas mains, and other underground structures affected by the work.
- D. The Contractor is responsible to satisfactorily repair, at his expense, all damage to facilities or structures resulting from the work or from his negligence during the period the contract is in force.

### 3.7 EXCAVATION OF UNSUITABLE MATERIAL

- A. Remove and properly dispose of unsuitable material exposed after completion of the excavation to the subgrade or line and grade shown on the Contract Documents or as directed.
- B. Dispose of unsuitable material that cannot be compacted in embankments in contractor furnished waste site as directed.
- C. Repair material suitable for construction, except for excessive moisture, to meet the compaction and density requirements of 202.3.9.B.1 “Class A Compaction”, at no additional cost to the Owner. The repair is to consist of excavation, drying, replacement and compaction of the in-place soils or, at the Contractors option, other approved material that may be substituted for in-place soils.
- D. The Engineer will identify the limits of the areas requiring subgrade repair or removal of unsuitable material.

### 3.8 EMBANKMENT CONSTRUCTION

- A. General.
  - 1. Embankment construction consists of the construction of fills and placement of backfills within the project limits to the lines, grades, dimensions and the typical sections shown on the Contract Documents or as designated.

2. Place embankment material after approval of the foundation. Do not use frozen material in embankments. Do not construct embankments on snow covered or frozen foundations, or other such surfaces within the embankment structure.
3. Key all embankments constructed on slopes steeper than 5 horizontal to 1 vertical (5:1) into the undisturbed ground with horizontal benches of sufficient width to allow for proper operation of compaction equipment. Slope each bench to drain. Incorporate in the embankment or waste material excavated from the benches, as directed.
4. Drain any seepage encountered in the embankment as shown on the Contract Documents or as directed.
5. Construct the first lift of embankment across swampy ground by end-dumping with a thickness capable of providing a stable surface. Then construct the remainder of the embankment in accordance with Section 3.8.B.8 or as directed.
6. Dry material containing excessive moisture to a moisture content that will permit the required compaction prior to placing in the embankment.
7. Place material tested with AASHTO T 310 in layers with a maximum loose thickness of 8 inches.

B. Construction Requirements.

1. Construct embankments with suitable material having a minimum sand equivalent of 25 (as determined by AASHTO T 176) and a minimum dry density of 100 pounds/cubic foot to the lines, grades, and cross sections shown on the Contract Documents. Also, to such heights above grades and such increased widths as necessary to allow for foundation settlement or consolidation. Eliminate stumps, trees, rubbish, vegetation, frozen lumps, or other unsuitable material from placement in embankments. *If native material does not meet the 25 minimum sand equivalent requirement, the Contractor must procure a licensed geotechnical engineer to 1). Demonstrate that material will be suitable for embankment use and 2). Provide the method by which embankment will be placed and tested. Submit the findings to the Engineer for review and approval prior to work.*
2. Bench or step embankments on sloping ground by cutting a minimum horizontal distance of 24 inches for secure bonding. Cut each bench as close to the one below as the slope of the ground will permit. Incorporating material cut out of the benches into the new fill will be incidental to constructing the embankment.
3. Grade and crown all embankment areas to prevent water from collecting or ponding prior to suspending grading operations.

4. Construct embankments adjacent to structures in equal layers on all sides of the structures to prevent distortion. Compact areas inaccessible to tamping rollers or power rollers by hand, mechanical tampers or other means until achieving the specified density.
5. Place embankment material in uniform layers not exceeding 8 inches loose thickness for the entire width of the embankment. Complete, level and compact each layer of embankment before proceeding to the succeeding layer.
6. Keep leveling equipment in continuous operation during embankment construction for spreading, manipulating, blending and leveling the material.
7. Route hauling equipment and distribute travel over the entire area of each layer of material and over the entire width of the embankment without following in the immediate tracks of preceding equipment.
8. Keep the embankment surface level and uniform at all times. Construct the sides of the embankment first, and then bring the center up level with the shoulders.
9. Do not place embankment material when the moisture content in any layer causes excessive rutting or precludes proper compaction. Dry embankments rendered unstable by excessive amounts of moisture from any cause by scarifying and balding before placing succeeding layers.
10. Embankments constructed on frozen ground are to be re-excavated and re-compacted to grade and cross section after complete thawing of the ground and the soils can be suitably worked.
11. Provide the water and the compactive effort necessary to obtain the specified density. Watering and compaction is incidental to embankment construction and will have no separate payment.
12. Determine the amount of water required for embankment material with plasticity indexes greater than zero, as determined by AASHTO T 90, but in no instance shall it be more or less than 3% of optimum moisture content as determined by AASHTO T99 or ASTM D698.
13. The minimum field compaction shall be 95% of the maximum laboratory density as determined by AASHTO T-99.
  - a. Correction of Coarse Particles in the Soil per AASHTO T-224.
  - b. Family of Curves – One Point Method per AASHTO T-272.
  - c. Compaction Standard for Coarse Granular Material by Use of the Vibratory Spring Load Compactor per Idaho T-74.

In lieu of Idaho T-74, the Engineer may determine the standard density of coarse granular material in accordance with AASHTO T-180 Method D.

C. Compaction Control Tests.

1. Determination of in-place density and percent compaction of standard density shall be by: In-place Density and Moisture Content of Soil and Soil-aggregate by Nuclear Methods (Shallow Depth) per AASHTO T-310. The testing frequency for materials placed in a roadway section shall be 1 test per each 300 linear feet of roadway and 1 test per 10,000 square feet of general fill and embankment areas for each lift.
2. The applicable standard method will be determined according to the following table:

<Less than	≤Less than or equal to	>Greater than	≥Greater than or equal to
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**MATERIAL AT OR BELOW SUBGRADE:**

AASHTO T-99 Method A	AASHTO T-99 Method D	IDAHO T-74	TOO GRANULAR TO TEST <sup>(2)</sup>
≤10% retained on No. 4	>10% retained on No. 4 and ≥30% retained on 3/4 in. <sup>(1)</sup>	≥30% retained on 3/4 in. and <10% retained on 3 in	>30% retained on 3/4. Document equipment and compaction effort.
			≥10% retained on 3 in. using 65 lb sample. Document equipment and compaction effort.

<sup>(1)</sup> >10% retained on 3/4, use AASHTO T-224.

<sup>(2)</sup> A gradation to verify “Too Granular to Test” will be performed at the same frequency, as a density test would have been performed.

3. Material Too Granular to Test.
  - a. Construct embankments with material too granular to test by Idaho Method T-74 in horizontal layers no thicker than 18 inches unless otherwise permitted. Distribute large rocks evenly and fill the voids between them with smaller rock and/or earth. Also, provide adequate water to facilitate compaction.

- b. Place and uniformly compact each layer more than 18 inches below subgrade with a minimum of 3 full coverages for each 6 inches of lift thickness or fraction thereof with rollers with the following minimum requirements.
- c. Vibratory rollers having a rated dynamic force of 30,000 pounds per impact and at least 1000 vibrations/minute.
- d. Grid rollers having a static weight of at least 20,000 pounds and 4000 pounds/foot of drum width.
- e. Rolling requirements may be reduced 1 coverage per 6 inches, or fraction thereof, for each increase of 5,000 pounds per impact for vibratory rollers or 1,000 pounds/foot of drum width for grid rollers.
- f. One complete coverage for each 6 inches of lift thickness is the minimum allowed.
- g. Rock material placed within 18 inches of subgrade and rock backfill of overexcavated areas in rock cuts shall be constructed in layers not exceeding 9 inches thick, unless directed otherwise. Each layer shall be uniformly compacted with a minimum of 12 full coverages of a vibratory roller meeting the minimum requirements previously stated. Vibratory rolling may be reduced one full coverage for each increase of 5000 pounds per impact above the minimum. In no case will less than 6 full coverages per 9-inch lift, or fraction thereof, be allowed.
- h. Limit the speed of grid rollers to no more than 4 mph and the speed of vibratory rollers to no more than 1.5 mph.
- i. Include the cost for this work under other earthwork items, since all work described in this Subsection is considered incidental.

D. Borrow.

1. Borrow.

- a. Borrow consists of material taken from areas within the project limits for the completion of embankments.
- b. The areas within the project limits from which the borrow may be obtained will be designated on the Contract Documents.
- c. Take borrow only from designated locations and within the horizontal and vertical limits stated or directed. Upon completion of operations, adequately drain and finish the surface of the borrow area to a neat and uniform grade.

2. Imported Borrow.
  - a. Imported borrow consists of material taken from areas outside the project limits for the completion of the embankments.
  - b. Imported borrow sources will generally be obtained by the Contractor, subject to approval by the Engineer.

### 3.9 CLASSES OF COMPACTION AND DENSITY REQUIREMENTS

- A. Compact embankments including backfill and embankment foundations to meet the requirements of one of the following classes as specified in the Contract Documents.
- B. If the class of compaction is not specified use Class B compaction.
  1. Class A Compaction: Class A compaction consists of compacting the top 12 inches of embankment and backfill material and the top 8 inches in cuts to the following requirements: For materials having a maximum dry weight of 120 pounds/cf or less, *95% of laboratory maximum density*; for material having a maximum dry weight greater than 120 pounds/cf, *100% of laboratory maximum density*. For embankment and backfill material within slopes extending outward from the finished subgrade and placed more than 12 inches below subgrade, compact to 95% of standard density as per table 202.3.8.C.2.
  2. Class B Compaction: Class B compaction consists of compacting embankment and backfill material within 12 inches of subgrade to the density standards for Class A compaction. Compact other material below subgrade by routing all construction equipment uniformly over the entire surface of each layer. Additional rolling may be directed if routing of equipment provides unsatisfactory compaction.
  3. Class C Compaction: Class C compaction consists of compacting selected areas under embankments to the density standards for Class A compaction to a depth of 8 inches. The station limits of Class C compaction, will be shown on the plans or as directed. The width will be between subgrade shoulders.
  4. Class D Compaction: Class D compaction consists of compacting designated areas shown on plans. The compaction consists of not less than one complete coverage with approved tack type or rubber tired earth moving equipment. Place the embankment in lifts not to exceed 12 inches in depth of material before compaction. Adjust moisture content to optimum.
- C. Compact materials above subgrade which do not have a specified compaction requirement as per type A compaction designated in 202.3.9.B.1.
- D. Place material above subgrade that is to granular to test in layers no more than 9 inches and compact with a minimum of 12 full coverages of a vibratory roller.

Vibratory rollers to be rated by minimum dynamic force to 30,000 pounds per impact and at least 1000 vibrations/minute. Vibratory rolling may be reduced 1 full coverage for each increase of 5000 pounds per impact above the minimum. In no case will less than 6 full coverages per 9-inch lift, or fraction thereof, be allowed.

### 3.10 HAUL

- A. Haul consists of the authorized hauling of excavated material beyond the specified free haul distance.
  - 1. Haul applies to excavation, borrow and granular borrow.
  - 2. The free haul distance for excavation is 2000 feet.
  - 3. No free haul will be required for borrow or granular borrow.
- B. Measurement.
  - 1. Calculating Excavation Haul.
    - a. Determine 2 points, 2000 feet apart, one on each side of the neutral grade point as indicated on the final construction haul diagram, located so that the included quantities of excavation and the included quantities of embankment measured by the average end area method areas balances.
    - b. The haul distance remains after subtracting the free haul from the distance measured between the center of volume of the remaining excavation and the center of volume of the resulting embankment.
    - c. The pay quantity is the length of haul multiplied by the accepted quantities hauled in excess of the free haul distance converted to the nearest whole haul unit.
  - 2. Calculating Borrow Haul.
    - a. The length of haul for borrow and granular borrow is the distance between the center of volume of the source and the center of volume of the deposited material measured along the shortest practicable route.
    - b. The pay quantity is the length of haul multiplied by the accepted quantities hauled converted to the nearest whole haul unit.
    - c. Free Haul does not apply to Borrow or Granular Borrow Haul.
  - 3. Compute haul quantities from a haul diagram prepared by the Engineer.
  - 4. Haul may be computed with other analytical methods if approved by the Engineer.

5. In case the Contractor, for his own convenience, elects to use a haul plan differing from that proposed in the contract, the actual haul resulting from use of the Contractor's source or haul plan will be paid for, except that haul in excess of that which would have resulted from use of the contract proposal will not be allowed.
6. When there is no separate contract item in the proposal for haul, its cost will be considered incidental to the contract item for which it applies.

### 3.11 DUST ABATEMENT (See Division 1000)

- A. Provide sufficient equipment to apply water as directed for suppressing dust caused by construction activities.
- B. Suspend operations if dusty conditions continue to exist, due to insufficient or inadequate dust abatement practices, or lack of watering equipment.
- C. Apply water uniformly as directed to suppress dust formation, without creating muddy conditions or ponding.
- D. Apply water at the same frequency as workdays when applying on Saturdays, Sundays and holidays.
- E. Watering equipment consists of watertight tanks mounted on trucks, adequately powered, and capable of applying water, as required.
- F. Apply water under pressure from the tank through a spray apparatus capable of providing a uniform unbroken spread of water over the watered surface.
- G. Locate a suitable device in the cab allowing positive shut-off, drive control and regulation of the water flow.
- H. Prevent dust abatement water from conveying silt to storm drains. Refer to Division 1000.

### 3.12 EROSION CONTROL AND FENCING

- A. Provide complete and approved erosion control and fencing plans prior to starting excavation and backfill operations.
- B. Place per Section 206 – Permanent Erosion Control, Section 2040 – Fencing and Division 1000 – Construction Stormwater Best Management Practices (BMPs).

## **PART 4 MEASUREMENT AND PAYMENT**

- 4.1 Use the following unit price options as designated in the Bid Schedule for Excavation. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items.

- A. Excavation: By the cubic yard measured in its original position from field cross sections, using the average end area method with no correction for curvature. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
  - 1. Bid Schedule Payment References: 202.4.1.A.1.
  - 2. Bid Schedule Description: Excavation...cubic yard (CY).
  
- B. Excavation: By the ton measured by weight tickets from certified scales submitted to and approved by the Engineer. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
  - 1. Bid Schedule Payment References: 202.4.1.B.1.
  - 2. Bid Schedule Description: Excavation...ton (TON).
  
- C. Excavation: By the square yard measured within the limits of the work or designated on the Contract Documents. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
  - 1. Bid Schedule Payment References: 202.4.1.C.1.
  - 2. Bid Schedule Description: Excavation...square yard (SY).
  
- D. Excavation: By the lump sum. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
  - 1. Bid Schedule Payment References: 202.4.1.D.1.
  - 2. Bid Schedule Description: Excavation...lump sum (LS).
  
- 4.2 Use the following unit price options as designated in the Bid Schedule for Rock Excavation. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items.
  - A. Rock Excavation: By the cubic yard measured in its original position from field cross sections, using the average end area method with no correction for curvature. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
    - 1. Bid Schedule Payment References: 202.4.2.A.1.
    - 2. Bid Schedule Description: Rock Excavation...cubic yard (CY).
  
  - B. Rock Excavation: By the ton measured by weight tickets from certified scales submitted to and approved by the Engineer. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
    - 1. Bid Schedule Payment References: 202.4.2.B.1.

2. Bid Schedule Description: Rock Excavation...ton (TON).
- C. Rock Excavation: By the square yard measured within the limits of the work or designated on the Contract Documents. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment References: 202.4.2.C.1.
  2. Bid Schedule Description: Rock Excavation...square yard (SY).
- D. Rock Excavation: By the lump sum. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment References: 202.4.2.D.1.
  2. Bid Schedule Description: Rock Excavation...lump sum (LS).
- 4.3 Use the following unit price options as designated in the Bid Schedule for Excavation Schedule \_\_\_\_\_.
- A. Excavation Schedule \_\_\_\_\_: By the cubic yard measured in its original position from field cross sections, using the average end area method with no correction for curvature. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment References: 202.4.3.A.1.
  2. Bid Schedule Description: Excavation Schedule \_\_\_\_\_...cubic yard (CY).
- B. Excavation Schedule \_\_\_\_\_: By the ton measured by weight tickets from certified scales submitted to and approved by the Engineer. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment References: 202.4.3.B.1.
  2. Bid Schedule Description: Excavation Schedule \_\_\_\_\_...ton (TON).
- C. Excavation Schedule \_\_\_\_\_: By the square yard measured within the limits of the work or designated on the Contract Documents. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment References: 202.4.3.C.1.
  2. Bid Schedule Description: Excavation Schedule \_\_\_\_\_...square yard (SY).
- D. Excavation Schedule \_\_\_\_\_: By the lump sum. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.

1. Bid Schedule Payment References: 202.4.3.D.1.
  2. Bid Schedule Description: Excavation Schedule \_\_\_\_\_...lump sum (LS).
- 4.4 Use the following unit price options as designated in the Bid Schedule for Controlled Blasting.
- A. Controlled Blasting: By the linear foot measured horizontally along the finished slope parallel within the blasting limits or as designated on the Contract Documents. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
    1. Bid Schedule Payment References: 202.4.4.A.1.
    2. Bid Schedule Description: Controlled Blasting...linear foot (LF).
  - B. Controlled Blasting: By the square yard measured horizontally along the finished surface parallel within the blasting limits or as designated on the Contract Documents. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
    1. Bid Schedule Payment References: 202.4.4.B.1.
    2. Bid Schedule Description: Controlled Blasting...square yard (SY).
  - C. Controlled Blasting: By the drilled foot measured parallel to the line holes and includes all holes drilled whether loaded or not. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
    1. Bid Schedule Payment References: 202.4.4.C.1.
    2. Bid Schedule Description: Controlled Blasting...drilled foot (DF).
- 4.5 Use the following unit price options as designated on the Bid Schedule for Unsuitable Material Excavation and Repair.
- A. Unsuitable Material Excavation: By the cubic yard measured in its original position within the limits designated by the Engineer, from field cross section using the Average End Area Method with no correction for curvature. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
    1. Bid Schedule Payment References: 202.4.5.A.1.
    2. Bid Schedule Description: Unsuitable Material Excavation...cubic yard (CY).
  - B. Unsuitable Material Excavation: By the square yard measured within the limits designated by the Engineer. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.

1. Bid Schedule Payment References: 202.4.5.B.1.
2. Bid Schedule Description: Unsuitable Material Excavation...square yard (SY).

NOTE: Unsuitable Material Repair is incidental to Unsuitable Material Excavation unless a Separate Item is established as listed below.

C. Unsuitable Material Repair: By the cubic yard measured within the limits designated by the Engineer, on its final compacted position from field cross section using the Average End Area Method with no correction for curvature. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.

1. Bid Schedule Payment References: 202.4.5.C.1.
2. Bid Schedule Description: Unsuitable Material Repair...cubic yard (CY).

D. Unsuitable Material Repair: By the square yard measured within the limits designated by the Engineer. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.

1. Bid Schedule Payment References: 202.4.5.D.1.
2. Bid Schedule Description: Unsuitable Material Repair...square yard (SY).

4.6 Using the following unit price options as designated on the Bid Schedule for Borrow.

A. Borrow: By the cubic yard as measured in final compacted position from field cross section using the Average End Area Method with no correction for curvature. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.

1. Bid Schedule Payment References: 202.4.6.A.1.
2. Bid Schedule Description: Borrow...cubic yard (CY).

B. Borrow: By the ton as measured by weight ticket from certified scales submitted to and approved by the Engineer. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.

1. Bid Schedule Payment References: 202.4.6.B.1.
2. Bid Schedule Description: Borrow...ton (TON).

4.7 Use the following unit price option as designated on the Bid Schedule for Haul.

A. Haul: By the yard unit defined as ten cubic yards of material hauled 1,000 feet. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.

1. Bid Schedule Payment References: 202.4.7.A.1.
2. Bid Schedule Description: Haul...yard unit (YU).

B. Haul: By the ton unit defined as ten tons of material hauled 1000 feet. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.

1. Bid Schedule Payment References: 202.4.7.B.1.

2. Bid Schedule Description: Haul...ton unit (TU).

4.8 Use the following unit price options as designated on the Bid Schedule for Dust Abatement Water.

A. Dust Abatement Water: By the 1,000 gallons measured through calibrated tanks, distributors or accurate water meters. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.

1. Bid Schedule Payment References: 202.4.8.A.1.

2. Bid Schedule Description: Dust Abatement Water...1,000 gallons (MG).

END OF SECTION

## SECTION 206

### PERMANENT EROSION CONTROL

#### **PART 1 GENERAL**

##### 1.1 SECTION INCLUDES

- A. Class of Seeds.
- B. Season of Work.
- C. Seedbed Preparation.
- D. Fertilizing.
- E. Seeding.
- F. Mulching.
- G. Erosion Blanket.
- H. Riprap.

##### 1.2 RELATED SECTIONS

- A. Section 203 - Soil Materials.
- B. Section 805 - Asphalt.
- C. Division 1000 – Construction Stormwater Best Management Practices.

#### **PART 2 MATERIALS**

##### 2.1 EMULSIFIED ASPHALT

- A. In accordance with Section 805 – Asphalt.

##### 2.2 COMMERCIAL FERTILIZER

- A. Furnish commercial fertilizer in containers marked with the weight and/or volume with the manufacturer's guaranteed analysis of the contents. Dry fertilizers must be free from lumps or cakes.

##### 2.3 SOIL CONDITIONER

- A. Soil conditioner may consist of peat moss, sedge peat, aged manure, compost or bark (that is reasonably free from wood substances). Material to contain a minimum of 50% organic matter by weight. The source must be approved before shipping to the project.

## 2.4 TOPSOIL

- A. In accordance with Section 203 – Soil Materials.

## 2.5 MULCH

- A. The sources of all types of mulch must be approved before shipping to the project.
  1. Bark mulch (granular and ornamental type): Reasonably free of strips and splinters.
  2. Straw: Reasonably weed-free grain straw other than rye.
  3. Grass Hay: Reasonably weed-free and where it is to be anchored by crimping must have approximately 50% of the stems exceeding 10 inches in length.
  4. Shredded Bark: Shredded or stringy texture.
  5. Wood and Paper Fiber: Form a blotter-like ground cover when applied.

## 2.6 EROSION BLANKETS

- A. Erosion blankets must be of material and construction that will remain in place, without deterioration, for at least three years or until 70 percent revegetation is established. The type and structure is to be approved prior to installation.

## 2.7 RIPRAP

- A. Riprap will be classified as loose riprap, hand placed riprap, sack riprap and concrete stabilized riprap. Material to be durable, angular field or quarry stones of approved quality, sound, hard, free from seams and other structural defects from an approved source, suitable salvaged concrete or concrete in sacks. Material to be uniformly graded such that smaller material will fill the voids in larger material and the larger material will still be in contact with each other. Grading will be determined by visual inspection prior to placement.
- B. Loose Riprap.
  1. Stone to be nearly rectangular, approximately 50% having a volume greater than 1 cubic foot.
  2. Maximum size not to exceed minimum depth of riprap as specified on the Contract Documents.

- C. Hand Placed Riprap.
  - 1. Stone to be nearly rectangular, approximately 40% having a volume greater than 1 cubic foot.
  - 2. No stone to be less than 6 inches thick.
- D. Sack Riprap.
  - 1. To consist of Class 1500 psi concrete as specified in Section 703 - Cast-in-Place Concrete.
  - 2. Only when pre-approved by the Engineer.
- E. Concrete Stabilized Riprap.
  - 1. Stone to conform to B or C above.
  - 2. Concrete to conform to D above.
  - 3. To be used only when pre-approved by the Engineer.

## 2.8 TEMPORARY SLOPE PROTECTION

- A. Refer to Section 1000 – Construction Stormwater BMPs.

## **PART 3 WORKMANSHIP**

### 3.1 SEEDING AND MULCHING

- A. This work is to consist of seedbed preparation and sowing seed on prescribed areas in accordance with these specifications and Contract Documents.
- B. Use the drill seeding method on all areas with slopes of 3:1 or flatter and where there is not excessive rock, gravel, or hardpan. Apply fertilizer, seed and mulch in separate operations, one following the other and in that order, except that fertilizer may be applied with fertilizer attachment at time of seeding or with irrigation water when establishment water is specified. Perform tillage and drilling so that cross-slope furrows remain.
- C. Class of Seeding
  - 1. Seeding is to be of the class as designated in Table 1.

Table 1  
SEED CLASS

OPERATION	CLASS						
	A	B	C	D	E	F	G
Seedbed Preparation	X	X	X	X	-	-	X
Seeding	X	X	X	X	X	X	X
Mulching	X	-	X	-	X	-	X
Anchoring (Mechanical)	X	-	-	-	-	-	-
Anchoring (Tack)	-	-	X	-	X	-	-
Erosion Blanket	-	-	-	X	-	-	-

X = Required.  
- = Not Required.

2. Seed mixture will be identified in the Special Provisions.

D. Season of Work

1. Perform seeding during the season(s) designated in the Contract Documents.
2. When a portion of an area to be seeded is ready during a designated seeding season, complete that portion during that season for partial acceptance.
3. Perform no seeding operations when soil is too wet or dry, frozen, or otherwise unillable.
4. If seeding of the work area is the only remaining work to be done on the contract and a time frame for seeding is provided for in the proposal, contract time for completion will be considered the latest date shown in the seeding time frame.

E. Construction Requirements

1. Seedbed Preparation.
  - a. Maintain areas to be seeded reasonably free of weeds by mechanical means or application of appropriate chemicals until seeding time. Keep weeds from going to seed.
  - b. Cultivate areas to be seeded by drilling to a minimum depth of 3 inches. Work the soil to obtain a surface that will permit proper operation of seeding equipment.
  - c. On areas to be seeded by broadcasting, till the seedbed immediately prior to seeding to a roughened condition and make the soil loose to an approximate 2 inches depth. Soil condition similar to that obtained by walking a cleated crawler tractor up and down the slopes is required. Where slopes are benched, no additional preparation will be required.

- d. Roughly finish slopes to be topsoiled. After topsoil has been spread, prepare the surface for seeding as specified above.
  - e. On areas subject to severe erosion, the extent of seedbed preparation is not to exceed the area on which the entire seeding and mulching can be applied within one day's operation. If conditions occur which prevent seeding in a proper furrow, or if the roughened condition is destroyed, prepare the seedbed again.
2. Fertilizing (Commercial).
- a. The type and application rate of fertilizer is identified in the Contract Documents. Apply the fertilizer by the most appropriate of the following methods:
    - 1. Fertilizer drill.
    - 2. Broadcast.
    - 3. Water applied.
  - b. Wherever possible, place fertilizer with the seed at time of drilling by use of a fertilizer attachment. Fertilizer may be broadcast (wet or dry) or drilled. Fertilizer may be applied with irrigation water as directed. When fertilizing established stands, apply fertilizer when average noontime temperatures are 60°F or under.
3. Seeding.
- a. The mix and rate of seeding is designated in the Contract Documents.
  - b. Apply the seed uniformly over the area by the most appropriate of the following methods.
    - 1. Drill seeding (double disc with agitator).
    - 2. Broadcast seeding.
      - a. Hydro-seeder.
      - b. Dry (whirlwind).
  - c. Where mulch is not to be used after drilling, plant seed at the bottom of approximately 2 inch depth furrows shaped by the double disc openers. Regulate the speed and spring pressure so that not over 1/2 inch of soil covers the seed and the furrows are left open. Drag chains will not be allowed. Where mulch is to be used after drilling, place seed as shallow in the soil as

possible and still be well covered. Do not seed when wind interferes with seed placement. Drill spacing must not exceed 9 inches. Seed legume seed through a separate box from the grass seed, with seed spouts out, or broadcast ahead of the drill. Broadcast native seeds in the mix immediately ahead of the drill.

- d. Thoroughly mix seed before placing in the drill or seeder box.
- e. Where it is not practical to drill, broadcast the seed by use of a hydro-seeder or dry broadcast equipment. Do not mix fertilizer with the seed in the hydro-seeder. Do not agitate seed in the hydro-seeder over 30 minutes.
- f. Do not drive trucks or equipment over the area after seed is in place.

#### 4. Mulching.

- a. Apply straw, grass hay, shredded bark, or wood fiber mulch as directed. Use the type of mulch as specified and spread uniformly at the following rates:
  - 1. Straw or Grass Hay (air dry): 2 ton/acre.
  - 2. Wood Fiber: 1 ton/acre.
  - 3. Shredded Bark: per Contract Documents.
  - 4. Process Grass Straw: 1 ton/acre.
- b. Unless otherwise directed, anchor straw, grass hay, or shredded bark into the soil by use of a heavy disc with flat scalloped discs approximately 1/4-inch thick, having dull edges and spaced no more than 9 inches apart. Anchoring to a depth of at least 2 inches, and with no more than one pass of the equipment on the same surface. When straw, grass hay, or shredded bark is not anchored mechanically, tie it down with tack applied at the rate of approximately 200 gallons/ton of mulch. Apply wood fiber by hydro-seeder.
- c. Do not mulch when wind interferes with mulch placement.

### 3.2. EROSION BLANKET

- A. The type of blanket is as identified in the Contract Documents.
  - 1. Place the blanket with fibers in contact with the soil over the entire area covered. On slopes the blanket may be unrolled either horizontally or vertically to the slope and lapped 4 inches over the adjoining blanket in the direction of flow and stapled. In ditches, the minimum width of blankets is to be 3 feet and lapped 4 inches. Staple

blanket at joints, corners and at approximate 5-foot intervals with approved staples. Bury the ends and edges.

### 3.3 RIPRAP

#### A. Excavation

1. Excavate toe trench for riprap below probable scour elevation or to the elevation shown on the Contract Documents.
2. Where scour elevation can not be determined and no elevation is shown on the Contract Documents, excavate trench 2 feet below channel grade.
3. Do not place any stones or concrete until toe trench and slopes have been approved.

#### B. Loose Riprap

1. Place so that larger stones are in contact with each other and voids are filled with the finer materials, producing a well-graded compact mass.
2. Place the stone on the slope in a manner to ensure the specified thickness in one operation.
3. When placing riprap, do not disturb the underlying material.
4. Do not place in layers parallel to the slope.

#### C. Hand Placed Riprap

1. Place stones by hand on prepared slopes to the thickness specified or directed.
2. Start by placing a course of the largest stones in the toe trench.
3. Place each stone so that it is partly on the prepared slope and not completely on the stone below and thoroughly tamp or drive into place.
4. Make the exposed face as smooth as the shape and size of the stones will permit. Face not to vary more than 3 inches from a plane surface on the required slope.

#### D. Sack Riprap

1. Sack riprap to consist of 0.667 cubic foot of Class 1500 psi concrete placed in approved burlap or cloth sacks. Deposit on the slope to be protected in accordance with the Contract Documents or as directed.
2. Place concrete in sacks in a uniform volume, leaving enough room to tie the sacks.

3. Place the sacks in longitudinal rows in the trench and on the slope.
4. Place the sacks on the slope such that their outside faces are reasonably true to line and grade.
5. Place with the tied end turned under and firmly press the sack in place.
6. Stagger joints in succeeding rows.
7. Do not place in freezing weather. Replace any work damaged by freezing at no additional compensation from the Owner.
8. Concrete may be placed in sacks in a dry state and dampened in place.

E. Concrete Stabilized Riprap

1. Place riprap in accordance with 3.3 or 3.4 above, then cover with concrete.
  - a. Clean surface of stones to be concrete of adhering dirt and clay and then moisten prior to placement of concrete.
  - b. Place concrete on rock surface by use of chutes, tubes, buckets, pneumatic equipment or any other approved method that will prevent segregation of the materials.
  - c. Immediately after placement, spade or rod the concrete into the rock voids to the depth shown on the Contract Documents.
  - d. After placing concrete, thoroughly brush the rocks so that their top surfaces are exposed.
  - e. Expose the outer rocks 33% to 25% of their diameter above the concrete surface.
  - f. Do not allow any workmen or equipment on the finished area for at least 24 hours, or longer if ordered.

**PART 4 MEASUREMENT AND PAYMENT**

4.1 Use the following unit price as designated in the Bid Schedule. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items.

- A. Seedbed Preparation: By the acre based on plan quantities except for authorized additives or deletions. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.

1. Bid Schedule Payment References: 206.4.1.A.1.
  2. Bid Schedule Description: Seedbed Preparation...acre (AC).
- B. Seeding: By the acre based on plan quantities except for authorized additives or deletions. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment References: 206.4.1.B.1.
  2. Bid Schedule Description: Seeding...acre (AC).
- C. Mulching: By the acre based on plan quantities except for authorized additives or deletions. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment References: 206.4.1.C.1.
  2. Bid Schedule Description: Mulching...acre (AC).
- D. Mulch Anchoring (mechanical): By the acre based on plan quantities except for authorized additives or deletions. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment References: 206.4.1.D.1.
  2. Bid Schedule Description: Mulch Anchoring (mechanical)...acre (AC).
- E. Mulch Anchoring (tack): By the acre based on plan quantities except for authorized additives or deletions. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment References: 206.4.1.E.1.
  2. Bid Schedule Description: Mulch Anchoring (tack)...acre (AC)..
- F. Erosion Blanket: By the acre based on plan quantities except for authorized additives or deletions. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment References: 206.4.1.F.1.
  2. Bid Schedule Description: Erosion Blanket...acre (AC).
- G. Fertilizing: By the acre based on plan quantities except for authorized additives or deletions. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment References: 206.4.1.G.1.
  2. Bid Schedule Description: Fertilizing...acre (AC).

- H. Loose Riprap: By the ton, cubic yards based on neat line dimensions in place.
  - 1. Bid Schedule Payment Reference: 206.4.1.H.1.
  - 2. Bid Schedule Description: Loose Riprap...ton (TON)
  - 3. Bid Schedule Payment Reference: 206.4.1.H.3.
  - 4. Bid Schedule Description: Loose Riprap...cubic yard (CY)
  
- I. Hand Placed Riprap: By the ton, cubic yards based on neat line dimensions in place.
  - 1. Bid Schedule Payment Reference: 206.4.1.I.1.
  - 2. Bid Schedule Description: Hand Placed Riprap... ton (TON)
  - 3. Bid Schedule Payment Reference: 206.4.1.I.3
  - 4. Bid Schedule Description: Hand Placed Riprap... cubic yard (CY)
  
- J. Sack Riprap: By the ton, cubic yards based on neat line dimensions in place.
  - 1. Bid Schedule Payment Reference: 206.4.1.J.1.
  - 2. Bid Schedule Description: Sack Riprap...ton (TON)
  - 3. Bid Schedule Payment Reference: 206.4.1.J.3
  - 4. Bid Schedule Description: Sack Riprap...cubic yard (CY)
  
- K. Concrete Stabilized Riprap: By the ton, cubic yards based on neat line dimensions in place.
  - 1. Bid Schedule Payment Reference: 206.4.1.K.1.
  - 2. Bid Schedule Description: Concrete Stabilized Riprap...ton (TON)
  - 3. Bid Schedule Payment Reference: 206.4.1.K.3.
  - 4. Bid Schedule Description: Concrete Stabilized Riprap...cubic yard (CY)

END OF SECTION

## SECTION 207

### PERMANENT STORMWATER BEST MANAGEMENT PRACTICES

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Stormwater Filters.
  - 1. Biofiltration Swale (Vegetated Swale).
  - 2. Bioinfiltration Swale (Bioretention Swale).
  - 3. Vegetative Filter Strip.
  - 4. Sand Filter.
  - 5. Compost Stormwater Filter.
  - 6. Catch Basin Insert.
- B. Infiltration Facilities.
  - 1. Infiltration Trench.
  - 2. Bioretention Basin.
- C. Detention Facilities.
  - 1. Wet Pond (Conventional Pollutants).
  - 2. Wet Pond (Nutrient Control).
  - 3. Wet Extended Detention Pond.
  - 4. Dry Extended Detention Pond.
  - 5. Biodetention Basin.
  - 6. Presettling/Sedimentation Basin.
  - 7. Wet Vault/Tank.
- D. Other Structural Controls.
  - 1. Oil/Water Separator.
  - 2. Level Spreader.

## 1.2 RELATED SECTIONS

- A. Section 201 – Clearing and Grubbing.
- B. Section 202 – Excavation and Embankment.
- C. Section 205 – Dewatering.
- D. Section 206 – Permanent Erosion Control.
- E. Section 301 – Trench Excavation.
- F. Section 305 – Pipe Bedding.
- G. Section 306 – Trench Backfill.
- H. Division 1000 – Construction Stormwater Best Management Practices.

## 1.3 REFERENCES

- A. Idaho Department of Environmental Quality’s Catalog of Stormwater Best Management Practices for Idaho Cities and Counties.

## 1.4 REGULATORY REQUIREMENTS

- A. Conform to applicable code for disposal of debris.
- B. Coordinate with utility companies before excavating.

## 1.5 SUBMITTALS

- A. Submit manufacturer’s certification that materials meet or exceed specified requirements.
- B. Submit manufacturers’ installation instructions and maintain copy at the jobsite.

## 1.6 DELIVERY, STORAGE AND HANDLING

- A. Unload, store and load construction site management materials in a manner which prevents damage.

# **PART 2 MATERIALS**

## 2.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality’s Catalog of Stormwater Best Management Practices at:

[www.deq.state.id.us](http://www.deq.state.id.us)

### **PART 3 WORKMANSHIP**

#### **3.1 INCORPORATED BY REFERENCE**

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:  
  
www.deq.state.id.us
- B. Unless otherwise specified in the Contract Documents, monitor, maintain, and remove BMPs in accordance with the Stormwater Pollution Prevention Plan and NOI.

### **PART 4 MEASUREMENT AND PAYMENT**

#### **4.1 Unless specifically indicated in the Bid Schedule, all labor, materials and equipment required for construction site management will be considered incidental to other Bid Items.**

- A. Stormwater Filters: By the linear foot. Includes all appurtenances not itemized on the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 207.4.1.A.1.
  - 2. Bid Schedule Description: Biofiltration Swale (Vegetated Swale)...linear foot (LF).
  - 3. Bid Schedule Payment Reference: 207.4.1.A.3.
  - 4. Bid Schedule Description: Bioinfiltration Swale (Bioretention Swale)...linear foot (LF).
  - 5. Bid Schedule Payment Reference: 207.4.1.A.5.
  - 6. Bid Schedule Description: Vegetative Filter Strip...linear foot (LF).
  - 7. Bid Schedule Payment Reference: 207.4.1.A.7.
  - 8. Bid Schedule Description: Sand Filter...square foot (SF).
  - 9. Bid Schedule Payment Reference: 207.4.1.A.9.
  - 10. Bid Schedule Description: Compost Stormwater Filter...each (EA).
  - 11. Bid Schedule Payment Reference: 207.4.1.A.11.
  - 12. Bid Schedule Description: Catchbasin Insert...each (EA).
- B. Infiltration Facilities: By the linear foot. Includes all appurtenances not itemized on the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 207.4.1.B.1.
  - 2. Bid Schedule Description: Infiltration Trench...linear foot (LF).
  - 3. Bid Schedule Payment Reference: 207.4.1.B.3.
  - 4. Bid Schedule Description: Bioretention Basin...square foot (SF).

- C. Detention Facilities: By the cubic yard. Includes all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment Reference: 207.4.1.C.1.
  2. Bid Schedule Description: Wet Pond (Conventional Pollutants)...cubic yard (CY).
  3. Bid Schedule Payment Reference: 207.4.1.C.3.
  4. Bid Schedule Description: Wet Pond (Nutrient Control)...cubic yard (CY).
  5. Bid Schedule Payment Reference: 207.4.1.C.5.
  6. Bid Schedule Description: Wet Extended Detention Pond...cubic yard (CY).
  7. Bid Schedule Payment Reference: 207.4.1.C.7.
  8. Bid Schedule Description: Dry Extended Detention Pond...cubic yard (CY).
  9. Bid Schedule Payment Reference: 207.4.1.C.9.
  10. Bid Schedule Description: Biodetention Basin...cubic yard (CY).
  11. Bid Schedule Payment Reference: 207.4.1.C.11.
  12. Bid Schedule Description: Presettling/Sedimentation Basin...cubic yard (CY).
  13. Bid Schedule Payment Reference: 207.4.1.C.13.
  14. Bid Schedule Description: Wet Vault/Tank...each (EA).
- D. Other Structural Controls: By the per-each basis. Includes all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment Reference: 207.4.1.D.1.
  2. Bid Schedule Description: Oil/Water Separator...each (EA).
  3. Bid Schedule Payment Reference: 207.4.1.D.3.
  4. Bid Schedule Description: Level Spreader...each (EA).

END OF SECTION

## SECTION 601

### CULVERT, STORM DRAIN AND GRAVITY IRRIGATION PIPE

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Culvert, storm drain and gravity irrigation pipe materials, installation and testing.

##### 1.2 RELATED SECTIONS

- A. Section 301 – Trench Excavation.
- B. Section 304 – Trench Foundation Stabilization.
- C. Section 305 – Pipe Bedding.
- D. Section 306 – Trench Backfill.
- E. Section 405 – Non-Potable Water Line Separation.
- F. Section 501 – Gravity Sewers.

##### 1.3 REFERENCES

- A. AASHTO M 36: Corrugated Metal Pipe, Ribbed Pipe and Pipe Arches.
- B. AASHTO M 196: Corrugated Aluminum Pipe and Pipe Arches.
- C. AASHTO M 252: Corrugated Polyethylene Drainage Tubing, 3 inch to 10 inch.
- D. AASHTO M 294: Corrugated Polyethylene Pipe, 12 inch to 48 inch.
- E. ASTM C 14: Concrete Sewer, Storm Drain, and Culvert Pipe.
- F. ASTM C 76: Reinforced Concrete Pipe.
- G. ASTM C 443: Joints for Circular Concrete Sewer and Culvert Pipe, using Rubber Gaskets.
- H. ASTM C 924: Standard Practice for Testing Concrete Pipe Sewer Lines by Low-Pressure Air Test Method.
- I. ASTM D 3034: Type PSM PVC Sewer Pipe and Fittings.

- J. ASTM F 477-02: Elastomeric Seals for Joining Plastic Pipe.
- K. ASTM F 679: PVC Large Diameter Plastic Gravity Sewer Pipe and Fittings.
- L. ASTM F 794-01: PVC Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.
- M. ASTM F 1803: Dual wall closed profile PVC sewer pipe sizes 18" to 60".

#### 1.4 SUBMITTALS

- A. Submit shop drawings for materials to be installed or furnished under this section.
- B. Submit manufacturer's certification that pipe and fittings meet or exceed specified requirements including all requested test results and material identification.
- C. Submit manufacturers' installation instructions and maintain copy at the jobsite.

#### 1.5 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of constructed culverts and other encountered utilities in relation to existing permanent benchmarks.
- B. Provide copy of record documents to Owner prior to issuance of substantial completion.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. Handle and store pipe in a manner which prevents shock, damage or excessive exposure to sunlight and weather.
- B. Protect gasket material from damage, sunlight and contamination until ready for installation in the pipe.

## **PART 2 MATERIALS**

### 2.1 PIPE SIZE, TYPE AND STRENGTH

- A. If type and strength classifications are not indicated in the Contract Documents, use any of the alternate pipe materials meeting the minimum requirements of this section.
- B. Comply with pipe size, type, and strength classifications indicated in the Contract Documents.

- C. Notify the Engineer if installation conditions such as trench width, depth, soils, and bedding conditions do not match conditions contemplated by the Contract Documents.

## 2.2 CULVERT, STORM DRAIN AND GRAVITY IRRIGATION PIPE AND FITTINGS

- A. Solid Wall PVC Pipe Sizes 4 inch to 15 inch: ASTM D 3034.
  - 1. Minimum Wall Thickness: SDR 35.
  - 2. Joints: Elastomeric gasket joints with ASTM F 477-02 elastomeric gaskets.
- B. Solid Wall PVC Pipe Sizes 18 inch to 36 inch: ASTM F 679.
  - 1. Minimum Wall Thickness: T-1 (or T-2 with Engineer approval).
- C. Ribbed PVC Pipe Sizes 8 inch to 48 inch: ASTM F 794-01, PS46.
  - 1. Minimum Pipe Stiffness: 46 psi.
  - 2. Ribs to be perpendicular to the axis of the pipe, unless otherwise approved by the Engineer.
- D. Large Diameter Closed Profile PVC Pipe Sizes 18 inch to 60 inch: ASTM F 1803.
  - 1. Minimum Pipe Stiffness: 46 psi.
- E. Polyvinyl Chloride Profile Wall Drain Pipe and Fittings, 15 inch to 48 inch: AASHTO M 304.
  - 1. Minimum Pipe Stiffness: Sufficient to accommodate HS-25 traffic loading considering depth of bury, soil conditions, and application.
- F. Corrugated Polyethylene Drainage Tubing, 3 inch to 10 inch: AASHTO M 252.
  - 1. Type: S – smooth inner liner, or Type D – smooth inner liner with essentially smooth outer wall with internal supports.
  - 2. Minimum Pipe Stiffness: 46 psi.
  - 3. Joints: Watertight bell and spigot with ASTM F 477-02 gaskets.
- G. Corrugated Polyethylene Pipe, 12 inch to 60 inch: AASHTO M 294, and AASHTO MP7-97.
  - 1. Type: S – smooth inner liner, or Type D – smooth inner liner with essentially smooth outer wall with internal supports.

2. Minimum Pipe Stiffness: Sufficient to accommodate HS-25 traffic loading considering depth of bury, soil conditions, and application.
  3. Joints: Watertight bell and spigot with ASTM F 477-02 gaskets.
- H. Reinforced Concrete Pipe 12 inch to 144 inch: ASTM C 76.
1. Minimum Class: As indicated in the Contract Documents.
  2. Joints: ASTM C 443, Rubber Gasket Joints.
  3. Liner: Section 506, Plastic Liner.
- I. Non-Reinforced Concrete Pipe - 4 inch to 36 inch: ASTM C 14.
1. Minimum Class: Class 3 unless otherwise indicated in the Contract Documents.
  2. Joints: ASTM C 443, Rubber Gasket Joints.
  3. Liner: Section 506, Plastic Liner.
- J. Corrugated Galvanized Steel Metal Pipe, Ribbed Pipe and Pipe Arches: AASHTO M 36.
1. Type, Thickness and Corrugation: AASHTO M 218 and as indicated in the Contract Documents.
  2. Bituminous Exterior Coating: AASHTO M 190, Type A or aluminized Type 2 coating per AASHTO M 274.
  3. Joints: Consistent with corrugations.
- K. Corrugated Aluminum Pipe and Pipe Arches: AASHTO M 196.
1. Type, Thickness and Corrugation: As indicated in the Contract Documents.
  2. Joints: Consistent with corrugations.
- L. Corrugated Aluminized Steel Pipe and Pipe Arches – AASHTO M 36.
1. Type, thickness and corrugation: AASHTO M 274 and as indicated in the Contract Documents.
  2. Joints: Consistent with corrugations.

## 2.3 COUPLINGS FOR DISSIMILAR PIPE OR TWO PLAIN ENDS OF SIMILAR PIPE

- A. Coupling for Two Pipes of Dissimilar Type or Size: Flex seal couplers made by Mission Clay Products of Corona, California, or approved substitution providing for a watertight connection, and a consistent pipe invert.
- B. Coupling for Two Pipes Where Factory Bell and Spigot are not Available: Flex seal couplers made by Mission Clay Products of Corona, California, or approved substitution providing for a watertight connection and a consistent pipe invert.
- C. Coupling of PVC Plain End to PVC Plain End: Bell-by-bell connection.

## 2.4 GRAVITY IRRIGATION SLIDE GATES AND VALVES

- A. Refer to Special Provisions.

## 2.5 SOURCE QUALITY CONTROL

- A. Provide test and inspection reports required by the Standard for the pipe and fittings.
- B. Inspect pipe and fittings, markings to verify type, class, thickness and marking information required by the Standard for the pipe and fitting.

# **PART 3 WORKMANSHIP**

## 3.1 EXAMINATIONS

- A. Verify that excavations are to required alignment and grade and installation meets the requirements of Section 405 – Non-Potable Water Line Separation.
- B. Verify that trench conditions and shoring, sheeting, and bracing protect workers and meet the requirements of OSHA.
- C. Examine pipe and fittings for defects or damage.
- D. Verify pipe, fittings, aggregate, and materials delivered to the site meet the requirements of the Contract Documents.
- E. Verify utility locations, required separation, existing piping locations and structures where connections are to be made prior to beginning work. Notify the Engineer if field conditions are different from the Contract Documents. Allow 4 hours for the Engineer to modify the design, if necessary, unless otherwise specified.

## 3.2 PIPE INSTALLATION

- A. Prepare trench bottom as required by Section 301 – Trench Excavation.

- B. Maintain groundwater 1 foot below the pipe invert and, if necessary, provide foundation stabilization in accordance with Section 304 – Trench Foundation Stabilization.
- C. Provide pipe bedding and initial backfill as required by Section 305 – Pipe Bedding.
- D. Install pipe in accordance with the manufacturer's recommendations for the type of pipe specified in the Contract Documents.
- E. For bell and spigot installation, install pipe upgrade with the bell-end upgrade.
- F. Use standard lengths of pipe unless otherwise required for installation of tees, fittings, catch basins, manholes, or culvert inlets and outlets.
- G. Utilize proper tools for cutting and beveling pipe ends and joining pipe. Use manufacturer's recommended tools designed for this task.
- H. Move pipe carefully and prevent damage to pipe and manufactured ends while lowering pipe into trench.
- I. Remove dirt and other foreign material from pipe.
- J. For bell and spigot installation, prepare pipe joint using specified gasket and manufacturer's recommended lubricant. For corrugated piping, provide and install couplings consistent with piping system.
- K. For bell and spigot installation, mark, or verify that pipe ends are marked, to indicate insertion stop position (home). Ensure that pipe is inserted into bell to this mark. Push spigot into bell using methods recommended by the manufacturer. Protect the end of the pipe during "homing" and do not use excessive force that may result in over-assembled joints, dislodged gaskets, or damaged ends. If full entry is not achieved, disassemble and clean the joint and reassemble.
- L. Provide sufficient restraint for the pipe to ensure that joints are held in place while bedding and initial backfill are placed.
- M. Limit joint gap on concrete pipe to less than 5/8 inch for pipe 4 inches through 10 inches, 7/8 inch for pipe 12 inches through 24 inches, and 1 inch for pipe 27 inches and larger.
- N. When pipe installation is not in progress, block and plug the open end of the pipe to prevent creep, uplift or floating and entrance of water or other material into the pipe.
- O. Limit variance of installed pipe from design line and grade to less than 0.02 feet, unless a smaller variance is necessary to prevent a level or negative slope.
- P. Backfill trench as required by Section 306 – Trench Backfill.

### 3.3 PLUGS AND PIPE MARKERS

- A. Where indicated in the Contract Documents, furnish and install plugs or caps on pipe ends and stub-outs.
  - 1. Provide shop drawings for plugs and caps on pipelines greater than 18 inches in diameter.
  - 2. Ensure plugs and caps are easily removed and provide a suitable end for making a connection when the pipeline is extended.
  - 3. Fasten or block caps and plugs to ensure no displacement during testing and backfilling.
- B. Furnish and install pipe markers at stub-outs per Standard Drawing SD-512 - Standard Service Marker.
- C. Provide the Engineer with two working days notice to allow measurement of the vertical and horizontal location of pipe ends before the pipeline is covered.

### 3.4 PIPE ANCHORS

- A. Install pipe anchors as required per Standard Drawing SD-510 - Pipe Anchors.

### 3.5 TESTING

- A. Perform testing in the presence of the Engineer.
- B. For pipes 24 inches and smaller:
  - 1. Test per ASTM C 924: Standard Practice for Testing Concrete Pipe Sewer Lines by Low Pressure Air Test Method.
  - 2. Visual inspection, pipe cleaning, deflection tests (for flexible pipe) and CCTV are all required per Section 501 – Gravity Sewers.
- C. For pipes larger than 24 inches:
  - 1. Test per Section 501 – Gravity Sewers.

## PART 4 MEASUREMENT AND PAYMENT

- 4.1 Use one of the following unit price options as designated on the Bid Schedule. Work includes all labor, equipment and materials required to complete the work including pipe, fittings, couplings, connections, excavation, pipe bedding, backfill, end bevels, and all appurtenances not itemized in the Bid Schedule. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items. Surface repair is incidental to this bid item unless otherwise listed in the Bid Schedule.
- A. Storm Drain/Culvert/Gravity Irrigation Pipe: By the linear foot for the size, type and class of pipe specified measured along the horizontal centerline through all fittings and structures including flared ends.
1. Bid Schedule Payment Reference: 601.4.1.A.1.
  2. Bid Schedule Description: \_\_\_\_\_ Storm Drain/Culvert/Gravity Irrigation Pipe, Class \_\_\_\_\_ Reinforced Concrete (RCP)...linear foot (LF).
  3. Bid Schedule Payment Reference: 601.4.1.A.3.
  4. Bid Schedule Description: \_\_\_\_\_ Storm Drain/Culvert/Gravity Irrigation Pipe, Class \_\_\_\_\_ Non-Reinforced Concrete (NRCP)...linear foot (LF).
  5. Bid Schedule Payment Reference: 601.4.1.A.5.
  6. Bid Schedule Description: \_\_\_\_\_ Storm Drain/Culvert/Gravity Irrigation Pipe, Class \_\_\_\_\_ PVC...linear foot (LF).
  7. Bid Schedule Payment Reference: 601.4.1.A.7.
  8. Bid Schedule Description: \_\_\_\_\_ Storm Drain/Culvert/Gravity Irrigation Pipe, Class \_\_\_\_\_ Ribbed PVC...linear foot (LF).
  9. Bid Schedule Payment Reference: 601.4.1.A.9.
  10. Bid Schedule Description: \_\_\_\_\_ Storm Drain/Culvert/Gravity Irrigation Pipe, Class \_\_\_\_\_ Closed Profile PVC...linear foot (LF).
  11. Bid Schedule Payment Reference: 601.4.1.A.11.
  12. Bid Schedule Description: \_\_\_\_\_ Storm Drain/Culvert/Gravity Irrigation Pipe, Class \_\_\_\_\_ Corrugated Galvanized Steel (CGSP)...linear foot (LF).
  13. Bid Schedule Payment Reference: 601.4.1.A.13.
  14. Bid Schedule Description: \_\_\_\_\_ Storm Drain/Culvert/Gravity Irrigation Pipe, Class \_\_\_\_\_ Corrugated Aluminum (CAP)...linear foot (LF).
  15. Bid Schedule Payment Reference: 601.4.1.A.15.
  16. Bid Schedule Description: \_\_\_\_\_ Storm Drain/Culvert/Gravity Irrigation Pipe, Class \_\_\_\_\_ Corrugated Aluminized Steel (CASP)...linear foot (LF).

17. Bid Schedule Payment Reference: 601.4.1.A.17.
18. Bid Schedule Description: \_\_\_\_\_ Storm Drain/Culvert/Gravity Irrigation Pipe, Class \_\_\_\_\_ Corrugated Polyethylene (CPP)...linear foot (LF).
  
19. Bid Schedule Payment Reference: 601.4.1.A.19.
20. Bid Schedule Description: \_\_\_\_\_ x \_\_\_\_\_ Pipe Arch, Class \_\_\_\_\_ Corrugated Galvanized Steel (CGSPA)...linear foot (LF).
  
21. Bid Schedule Payment Reference: 601.4.1.A.21.
22. Bid Schedule Description: \_\_\_\_\_ x \_\_\_\_\_ Pipe Arch, Class \_\_\_\_\_ Corrugated Aluminum (CAPA)...linear foot (LF).
  
23. Bid Schedule Payment Reference: 601.4.1.A.23.
24. Bid Schedule Description: \_\_\_\_\_ x \_\_\_\_\_ Pipe Arch, Class \_\_\_\_\_ Corrugated Aluminized Steel Pipe Arch (CASPA)...linear foot (LF).

END OF SECTION

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## SECTION 602

### STORM DRAIN INLETS, CATCH BASINS, MANHOLES, AND GRAVITY IRRIGATION STRUCTURES

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Stormwater inlets, catch basins, manholes and appurtenances.

##### 1.2 RELATED SECTIONS

- A. Section 204 – Structural Excavation and Backfill.
- B. Section 301 – Trench Excavation.
- C. Section 305 – Pipe Bedding.
- D. Section 405 – Non-Potable Water Line Separation.
- E. Section 506 – Plastic Liner.
- F. Section 601 – Culvert and Storm Drain Pipe.
- G. Section 703 – Cast-in-Place Concrete.
- H. Section 704 – Precast Concrete.

##### 1.3 REFERENCES

- A. ASTM A 48: Gray Iron Castings.
- B. ASTM C 478: Precast Reinforced Concrete Manhole Sections.

##### 1.4 SUBMITTALS

- A. Submit shop drawings for materials to be installed or furnished under this section.
- B. Submit manufacturer's certification that inlets, catch basins, manholes and appurtenances meet or exceed specified requirements.
- C. Submit manufacturers' installation instructions and maintain copy at the jobsite.

##### 1.5 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of constructed inlets, catch basins, stormwater manholes and other encountered utilities in relation to existing permanent benchmarks.

- B. Provide copy of record drawings to Owner prior to issuance of substantial completion.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. Handle and store inlet, catch basin and manholes sections, castings, and appurtenances in a manner which prevents shock, damage or excessive exposure to weather.
- B. Protect joint sealing material from damage, sunlight and contamination until ready for installation in the manhole.

### **PART 2 MATERIALS**

#### 2.1 APPURTENANCES, TYPE AND STRENGTH

- A. Comply with inlet, catch basin, sediment trap, manhole and gravity irrigation structure size and type indicated in the Contract Documents and detailed in the Standard Drawings.
- B. Notify the Engineer if inlet, catch basin, sediment trap, manhole and gravity irrigation structure type and size classifications are not indicated in the Contract Documents.
- C. Notify the Engineer if installation conditions such as inlet, catch basin, sediment trap, manhole and gravity irrigation structure, invert depth, soils, and bedding conditions do not match conditions contemplated by the Contract Documents.

#### 2.2 PRECAST APPURTENANCES

- A. Precast Manholes: ASTM C 478 for all components except as modified herein and as shown on the Standard Drawings.
- B. Precast Inlets and Catch Basins: Per Section 704 – Precast Concrete and in accordance with the Standard Drawings.

#### 2.3 CAST-IN-PLACE APPURTENANCES

- A. Cast-in-Place Manholes: ASTM C 478 and Section 703 – Cast-in-Place Concrete for all materials and dimensions except as modified herein or as shown on the Standard Drawings.
- B. Cast-in-Place Inlets, Catch Basins, Sediment Traps, and Gravity Irrigation Structures: Per Section 703 – Cast-in-Place Concrete and in accordance with the Standard Drawings.

## 2.4 STEPS

### A. Aluminum.

1. Material: Forged 6061-T6 alloy with minimum tensile strength of 38 ksi.
2. Dimensions: Not less than 3/4 inch wide by 7/8 inch deep, with 2 non-skid grooves not to exceed 1/8 inch depth and 1/8 inch width.

### B. Plastic Coated Steel.

1. Material: 1/2 inch steel reinforced bar covered with a polypropylene plastic conforming to Standard Drawing SD-509-Plastic Coated Manhole Steps.
2. Products: Kor-N-Seal by NPC, Inc., or approved substitution.

## 2.5 GRADE RINGS, FRAMES, GRATES AND COVERS

### A. Provide size and shape detailed in the Standard Drawings unless otherwise specified in the Contract Documents.

### B. *Grade rings to be 3,000 psi per Section 703 - Concrete. An HDPE form, Wirly-Gig or approved substitution, installed per manufacturer's recommendations, may be used in lieu of grade rings up to the maximum height shown on the standard drawings for manholes.*

### C. Provide ASTM A 48 Class 30 ksi cast iron frames, grates and covers, free of all defects. Plane or ground castings to ensure perfectly flat, smooth, even, and true surfaces. When specified in the Contract Documents, galvanize or shop paint to provide corrosion protection.

### D. Covers to have "Storm Drain" or "Irrigation" (depending on application) molded into the top with letters having a minimum height of 1 inch, or as specified in the Contract Documents.

### E. Where lock-type castings are called for, provide a locking device made of corrosion resistant metal such that the cover may be readily released from the frame.

## 2.6 COLLARS

### A. Class 3000 psi concrete and ASTM A 615 Grade 60 ksi reinforcing steel as specified in Section 703 – Cast-in-Place Concrete.

## 2.7 LINER

### A. Per Section 506 – Plastic Liner.

## 2.8 MORTAR AND GROUT

- A. Per Section 703 – Cast-in-Place Concrete.

## 2.9 CULVERT HEADWALLS

- A. Per Section 703 – Cast-in-Place Concrete.

## 2.10 GRAVITY IRRIGATION SLIDE GATE AND VALVES

- A. Refer to Special Provisions.

## 2.11 PVC DRAINAGE STRUCTURES

- A. Polyvinyl Chloride (PVC) drainage structures are approved unless otherwise specified. Approved structures are limited to:
  - 1. Inline Basins,
  - 2. Catch Basins, and
  - 3. Curb Inlets.
- B. Nyloplast-ADS drainage structures, or approved equivalent.
  - 1. Structure. Heavy duty PVC per ASTM D 3034.
  - 2. Joints. Watertight per ASTM D 3212.
  - 3. PVC Gaskets: Watertight per ASTM F 1336.
  - 4. Frames and Grates: Ductile Iron per ASTM A 536 or Cast Iron per ASTM A 48.
  - 5. Structural Backfill: Type 1 aggregate per Section 802.
  - 6. Concrete: Class 3000 per Section 703.
- C. In all traffic areas, PVC drainage structures to be HS-25 rated with concrete collar integrally cast around the structural bearing frame. Wheel load is not to be borne directly by the PVC material.

## **PART 3 WORKMANSHIP**

### 3.1 EXAMINATIONS

- A. Verify that excavations are to required alignment and grade per Section 301 - Trench Excavation and Section 204 – Structural Excavation and Backfill, and installation complies with Section 405 – Non-Potable Water Line Separation.

- B. Verify that trench conditions and shoring, sheeting, and bracing protect workers and meet the requirements of OSHA.
- C. Examine inlets, catch basins, manholes and appurtenances for defects or damage.
- D. Verify inlets, catch basins, manholes, castings, aggregate, and materials delivered to the site meet the requirements of the Contract Documents.
- E. Verify utility locations and existing piping locations prior to beginning work. Notify the Engineer if field conditions are different from the Contract Documents. Allow 4 hours for the Engineer to modify the design, if necessary, unless otherwise specified.

### 3.2 PLACEMENT OF BEDDING

- A. Place a minimum of 4 inches of compacted bedding on prepared subgrade as specified in Section 305 – Pipe Bedding. Extend bedding either to the limits of the excavation or at least 12 inches outside the limits of the base section.
- B. Fill the balance of the excavated area with select material compacted level to the top of the bedding.
- C. Provide a smooth and level bearing surface on the bedding surface.

### 3.3 CONNECTION OF STORM DRAIN OR GRAVITY IRRIGATION LINES

- A. Provide a flexible connection between pipe and inlets, catch basins and manholes.
  - 1. Pipe Joint: Within 18 inches of the inlet, catch basin or manhole wall.
  - 2. Pipe Hub: Cast in the manhole wall or base.
  - 3. Flexible Manhole Connector: KOR-N-SEAL or approved substitution.
- B. Pipe hubs to be compatible with pipeline material and provide a watertight seal between the pipe and the manhole.
  - 1. Ridge Type: Embed in the manhole wall.
  - 2. Flexible O-Ring Type: Place on the exterior of the pipe installed as gaskets embedded in the concrete manhole wall.
- C. For HDPE profile pipe or other pipe with undular exterior, provide transition to smooth wall pipe prior to manhole.

### 3.4 CONNECTION TO EXISTING INLETS, CATCH BASINS, MANHOLES OR GRAVITY IRRIGATION STRUCTURES

- A. Core drill all connections to existing drainage structures to provide a neat and smooth access.
- B. Provide a Kor-n-Seal flexible connector or approved substitution between the drainage structure and the pipe, providing a waterproof barrier and flexible joint.
- C. For HDPE profile pipe or other pipe with undular exterior, provide transition to smooth wall pipe prior to manhole.

### 3.5 PLACEMENT OF CONCRETE BASES

- A. Cast-in-Place Bases.
  - 1. For New Storm Drains or Culverts: Per ASTM C 478, except where modified by the Standard Drawings or the Contract Documents.
  - 2. Over Existing Storm Drains or Culverts:
    - a. Provide a watertight seal, Ram-Nek gaskets, or approved substitution around the existing pipe at the manhole.
    - b. Saw cut existing storm drain or culvert to spring line, before pouring of the base. After pouring of the base, slope the base floor to flow to the existing storm drain or culvert line.
    - c. Fill all voids in the base floor and the exposed edges of the existing pipe with a non-shrink grout or mortar, allowing no deleterious material to enter the sewer system.
- B. Prefabricated Bases.
  - 1. Per ASTM C 478 or Section 704 – Precast Concrete except where modified by the Standard Drawings or the Contract Documents.

### 3.6 MANHOLE INVERT CONSTRUCTION

- A. Construct manhole inverts to provide smooth, flow-through characteristics and in accordance with the Standard Drawings and Contract Documents.
- B. Grouting of inverts and sharp edges or rough sections are not permitted.
- C. Construct the invert to a section identical with that of the lower half of the pipe flowing through the manhole. At transitions of different pipe diameters, construct the invert to form a smooth transition.

- D. Where a full section of sewer pipe is laid through the manhole, saw cut the top portion of the pipe to or below the spring line of the pipe. Cover the exposed edges with mortar.
- E. Slope the top surface of the manhole floor to drain towards the flow line as shown on the Standard Drawings. Provide a minimum manhole base diameter of 48 inches.
- F. Divert flow for at least 24 hours following the placement of concrete or mortar in the invert section(s).
- G. Construct catch manhole and catch basin inverts per applicable Standard Drawings. Inverts to be flush with interior wall of structure.

### 3.7 APPURTENANCES BARREL OR BOX CONSTRUCTION

- A. Construct cast-in-place manhole, inlet and catch basin walls or place precast barrel or box sections plumb and true per the Standard Drawings, the Contract Documents, and ASTM C 478.
- B. Prior to installation of barrel or box sections, place non-shrink grout or a mastic (Ram-Nek or approved substitution) to the top of the concrete base providing a watertight seal, as applicable. Alternatively, imbed the barrel section in the concrete base prior to the concrete curing.

### 3.8 JOINTING OF PRECAST SECTIONS

- A. Seal joints with a mastic material (Ram-nek or approved substitution).
- B. Trim mastic flush with the inside wall of the manhole, inlet or catch basin and grout voids with a non-shrink grout.

### 3.9 PLACEMENT OF GRADE RINGS

- A. Adjust inlet, catch basin or manhole frames to design elevations with grade rings such that the maximum height of the grade rings is less than 21 inches from the top of the manhole cone or inlet / catch basin box to the frame.
- B. Set grade rings in a bed of non-shrink grout or mortar troweled smooth with the inside of the manhole or inlet / catch basin. Apply non-shrink grout between metal frame and top grade ring and between multiple grade rings. A mastic material may be used if pre-approved by Engineer.

### 3.10 INSTALLATION OF STEPS

- A. Install steps in manholes, inlets or catch basins greater than 4 feet in depth with locations in accordance with the Standard Drawings.
- B. Cast, mortar, or attach steps by mechanical means to meet the loading and testing requirements of ASTM C 478 and Test Method C 497.

### 3.11 TESTING

- A. Perform testing after backfilling and compaction and following installation of other utilities but prior to surface restoration, unless using the vacuum method.
- B. For the vacuum test method, conduct preliminary tests prior to backfilling and final tests after backfilling and compaction of trenches.
- C. Unless otherwise indicated in the Contract Documents, test all manholes, inlets and catch basins.
- D. Hydrostatic Testing.
  - 1. Pre-fill: Fill manhole, inlet or catch basin with water 24 hours prior to the time of the test, if desired, to permit normal absorption into the walls to take place.
  - 2. Plug Pipes: Plug all piping, inlets and outlets in the drainage structure.
  - 3. Fill: Fill with water to within 1 foot of the ring elevation.
  - 4. Requirement: An allowance of 0.1 gallon/hour for each foot of structure depth is allowed. Repair and retest upon failure.
- E. Vacuum Testing.
  - 1. Authorization: Vacuum test stormwater manholes only with pre-approval of the Engineer unless directed to do so in the Contract Documents.
  - 2. Tester and Procedure: Per Section 502 - Manholes.

### 3.12 PLACEMENT OF CONCRETE COLLARS

- A. Place collars in all paved areas per Standard Drawings SD-616 - Manhole Collar.
- B. Finish the surface of the concrete collar with a smooth uniform lightly broomed surface 1/8 inch to 1/4 inch below the adjacent pavement.
- C. Install frame and cover even with the concrete surface.
- D. Allow Engineer to inspect concrete reinforcement on each collar.

### 3.13 SPECIAL STRUCTURES

- A. Construct special structures per requirements for standard inlets, catch basins, manholes, sediment traps or gravity irrigation structures as shown in the Standard Drawings except as otherwise called for in the Contract Documents.

### 3.14 PVC DRAINAGE STRUCTURES

- A. Excavate a minimum of 2 feet around structure and 1 foot below structure to allow placement and compaction of structural backfill material.
- B. Remove additional unsuitable material below the structure and replace with foundation stabilization material, if required.
- C. Install drainage structure, appurtenances, and connecting pipe in accordance with manufacturer's recommendations to ensure a structurally sound and water tight structural assembly and pipe connections. Adjust structure to correct elevation.
- D. Backfill with Type 1 aggregate placed in 12" lifts and compacted to 95% density per AASHTO T 99.
- E. Test to the approval of the Engineer in accordance with this section.
- F. In traffic areas and other locations shown on the plans, pour a concrete collar around frame so traffic load is transferred to the collar and not imposed on the PVC structure.
- G. Unless otherwise detailed, install per Standard Drawing SD-625.

## **PART 4 MEASUREMENT AND PAYMENT**

- 4.1 Use one or more of the following unit price options as designated on the Bid Schedule. Includes furnishing and installing the drainage or gravity irrigation structure, frame, grate, cover, appurtenances, pipe connections, excavation, bedding, foundation, backfill, compaction, collars, testing, and all other items not itemized on the Bid Schedule. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items.
  - A. Storm Drain or Gravity Irrigation Manhole: Per each for the various types and sizes of manholes indicated on the Bid Schedule.
    - 1. Bid Schedule Payment Reference: 602.4.1.A.1.
    - 2. Bid Schedule Description: Storm Drain or Gravity Irrigation Manhole – Type \_\_\_\_\_...each (EA).
  - B. Storm Drain or Gravity Irrigation Manhole Extra Depth: Per each basis for depth 4 feet through 10 feet and per additional 1 foot for depths in excess of 10 feet. Measurement of manhole depths to the nearest foot from invert at the center of the manhole to the top of the manhole ring and cover.
    - 1. Bid Schedule Payment Reference: 602.4.1.B.1.
    - 2. Bid Schedule Description: Storm Drain or Gravity Irrigation Extra Depth Manhole – Type \_\_\_\_\_ 4 feet through 10 feet Vertical Depth...each (EA).

3. Bid Schedule Payment Reference: 602.4.1.B.3.
  4. Bid Schedule Description: Storm Drain or Gravity Irrigation Manhole – Type \_\_\_\_\_ Additional Depth...vertical foot (VF).
- C. Shallow Storm Drain or Gravity Irrigation Manhole: Per each for the various types and sizes of manholes indicated on the Bid Schedule.
1. Bid Schedule Payment Reference: 602.4.1.C.1.
  2. Bid Schedule Description: Shallow Storm Drain or Gravity Irrigation Manhole – Type \_\_\_\_\_...each (EA).
- D. Stormwater or Gravity Irrigation Structure Core Drilling: Per each for the size indicated on the Bid Schedule.
1. Bid Schedule Payment Reference: 602.4.1.D.1.
  2. Bid Schedule Description: Stormwater Structure Core Drilling \_\_\_\_\_ size...each (EA).
- E. Storm Drain or Gravity Irrigation Catch Manhole: Per each for the types and sizes of catch manholes indicated on the Bid Schedule.
1. Bid Schedule Payment Reference: 602.4.1.E.1.
  2. Bid Schedule Description: Storm Drain or Gravity Irrigation Catch Manhole...each (EA).
- F. Catch Basin: Per each for the type and size of catch basin indicated on the Bid Schedule.
1. Bid Schedule Payment Reference: 602.4.1.F.1.
  2. Bid Schedule Description: Catch Basin – Type \_\_\_\_\_...each (EA).
- G. Inlet: Per each for the various types and sizes of inlets indicated on the Bid Schedule.
1. Bid Schedule Payment Reference: 602.4.1.G.1.
  2. Bid Schedule Description: Inlet – Type \_\_\_\_\_...each (EA).
- H. Precast Sediment Box: Per each for the type and size of precast sediment box indicated on the bid Schedule.
1. Bid Schedule Payment Reference: 602.4.1.H.1.
  2. Bid Schedule Description: Precast Sediment Box - Size \_\_\_\_\_ ...each (EA).
- I. Sediment Box/Catch Basin: Per each for the type and size of sediment box/catch basin indicated on the Bid Schedule.
1. Bid Schedule Payment Reference: 602.4.1.I.1.
  2. Bid Schedule Description: Sediment Box/Catch Basin – Type \_\_\_\_\_...each (EA).

- J. Inlet Catch Basin Type V: Per each for the type and size of inlet catch basin indicated on the Bid Schedule.
1. Bid Schedule Payment Reference: 602.4.1.J.1.
  2. Bid Schedule Description: Inlet Catch Basin – Type V...each (EA).
- K. Dia. Gravity Irrigation Slide Gate: Per each for the type and size of dia gravity irrigation slide gate indicated on the Bid Schedule.
1. Bid Schedule Payment Reference: 602.4.1.K.1.
  2. Bid Schedule Description: \_\_\_\_\_ Dia Gravity Irrigation Slide Gate - Type \_\_\_\_\_...each (EA).
- L. Dia. Gravity Irrigation Valves: Per each for the type and size of dia gravity irrigation valve indicated on the Bid Schedule.
1. Bid Schedule Payment Reference: 602.4.1.L.1.
  2. Bid Schedule Description: \_\_\_\_\_ Dia Gravity Irrigation Valves - Type \_\_\_\_\_...each (EA).
- M. Concrete Irrigation Box Size \_\_\_\_\_: Per each for the type and size of concrete irrigation box indicated on the Bid Schedule.
1. Bid Schedule Payment Reference: 602.4.1.M.1.
  2. Bid Schedule Description: Concrete Irrigation Box – Size \_\_\_\_\_...each (EA).
- N. Precast Concrete Irrigation Structure: Per each for the types and size of precast concrete irrigation structure indicated on the Bid Schedule.
1. Bid Schedule Payment Reference: 602.4.1.N.1.
  2. Bid Schedule Description: Precast Concrete Irrigation Structure - Size \_\_\_\_\_...each (EA).
- O. Irrigation Ditch \_\_\_\_\_ Wide by \_\_\_\_\_ Deep: Per each for the type and size of irrigation ditch indicated on the Bid Schedule.
1. Bid Schedule Payment Reference: 602.4.1.O.1.
  2. Bid Schedule Description: Irrigation Ditch – Size, \_\_\_\_\_ Wide by \_\_\_\_\_ Deep...each (EA).
- P. *Curb Opening Inlet: Per each for the type and size of curb opening inlet indicated on the Bid Schedule.*
1. *Bid Schedule Payment Reference: 602.4.1.P.1.*
  2. *Bid Schedule Description: Curb Opening Inlet.....each (EA).*

- Q. *Groundwater Observation Well: Per each for the type and size of groundwater observation well indicated on the Bid Schedule.*
1. *Bid Schedule Payment Reference: 602.4.1.Q.1.*
  2. *Bid Schedule Description: Groundwater Observation Well...each (EA).*
- R. *Anti-Seep Collar: Per each for the size of pipe indicated on the Bid Schedule.*
1. *Bid Schedule Payment Reference: 602.4.1.R.1.*
  2. *Bid Schedule Description: Anti-Seep Collar...each (EA).*

END OF SECTION

**SECTION 802**  
**CRUSHED AGGREGATES**

**PART 1      GENERAL**

1.1      SECTION INCLUDES

- A.      Crushed aggregate materials, testing and production, and construction requirements.

1.2      RELATED SECTIONS

- A.      Section 202 – Excavation and Embankment.

1.3      REFERENCES

- A.      AASHTO Standard Specifications for transportation and methods of Sampling and Testing.
- B.      WAQTC – Western Alliance for Quality Transportation Construction.

1.4      SUBMITTALS

- A.      When required in the Contract Documents, submit uncrushed aggregates source with archaeological clearance and reclamation plan.
- B.      Test results – gradation, sand equivalent, percent wear, etc.
- C.      Materials from approved Idaho Transportation Department materials source will not require project specific submittals for source quality unless otherwise specified in the Contract Documents.

1.5      PROJECT RECORD DOCUMENTS

- A.      Gradation charts and graphs.
- B.      Sand equivalent work sheets.
- C.      Percent wear test results.

1.6      DELIVERY, STORAGE AND HANDLING

- A.      Stockpile crushed aggregate in an approved location.
- B.      Stockpile, load, haul and place material in a manner which minimizes segregation.

## **PART 2 MATERIALS**

### **2.1 DESCRIPTION**

- A. Fine and coarse fragments of crushed stone or crushed gravel.
- B. May include sand, finely crushed stone, crusher screenings, or similar filler material.
- C. Crushed material consisting of hard, durable particles or fragments of stone free of flat, elongated or soft pieces, dirt, or other objectionable material.
- D. Percent of wear not more than 35, at 500 revolutions.
  - 1. AASHTO T 96: Los Angeles Abrasion Test.
- E. Production requirements.
  - 1. Percentage of fractured particles occurring in the finished product to be uniform and constant.
  - 2. The percentage of aggregate retained on the No. 4 sieve having at least one fractured face as determined by WAQTC TM-1 to be 60 percent for untreated base and 75 percent for treated base and road mix.
  - 3. Material may require screening and/or washing prior to crushing to eliminate excessive fines. No additional payment will be made for pre-screening or washing.
- F. Test coarse and fine aggregates for soundness.
  - 1. AASHTO T 104: Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate.
    - a. Five (5) cycles using sodium sulfate.
    - b. Maximum loss  $\leq$  12%.
- G. Incorporate all material passing the No. 4 sieve into the final product unless it is necessary to reduce the amount of this material to meet gradation specifications.

### **2.2 CRUSHED AGGREGATE FOR BASE GRADATION**

- A. Gradations are listed in the chart below.
  - 1. AASHTO T 2: Sampling of Aggregates.
  - 2. AASHTO T 11: Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing.
  - 3. AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregates.

Table 1 CRUSHED AGGREGATE FOR BASE GRADATIONS		
PERCENTAGES BY WEIGHT PASSING SQUARE MESH SIEVES		
SIEVE SIZE	NOMINAL MAXIMUM SIZE	
	2 in. (Type II)	¾ in. (Type I)
PERCENT PASSING		
2-1/2 in.	100	
2 in.	90-100	
1-1/2 in.		
1 in.	55-83	100
¾ in.		90-100
3/8 in.		
No. 4	30-60	40-65
No. 8		30-50
No. 30	10-25	
No. 200	0-8	3-9

- B. Allowable percent passing No. 4 sieve may be adjusted within the range shown in the table with additional compensation to the Contractor.
- C. Portion of fine aggregate passing the No. 200 sieve to be less than 60% of that portion passing the No. 40 sieve.
- D. Liquid limit of fine aggregate passing the No. 40 sieve  $\leq$  25. Plasticity Index  $\leq$  6.
  - 1. AASHTO T 2: Sampling of Aggregates.
  - 2. AASHTO T 89: Determining the Liquid Limits of Soils.
  - 3. AASHTO T 90: Determining the Plastic Limit and Plasticity Index of Soils.
- E. Sand Equivalent  $\geq$  30. Sand Equivalent not required If less than 5% passing the No. 200 sieve.
- F. AASHTO T 176: Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test.
- G. Sand Equivalent not required if less than 5% passing the No. 200 sieve, or aggregate to be used for cement or lime treated base.

### 2.3 AGGREGATE CONTROL

- A. Consistency checks on percent passing No. 4 and No. 200 sieves for samples taken from belt loading hauling equipment or from roadway.

- B. Variation from as crushed stockpile average on No. 4 sieve not to be greater than  $\pm 6\%$ .
- C. Variation from as crushed stockpile average on No. 200 sieve not to be greater than  $\pm 3\%$ .

#### 2.4 AGGREGATE ACCEPTANCE

- A. Crushed aggregate for base acceptance tests will be performed at a frequency of 1 test per each 1000 tons. Test samples will be obtained in accordance with AASHTO T 2 from the materials delivered to the job site. Acceptance tests will include gradation, sand equivalency, and fractured faces. Acceptance criteria are defined in subsections 2.1 and 2.2 of this section.

#### 2.5 TEST METHODS

- A. Idaho T 74: Compaction Standard for Coarse Granular Materials by Use of the Vibratory Spring-Load Compactor.
- B. AASHTO T 99: Testing Standards for Moisture Density Relations of Soils Using a 5.5 lb. Rammer and 12-inch Drop.
- C. AASHTO T 180: Testing Standards for Moisture Density Relations of Soils Using a 10 lb. Rammer and 18-inch Drop.
- D. AASHTO T 310: In-place Density and Moisture Content of Soil and Soil-Aggregate Using the Nuclear Method.

### **PART 3 WORKMANSHIP**

#### 3.1 PREPARATION FOR PLACEMENT

- A. Prior to placing crushed aggregate base course.
  - 1. Blade smooth and shape underlying surface to specified cross section and grade.
  - 2. Underlying surface must be approved.
- B. Binder (when required).
  - 1. When added at crushing plant.
    - a. Mix uniformly without contamination to crushed aggregate base.
  - 2. When added on roadway.
    - a. Mix uniformly without contamination to crushed aggregate base.
    - b. Protect underlying material from disturbance.

- C. Haul over subgrade or previously placed lifts.
  - 1. Not permitted when detrimental to subgrade or surface.
  - 2. When allowed, construction equipment to operate in “split track” pattern.

### 3.2 PLACEMENT

- A. Required compacted depth less than 0.5 foot.
  - 1. Place in one lift.
- B. Required compacted depth greater than 0.5 foot.
  - 1. Maximum compacted thickness of any one layer not to exceed 0.5 foot.
- C. When vibrating or other special type of compaction equipment is used, maximum compacted depth of a single lift may be 0.8 foot when approved.

### 3.3 MIXING

- A. Stationary Plant Mixer.
  - 1. Aggregate and water mixed in approved mixer or approved method.
  - 2. Add sufficient water during mixing to facilitate compaction.
  - 3. Place on roadway with approved aggregate spreader.
- B. Travel Plant Method.
  - 1. Place aggregate with approved aggregate spreader or windrow device.
  - 2. Uniformly mix base aggregate with a traveling mixing plant.
  - 3. Add sufficient water during mixing to facilitate compaction.
- C. Road mix method.
  - 1. Place on roadway with approved aggregate spreader.
  - 2. Uniformly mix with motor graders or other approved equipment.
  - 3. Add sufficient water during mixing to facilitate compaction.
- D. Premixed method.
  - 1. Uniformly mix aggregate and water in an approved manner.
  - 2. Add sufficient water during mixing to facilitate compaction.
  - 3. Place on roadway with approved aggregate spreader.

### 3.4 COMPACTION

- A. Spread material in an approved manner.
- B. Compaction equipment to be chosen by Contractor.
- C. Maintain a uniform surface texture on each layer during compaction operations.
- D. Aggregate to be firmly keyed.
- E. Uniformly apply water over the base material in sufficient quantities to facilitate compaction.
- F. *Refer to section 202.3.8 for material moisture control and density acceptance. If the specified density is not attained, the area shall be reworked and/or re-compacted until the density specifications are achieved and documented by additional testing or retesting at the designated frequencies..*

### 3.5 SURFACE SMOOTHNESS

- A. Where surface of aggregate is not to be paved.
  - 1. Finished grade at top of crushed aggregate base course to be within  $\pm$  0.05 foot of staked elevation.
  - 2. Algebraic sum of the deviation of two points not more than 30 feet apart not to exceed 0.15 foot.
  - 3. Maximum surface deviation over a ten-foot straight edge placed parallel to centerline to be 0.04 foot.
- B. Where asphalt concrete is placed on top of aggregate base course.
  - 1. Finished grade at top of crushed aggregate base course to be within  $\pm$  0.03 foot of staked elevation.
  - 2. Algebraic sum of the deviation of two points not more than 30 feet apart not to exceed 0.03 foot.
  - 3. Maximum surface deviation over a ten-foot straight edge placed parallel to centerline to be 0.04 foot.

### 3.6 AGGREGATE BASE MATERIAL IN STOCKPILE

- A. Furnish aggregate base material meeting all specifications in stockpiles at designated locations.
- B. Prepare stockpile site by clearing and smoothing.
- C. Construct stockpiles in neat, regular form occupying as small an area as possible.
- D. Begin by spreading material over entire stockpile base.

- E. Build upward in successive layers not exceeding 3 feet in depth.
- F. Do not end dump, shove, or conveyor stack over the sides of the pile.

### 3.7 AGGREGATE BASE MATERIAL, LOAD, HAUL AND PLACE

- A. Load aggregate base from existing stockpile, haul and place on roadbed.
- B. Spreading, processing and compacting to meet requirements expressed in Sections 3.1 through 3.4 of this subsection.

## **PART 4 MEASUREMENT AND PAYMENT**

- 4.1 Use one or more of the unit prices listed below as indicated in the Bid Schedule. Including all labor, materials and equipment required to provide, place and compact crushed aggregate. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items.
  - A. Crushed Aggregate for Base: By the cubic yard compacted and measured in place, includes load, haul and place.
    - 1. Bid Schedule Payment Reference: 802.4.1.A.1.
    - 2. Bid Schedule Description: Crushed Aggregate for Base Type \_\_\_\_\_cubic yard (CY).
  - B. Crushed Aggregate for Base: By the ton measured by truck tickets and includes load, haul and place. Moisture in the aggregate greater than 7% will be deducted from payment.
    - 1. Bid Schedule Payment Reference: 802.4.1.B.1.
    - 2. Bid Schedule Description: Crushed Aggregate for Base Type \_\_\_\_\_ton (TON).
  - C. Crushed Aggregate in Stockpile: By the cubic yard measured compacted and in place, includes load, haul and place.
    - 1. Bid Schedule Payment Reference: 802.4.1.C.1.
    - 2. Bid Schedule Description: Crushed Aggregate in Stockpile, Type \_\_\_\_\_cubic yard (CY).
  - D. Crushed Aggregate in Stockpile: By the ton measured by truck tickets, includes load, haul and place. Moisture in the aggregate greater than 7% will be deducted from payment.
    - 1. Bid Schedule Payment Reference: 802.4.1.D.1.
    - 2. Bid Schedule Description: Crushed Aggregate in Stockpile, Type \_\_\_\_\_ton (TON).

END OF SECTION

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## **ISPWC – DIVISION 1000**

### **Construction Stormwater Best Management Practices (BMPs)**

- Section 1001 – Construction Site Management
- Section 1002 – Construction Site Housekeeping
- Section 1003 – Sediment Collection
- Section 1004 – Runoff Diversion
- Section 1005 – Slope Protection
- Section 1006 – Storm Drain and Channel Protection
- Section 1007 – Slope Stabilization



## SECTION 1001

### CONSTRUCTION SITE MANAGEMENT

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Short-term construction site management including:
  - 1. Timing of Construction.
  - 2. Staging Areas.
  - 3. Preservation of Existing Vegetation.
  - 4. Clearing Limits.
  - 5. Stabilized Construction Entrance.
  - 6. Erosion Prevention of Temporary Roads.

##### 1.2 RELATED SECTIONS

- A. Section 201 – Clearing and Grubbing.
- B. Section 202 – Excavation and Embankment.
- C. Section 205 – Dewatering.
- D. Section 206 – Permanent Erosion Control.
- E. Section 301 – Trench Excavation.
- F. Section 305 – Pipe Bedding.
- G. Section 306 – Trench Backfill.
- H. Division 1000 – Construction Stormwater Best Management Practices.

##### 1.3 REFERENCES

- A. Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices for Idaho Cities and Counties.

##### 1.4 SUBMITTALS

- A. Submit a Construction Site Discharge and/or Storm Water Pollution Prevention Plan for materials and methods to be installed or furnished under this section.
- B. Submit manufacturer's certification that construction site management materials meet or exceed specified requirements.

- C. Submit manufacturers' installation instructions and maintain copy at the jobsite.
- D. When construction will disturb more than one acre, submit a Notice of Intent (NOI) to the Environmental Protection Agency and prepare and implement a Storm Water Pollution Prevention Plan, unless specified otherwise in the Contract Documents.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Unload, store and load construction site management materials in a manner which prevents damage.

**PART 2 MATERIALS**

2.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:

[www.deq.state.id.us](http://www.deq.state.id.us)

**PART 3 WORKMANSHIP**

3.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:

[www.deq.state.id.us](http://www.deq.state.id.us)

- B. Unless otherwise specified in the Contract Documents, monitor, maintain, and remove BMPs in accordance with the Stormwater Pollution Prevention Plan and NOI.

**PART 4 MEASUREMENT AND PAYMENT**

- 4.1 Unless specifically indicated in the Bid Schedule, all labor, materials and equipment required for construction site management will be considered incidental to other Bid Items.

- A. Sediment Control: By the lump sum for all work associated with erosion and sediment control including preparation and submittal of Sediment and Erosion Control Plans. Includes all appurtenances not itemized on the Bid Schedule.

- 1. Bid Schedule Payment Reference: 1001.4.1.A.1
- 2. Bid Schedule Description: Sediment Control...lump sum (LS).

- 4.2 Use the following unit price option as designated on the Bid Schedule. Includes all labor, materials and equipment for permitting, preparing, installing, maintaining, and removing temporary stabilized surfaces. If not separately indicated in the Bid Schedule, include this item in other Bid Items.

- A. Staging Area: Per each as specified in the Bid Schedule. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1001.4.2.A.1
  - 2. Bid Schedule Description: Staging Area...each (EA).
  
- B. Stabilized Construction Entrance: Per each as specified in the Bid Schedule. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1001.4.2.B.1
  - 2. Bid Schedule Description: Stabilized Construction Entrance...  
...each (EA).
  
- C. Erosion Prevention of Temporary Roads: Per lump sum as specified in the Bid Schedule. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1001.4.2.C.1
  - 2. Bid Schedule Description: Erosion Prevention of Temporary Roads...  
...lump sum (LS).

END OF SECTION

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## SECTION 1002

### CONSTRUCTION SITE HOUSEKEEPING

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Short-term construction site housekeeping practices for storm water management including:
  - 1. Dust Control.
  - 2. Cover Materials and Equipment.
  - 3. Spill Prevention and Control.
  - 4. Vehicle/Equipment Washing and Maintenance.
  - 5. Waste Management.

##### 1.2 RELATED SECTIONS

- A. Section 201 – Clearing and Grubbing.
- B. Section 202 – Excavation and Embankment.
- C. Section 205 – Dewatering.
- D. Section 206 – Permanent Erosion Control.
- E. Section 301 – Trench Excavation.
- F. Section 305 – Pipe Bedding.
- G. Section 306 – Trench Backfill.
- H. Division 1000 – Construction Stormwater Best Management Practices.

##### 1.3 REFERENCES

- A. Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices.

##### 1.4 SUBMITTALS

- A. Submit a Construction Site Discharge and/or Storm Water Pollution Prevention Plan for materials and methods to be installed or furnished under this section.

- B. Submit manufacturer's certification that construction site management materials meet or exceed specified requirements.
- C. Submit manufacturer's installation instructions and maintain copy at the jobsite.
- D. When construction will disturb more than one acre, submit a Notice of Intent (NOI) to the Environmental Protection Agency and prepare and implement a Storm Water Pollution Prevention Plan, unless specified otherwise in the Contract Documents.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Unload, store and load construction site management materials in a manner which prevents damage.

**PART 2 MATERIALS**

2.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:

[www.deq.state.id.us](http://www.deq.state.id.us)

**PART 3 WORKMANSHIP**

3.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:

[www.deq.state.id.us](http://www.deq.state.id.us)

- B. Unless otherwise specified in the Contract Documents, monitor, maintain, and remove BMPs in accordance with the Stormwater Pollution Prevention Plan and NOI.

**PART 4 MEASUREMENT AND PAYMENT**

- 4.1 Unless specifically indicated in the Bid Schedule, all labor, materials and equipment required for construction site housekeeping will be considered incidental to other Bid Items.

END OF SECTION

**SECTION 1003**  
**SEDIMENT COLLECTION**

**PART 1      GENERAL**

1.1      SECTION INCLUDES

- A.      Short-term sediment collection for construction activities including:
  - 1.      Straw Bales.
  - 2.      Biofilter Bags.
  - 3.      Silt Fence.
  - 4.      Vegetative Buffer Strip.
  - 5.      Sediment Trap Basin.
  - 6.      Portable Sediment Tank.

1.2      RELATED SECTIONS

- A.      Section 201 – Clearing and Grubbing.
- B.      Section 202 – Excavation and Embankment.
- C.      Section 205 – Dewatering.
- D.      Section 206 – Permanent Erosion Control.
- E.      Section 301 – Trench Excavation.
- F.      Section 305 – Pipe Bedding.
- G.      Section 306 – Trench Backfill.
- H.      Division 1000 – Construction Stormwater Best Management Practices.

1.3      REFERENCES

- A.      Idaho Department of Environmental Quality’s Catalog of Stormwater Best Management Practices.

1.4      SUBMITTALS

- A.      Submit a Construction Site Discharge and/or Storm Water Pollution Prevention Plan for materials and methods to be installed or furnished under this section including design of sediment basins.

- B. Submit manufacturer's certification that construction site management materials meet or exceed specified requirements.
- C. Submit manufacturers' installation instructions and maintain copy at the jobsite.
- D. When construction will disturb more than one acre, submit a Notice of Intent (NOI) to the Environmental Protection Agency and prepare and implement a Storm Water Pollution Prevention Plan, unless specified otherwise in the Contract Documents.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Unload, store and load construction site management materials in a manner which prevents damage or excessive exposure to sunlight and weather.

**PART 2 MATERIALS**

2.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:

[www.deq.state.id.us](http://www.deq.state.id.us)

**PART 3 WORKMANSHIP**

3.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:

[www.deq.state.id.us](http://www.deq.state.id.us)

- B. Unless otherwise specified in the Contract Documents, monitor, maintain, and remove BMPs in accordance with the Stormwater Pollution Prevention Plan and NOI.

**PART 4 MEASUREMENT AND PAYMENT**

4.1 Use one of the following unit price options as designated on the Bid Schedule. Includes all labor, materials and equipment for permitting, preparing, installing, maintaining, and removing temporary sediment collection facilities. If not separately indicated in the Bid Schedule, include this item in other Bid Items.

- A. Straw Bales: Per linear foot Includes all appurtenances not itemized in the Bid Schedule.

1. Bid Schedule Payment Reference: 1003.4.1.A.1.
2. Bid Schedule Description: Straw Bales...linear foot (LF).

- B. Biofilter Bags: Per linear foot. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1003.4.1.B.1.
  - 2. Bid Schedule Description: Biofilter Bags...linear foot (LF).
  
- C. Silt Fence: Per linear foot measured on a horizontal basis along the centerline of the silt fence. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1003.4.1.C.1.
  - 2. Bid Schedule Description: Silt Fence...linear foot (LF).
  
- D. Vegetation Buffer Strip: Per linear foot measured on the horizontal centerline of the vegetation buffer strip. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1003.4.1.D.1.
  - 2. Bid Schedule Description: Vegetation Buffer Strip...linear foot (LF).
  
- E. Sediment Trap Basin: Per each as specified in the Bid Schedule. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1003.4.1.E.1.
  - 2. Bid Schedule Description: Sediment Trap Basin...each (EA).
  
- F. Portable Sediment Tank: Per each as specified in the Bid Schedule. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1003.4.1.F.1.
  - 2. Bid Schedule Description: Portable Sediment Tank...each (EA).

END OF SECTION

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**SECTION 1004**  
**RUNOFF DIVERSION**

**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Short-term runoff diversion for construction activities including:
  - 1. Temporary Swales.
  - 2. Earth Dike.
  - 3. Perimeter Dikes/Swales.
  - 4. Temporary Berm (Sandbag).
  - 5. Temporary Storm Drain Diversion.

1.2 RELATED SECTIONS

- A. Section 201 – Clearing and Grubbing.
- B. Section 202 – Excavation and Embankment.
- C. Section 205 – Dewatering.
- D. Section 206 – Permanent Erosion Control.
- E. Section 301 – Trench Excavation.
- F. Section 305 – Pipe Bedding.
- G. Section 306 – Trench Backfill.
- H. Division 1000 – Construction Stormwater Best Management Practices

1.3 REFERENCES

- A. Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices.

1.4 SUBMITTALS

- A. Submit a Construction Site Discharge and/or Storm Water Pollution Prevention Plan for materials and methods to be installed or furnished under this section.
- B. Submit manufacturer's certification that construction site management materials meet or exceed specified requirements.

- C. Submit manufacturers' installation instructions and maintain copy at the jobsite.
- D. When construction will disturb more than one acre, submit a Notice of Intent (NOI) to the Environmental Protection Agency and prepare and implement a Storm Water Pollution Prevention Plan, unless specified otherwise in the Contract Documents.
- E. Submit necessary Federal, State, and Local permits required for diversion or temporary stream crossing.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Unload, store and load runoff diversion materials in a manner which prevents damage or excessive exposure to sunlight and weather.

**PART 1 MATERIALS**

2.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:

[www.deq.state.id.us](http://www.deq.state.id.us)

**PART 2 WORKMANSHIP**

3.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:

[www.deq.state.id.us](http://www.deq.state.id.us)

- B. Unless otherwise specified in the Contract Documents, monitor, maintain, and remove BMPs in accordance with the Stormwater Pollution Prevention Plan and NOI.

**PART 4 MEASUREMENT AND PAYMENT**

4.1 Use one of the following unit price options as designated on the Bid Schedule. Includes all labor, materials and equipment for permitting, preparing, installing, maintaining, and removing temporary runoff diversion facilities and stream or channel crossings. If not separately indicated in the Bid Schedule, include this item in other Bid Items.

- A. Temporary Swale: Per linear foot measured on a horizontal basis along the centerline of the temporary swale. Includes all appurtenances not itemized in the Bid Schedule.

1. Bid Schedule Payment Reference: 1004.4.1.A.1

2. Bid Schedule Description: Temporary Swale...linear foot (LF).
- B. Earth Dike: Per linear foot measured on a horizontal basis along the centerline of the dike. Includes all appurtenances not itemized in the Bid Schedule.
1. Bid Schedule Payment Reference: 1004.4.1.B.1
  2. Bid Schedule Description: Earth Dike, Type \_\_\_\_\_...linear foot (LF).
- C. Perimeter Dike/Swale: Per linear foot measured on the horizontal centerline of the perimeter dike/swale. Includes all appurtenances not itemized in the Bid Schedule.
1. Bid Schedule Payment Reference: 1004.4.1.C.1
  2. Bid Schedule Description: Perimeter Dike/Swale...linear foot (LF).
- D. Temporary Berms (Sandbags): Per each as specified in the Bid Schedule. Includes all appurtenances not itemized in the Bid Schedule.
1. Bid Schedule Payment Reference: 1004.4.1.D.1
  2. Bid Schedule Description: Temporary Berm (Sandbags)...each (EA).
- E. Temporary Storm Drain Diversion: Per linear foot measured on along the centerline of the temporary storm drain diversion. Includes all appurtenances not itemized in the Bid Schedule.
1. Bid Schedule Payment Reference: 1004.4.1.E.1
  2. Bid Schedule Description: Temporary Storm Drain Diversion... linear foot (LF).

END OF SECTION

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**SECTION 1005**  
**SLOPE PROTECTION**

**PART 1      GENERAL**

1.1      SECTION INCLUDES

- A.      Short-term slope protection for construction activities including:
  - 1.      Temporary Mulching
  - 2.      Temporary Hydromulching
  - 3.      Temporary Geotextile
  - 4.      Temporary Matting
  - 5.      Pipe Slope Drain
  - 6.      Slope Roughening
  - 7.      Gradient Terracing
  - 8.      Retaining Walls

1.2      RELATED SECTIONS

- A.      Section 201 – Clearing and Grubbing
- B.      Section 202 – Excavation and Embankment
- C.      Section 205 – Dewatering
- D.      Section 206 – Permanent Erosion Control
- E.      Section 301 – Trench Excavation
- F.      Section 305 – Pipe Bedding
- G.      Section 306 – Trench Backfill
- H.      Section 601 – Culvert, Storm Drain, and Gravity Irrigation Pipe
- I.      Division 1000 – Construction Stormwater Best Management Practices

1.3      REFERENCES

- A.      Idaho Department of Environmental Quality’s Catalog of Stormwater Best Management Practices.

#### 1.4 SUBMITTALS

- A. Submit a Construction Site Discharge and/or Storm Water Pollution Prevention Plan for materials and methods to be installed or furnished under this section.
- B. Submit manufacturer's certification that construction site management materials meet or exceed specified requirements.
- C. Submit manufacturers' installation instructions and maintain copy at the jobsite.
- D. When construction will disturb more than one acre, submit a Notice of Intent (NOI) to the Environmental Protection Agency and prepare and implement a Storm Water Pollution Prevention Plan, unless specified otherwise in the Contract Documents.

#### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Unload, store and load slope protection materials in a manner which prevents damage or excessive exposure to sunlight and weather.

### **PART 2 MATERIALS**

#### 2.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:  
  
[www.deq.state.id.us](http://www.deq.state.id.us)

### **PART 3 WORKMANSHIP**

#### 3.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:  
  
[www.deq.state.id.us](http://www.deq.state.id.us)
- B. Unless otherwise specified in the Contract Documents, monitor, maintain, and remove BMPs in accordance with the Stormwater Pollution Prevention Plan and NOI.

### **PART 4 MEASUREMENT AND PAYMENT**

- 4.1 Use one of the following unit price options as designated on the Bid Schedule. Includes all labor, materials and equipment for preparing, installing and maintaining temporary slope protection and soil stabilization required to prevent soil erosion. If not separately indicated in the Bid Schedule, include these items in other Bid Items.

- A. Temporary Mulching: By the square yard measured on a horizontal basis for the type specified. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1005.4.1.A.1
  - 2. Bid Schedule Description: Temporary Mulching, Type\_\_\_\_\_square yard (SY).
  
- B. Temporary Hydromulching: By the square yard measured on a horizontal basis for the type specified. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1005.4.1.B.1
  - 2. Bid Schedule Description: Temporary Hydromulching...square yard (SY).
  
- C. Temporary Geotextile: By the square yard measured on a horizontal basis for the type specified. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1005.4.1.C.1
  - 2. Bid Schedule Description: Temporary Geotextile...square yard (SY).
  
- D. Temporary Matting: By the square yard measured on a horizontal basis for the type specified. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1005.4.1.D.1
  - 2. Bid Schedule Description: Temporary Matting...square yard (SY).
  
- E. Pipe Slope Drain: Per linear foot measured on a horizontal basis along the centerline of the pipe slope drain. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1005.4.1.E.1
  - 2. Bid Schedule Description: Pipe Slope Drain...linear foot (LF).
  
- F. Slope Roughening: By the square yard measured on a horizontal basis for the type specified. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1005.4.1.F.1
  - 2. Bid Schedule Description: Slope Roughening...square yard (SY).
  
- G. Gradient Terracing: By the square yard measured on a horizontal basis for the type specified. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1005.4.1.G.1
  - 2. Bid Schedule Description: Gradient Terracing...square yard (SY).

- H. Retaining Walls: By the linear foot for the type specified. Includes all appurtenances not itemized in the Bid Schedule.
1. Bid Schedule Payment Reference: 1005.4.1.H.1
  2. Bid Schedule Description: Gradient Terracing...linear foot (LF).

END OF SECTION

## SECTION 1006

### STORM DRAIN AND CHANNEL PROTECTION

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Short-term storm drain and channel protection for construction activities and permanent channel protection including:
  - 1. Gabions.
  - 2. Riprap Slope and Outlet Protection.
  - 3. Inlet Protection.
  - 4. Check Dam.
  - 5. Temporary Stream Crossing.

##### 1.2 RELATED SECTIONS

- A. Section 201 – Clearing and Grubbing.
- B. Section 202 – Excavation and Embankment.
- C. Section 205 – Dewatering.
- D. Section 206 – Permanent Erosion Control.
- E. Section 301 – Trench Excavation.
- F. Section 305 – Pipe Bedding.
- G. Section 306 – Trench Backfill.
- H. Section 601 – Culvert, Storm Drain, and Gravity Irrigation Pipe.
- I. Division 1000 – Construction Stormwater Best Management Practices.

##### 1.3 REFERENCES

- A. Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices.

##### 1.4 SUBMITTALS

- A. Submit a Construction Site Discharge and/or Storm Water Pollution Prevention Plan for materials and methods to be installed or furnished under this section.

- B. Submit manufacturer's certification that construction site management materials meet or exceed specified requirements.
- C. Submit manufacturers' installation instructions and maintain copy at the jobsite.
- D. When construction will disturb more than one acre, submit a Notice of Intent (NOI) to the Environmental Protection Agency and prepare and implement a Storm Water Pollution Prevention Plan, unless specified otherwise in the Contract Documents.
- E. Submit necessary Federal, State, and Local permits required for diversion or temporary stream crossing.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Unload, store and load construction site management materials in a manner which prevents damage or excessive exposure to sunlight and weather.

**PART 2 MATERIALS**

2.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:

[www.deq.state.id.us](http://www.deq.state.id.us)

**PART 3 WORKMANSHIP**

3.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:

[www.deq.state.id.us](http://www.deq.state.id.us)

- B. Unless otherwise specified in the Contract Documents, monitor, maintain, and remove BMPs in accordance with the Stormwater Pollution Prevention Plan and NOI.

**PART 4 MEASUREMENT AND PAYMENT**

4.1 Unless specifically indicated in the Bid Schedule, all labor, materials and equipment required for storm drain and channel protection will be considered incidental to other Bid Items.

- A. Gabions: By the cubic yard for the locations and type specified. Includes all appurtenances not itemized in the Bid Schedule.

1. Bid Schedule Payment Reference: 1006.4.1.A.1
2. Bid Schedule Description: Gabions...cubic yard (CY).

- B. Riprap Slope and Outlet Protection: By the square yard measured on a horizontal basis for the type specified. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1006.4.1.B.1
  - 2. Bid Schedule Description: Riprap Slope and Outlet Protection...  
...square yard (SY).
  
- C. Inlet Protection: Per each as specified in the Bid Schedule. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1006.4.1.C.1
  - 2. Bid Schedule Description: Inlet Protection...per each (EA).
  
- D. Check Dams: Per each as specified in the Bid Schedule. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1006.4.1.D.1
  - 2. Bid Schedule Description: Check Dams, Type \_\_\_\_\_each (EA).
  
- E. Temporary Stream Crossing: By the linear foot measured on a horizontal basis for the type specified. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1006.4.1.E.1
  - 2. Bid Schedule Description: Temporary Stream Crossing...linear foot (LF).

END OF SECTION

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**SECTION 1007**  
**SLOPE STABILIZATION**

**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Short-term slope stabilization for construction activities including:
  - 1. Top Soiling.
  - 2. Seeding.
  - 3. Sodding.
  - 4. Erosion Control Planting.

1.2 RELATED SECTIONS

- A. Section 201 – Clearing and Grubbing.
- B. Section 202 – Excavation and Embankment.
- C. Section 205 – Dewatering.
- D. Section 206 – Permanent Erosion Control.
- E. Section 301 – Trench Excavation.
- F. Section 305 – Pipe Bedding.
- G. Section 306 – Trench Backfill.
- H. Section 601 – Culvert, Storm Drain, and Gravity Irrigation Pipe.
- I. Division 1000 – Construction Stormwater Best Management Practices.

1.3 REFERENCES

- A. Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices.

1.4 SUBMITTALS

- A. Submit a Construction Site Discharge and/or Storm Water Pollution Prevention Plan for materials and methods to be installed or furnished under this section.
- B. Submit manufacturer's certification that construction site management materials meet or exceed specified requirements.

- C. Submit manufacturers' installation instructions and maintain copy at the jobsite.
- D. When construction will disturb more than one acre, submit a Notice of Intent (NOI) to the Environmental Protection Agency and prepare and implement a Storm Water Pollution Prevention Plan, unless specified otherwise in the Contract Documents.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Unload, store and load slope protection materials in a manner which prevents damage or excessive exposure to sunlight and weather.

**PART 2 MATERIALS**

2.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:

[www.deq.state.id.us](http://www.deq.state.id.us)

**PART 3 WORKMANSHIP**

3.1 INCORPORATED BY REFERENCE

- A. Refer to Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices at:

[www.deq.state.id.us](http://www.deq.state.id.us)

- B. Unless otherwise specified in the Contract Documents, monitor, maintain, and remove BMPs in accordance with the Stormwater Pollution Prevention Plan and NOI.

**PART 4 MEASUREMENT AND PAYMENT**

4.1 Unless specifically indicated in the Bid Schedule, all labor, materials and equipment required for slope stabilization will be considered incidental to other Bid Items.

- A. Topsoiling: By the square yard measured on a horizontal basis for the type specified. Includes all appurtenances not itemized in the Bid Schedule.

- 1. Bid Schedule Payment Reference: 1007.4.1.A.1
- 2. Bid Schedule Description: Topsoiling... square yard (SY).

- B. Seeding: By the square yard measured on a horizontal basis for the type specified. Includes all appurtenances not itemized in the Bid Schedule.

- 1. Bid Schedule Payment Reference: 1007.4.1.B.1
- 2. Bid Schedule Description: Seeding... square yard (SY).

- C. Sodding: By the square yard measured on a horizontal basis for the type specified. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1007.4.1.C.1
  - 2. Bid Schedule Description: Sodding...square yard (SY).
  
- D. Erosion Control Planting: Per each measured on a horizontal basis for the type specified. Includes all appurtenances not itemized in the Bid Schedule.
  - 1. Bid Schedule Payment Reference: 1007.4.1.D.1
  - 2. Bid Schedule Description: Erosion Control Planting,  
Type \_\_\_\_, Size \_\_\_\_...per each (EA).

END OF SECTION

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## SECTION 1103

### CONSTRUCTION TRAFFIC CONTROL

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. This work consists of furnishing, erecting, maintaining and relocating necessary traffic control dividers at locations prescribed in the Contract Documents or as directed by the Engineer. Furnish all traffic control devices unless otherwise specified in the contract. Retain ownership throughout the project and remove when no longer needed.

##### 1.2 RELATED SECTIONS

- A. Section 301 – Trenching.
- B. Section 307 – Street Cuts and Surface Repair.

##### 1.3 REFERENCES

- A. Manual on Uniform Traffic Control Devices (MUTCD), *latest edition as modified*
- B. AASHTO Standard Specifications for transportation and methods of Sampling and Testing.
- C. American Society for Testing and Materials (ASTM).
- D. ATSSA Quality Standards for Work Zone Traffic Control Devices.
- E. *Local jurisdiction requirements.*

#### PART 2 MATERIALS

##### 2.1 GENERAL

- A. Material used in the construction of sign panels and other devices and their supporting structures will be at the Contractor's option.
- B. All sign, barricade, drum and vertical panel colors, except black, to be reflectorized.
  - 1. Reflective sheeting.
    - a. Reflectivity sheeting to conform to ASTM D 4956.

- b. Retro-reflective sheeting to conform to ASTM D 4956 supplemental requirement S1, if specified.
  - c. Reboundable retro-reflective sheeting to conform to ASTM D 4956 including supplemental requirement S2.
2. Reflectivity requirements.
- a. Class B: All reflective sheeting used for removable cutout legends, borders, orange colored signs, barricades, drums vertical panels, and all STOP, YIELD, DO NOT ENTER, and WRONG WAY signs to meet the retro-reflectivity requirements of ASTM D 4956, Type III or Type IV sheeting.
3. Fabrication.
- a. Apply the reflective sheeting on aluminum or plywood sections as required in accordance with the manufacturer's recommendations and in such a manner that no background material will be visible when the sign is assembled.
  - b. Do not splice reflectorized material on panel 24 inches or less in width.
  - c. For panels larger than 24 inches in width, only one splice is allowed.
    - 1) Placement: Place splice horizontal or at 45 degrees from horizontal with the top sheet overlapping the bottom sheet not less than 3/16 inches.
    - 2) Butt Splices: Signs, which are screen processed with transparent color to have butt splices.
    - 3) Butt Splice Gaps: Less than or equal to 1/32 inches between the sheets or reflective material.
    - 4) Other: In addition to the above limitations, manufactured splices will be accepted.
4. Match color of sign faces composed of two or more pieces of panel or reflective sheeting. Non-uniform shading and undesirable contrast between adjacent widths of applied sheeting will not be accepted.
5. Cracks, discoloration, appearance of air pockets, or any other indication of non-adherence in the sheeting will not be accepted.

6. Finish.
  - a. Sealing: Seal sign edges and all splices of the reflective sheeting in conformance with the methods specified by the reflective sheeting manufacturer.
  - b. Cutting: Cut direct applied cutout reflective sheeting legends, borders and symbols with a smooth regular outline, free from ragged or torn edges.
  - c. Cutting: Cut letters, numerals and symbols having interior or exterior rounded corners with a smooth 3/16 inches  $\pm$ 1/16 inches radius.
- C. Drums used for traffic control devices to be constructed of plastic or other approved yielding materials.
  1. Metal drums are not acceptable for use.
  2. Plastic or other yielding drums to be designed to limit rolling to a minimum if upset by outside forces.
  3. All drums to have reflective markings on the bottom and top unless the base and top are designed to separate on impact.
  4. Sandbags or other weights are not permitted on top of drums.
- D. Striping material to be 4 inches wide, retro-reflective pressure sensitive tape manufactured for use as pavement striping, suitable for use on either concrete or asphalt surfaces.
  1. Tape to be either white or yellow as specified.
  2. Tape to have a precoated pressure-sensitive adhesive with no protective liner that does not require activation procedures.
  3. The striping materials to be thin, flexible, formable and durable, and after placement remain conformed to the texture of the pavement surface.
  4. Average thickness of material, based on 5  $\mu$ m readings of different locations, to be greater than or equal to 9 mils.
- E. Striping material used as temporary striping to be removable without requiring sandblasting, solvents, or grinding methods. It will not be necessary to remove material between successive asphalt overlays.

2.2 Advance warning arrow panels to meet the following requirements:

TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM LEGIBILITY DISTANCE*
A	24 x 48 inches	12	0.5 mile
B	30 x 54 inches	13	0.75 mile
C	48 x 96 inches	15	1.0 mile

Minimum legibility requirements are the distance at which the arrow panel message can be comprehended by a driver on a sunny day or a clear night.

- A. Panels to be of solid construction and be finished non-reflective black.
  - 1. Mount panels on a vehicle, trailer, or other suitable support, with the bottom of the panel at least 6 feet above the roadway surface.
  - 2. Panels to be provided with remote controls and appropriate self-contained power source.
  - 3. Panels to be equipped with hour meters which record only actual hours of operation.
  
- B. Advanced warning arrow panels to have the following mode selections:
  - 1. Left or right flashing or sequential arrows, or
  - 2. Left or right sequential chevrons, and
  - 3. Double flashing arrows, and
  - 4. Caution (4 or more lamps arranged in a pattern which will not indicate a direction).
  
- C. Advanced warning arrow panels to be capable of minimum 50% dimming from rated lamp voltage.
  - 1. The flashing rate of the lamps should not be less than 25 nor more than 40 flashes per minute.
  - 2. Minimum lamp on-time to be 50% for the flashing arrow and 25% for the sequential arrow.
  
- D. Temporary flexible raised pavement markers to be yellow body with yellow reflective tape on two sides and a protective cover or white body with white reflective tape on one side and a protective cover.

1. Marker body and cover to be manufactured from a flexible polyurethane material with a factory applied adhesive on the marker base with release paper.
  2. Cover to be attached to vertical portion of the marker in such a way that it will not come off because of traffic, but can be easily removed manually.
  3. Reflective tape for the marker to be metalized polycarbonate microprism retro-reflective material with acrylic backing or equal.
  4. Tape to have a minimum reflectance of 1800 candlepower/footcandle/sf at 0.1° observation and 0° entrance angles.
- E. Portable tubular markers used for traffic control devices.
1. To be constructed of plastic or other approved yielding materials.
  2. Metal markers are not acceptable for use.
  3. Markers to be orange or fluorescent orange plastic, 36 inches minimum height, 3.5 inches minimum width when facing traffic.
  4. Markers to have two 3 inches wide retro-reflective white bands placed a maximum of 2 inches from the top with a maximum of 6 inches between the bands.
  5. Base to weigh a minimum of 5 pounds.
  6. Reflectivity to meet the requirements of Class B sheeting of this subsection.

### **PART 3 WORKMANSHIP**

#### 3.1 General.

- A. Conform to the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD) for the design and use of traffic control devices.
- B. Submit a Traffic Control Plan and obtain necessary permits for approval by the Engineer and the Agency responsible for the roadway.
- C. Do not cause unnecessary inconvenience to the public, as determined by the Engineer.
- D. Provide and maintain continuous, safe and adequate pedestrian and vehicle access to each residence, fire hydrant, commercial and industrial establishment, church, school, parking lot, service station, motel, fire station, police station, hospital, and similar establishments, unless otherwise approved by the Engineer. *All work done in public rights-of-way must be in accordance with the Americans with Disabilities Act of 1990 ( ADA).*

- E. Allow traffic to pass through the work area unless a detour is approved by the Engineer.
  - F. Maintain traffic control devices by immediately cleaning, servicing, or replacing any device that is lost, stolen, destroyed, damaged, inoperative, or when its retro-reflectivity is reduced to 75% for Class A or Class B sheeting of the required initial retro-reflectivity.
  - G. Used signs with the specified sheeting materials, legends, and colors, will be considered satisfactory if they meet the above retro-reflectivity requirements.
  - H. Repair or replace all damaged traffic control devices. This work is considered incidental to this item.
  - I. Provide positive devices to prevent barricades and drums from being blown over.
  - J. Employ properly trained, equipped, attired and certified flaggers if traffic is constricted or if deemed necessary by the Engineer.
  - K. Use pavement-marking tape to temporarily mark lane separation lines for traffic channelization. Install pavement-marking tape as soon as practicable and before nightfall, on all newly placed pavements, including leveling courses, scrub coats, asphalt treated bases, road mix pavements, and asphalt plant mix surface courses.
    - 1. Install 4 inch x 4 foot sections of pavement-marking tape at the same cycle length as detailed on the permanent marking plan.
    - 2. On roads of severe curvature, install 4 inch x 2 foot lengths of pavement-marking tape at half cycle lengths.
    - 3. During its period of use, maintain the tape in its proper location and in and effective condition to serve the purpose for which it is intended.
- 3.3 Use temporary flexible raised pavement markers to temporarily mark lane separation lines on all pavement being used by traffic during seal coating operations on a daily basis.
- A. Do not apply markers more than 24 hours prior to seal coat operations.
  - B. Apply markers on their own respective color of pavement markings.
  - C. Place one marker at the same cycle length as permanent marking.
  - D. Use half cycle length on roadways with severe curvature.
  - E. Place markers within a turn bay or painted median at no more than 25 feet intervals including all angle points.

- F. Supply and apply additional markers and vary spacing as directed.
- 3.4 Maintain all traffic control items when in use such that functionality is maintained in accordance with the MUTCD and to the satisfaction of the Engineer. Maintenance will be considered incidental to other bid items unless specifically listed in the Bid Schedule.

#### **PART 4 MEASUREMENT AND PAYMENT**

- 4.1 Use one or more of the following unit price options as designated on the Bid Schedule. Includes all labor, material, and equipment required to provide temporary construction traffic control as specified and all other items incidental thereto. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items. Traffic control maintenance will be considered incidental to other bid items unless specifically listed in the Bid Schedule.
- A. Construction Traffic Control: By the lump sum. Includes labor, maintenance and all ancillary items necessary.
    - 1. Bid Schedule Payment Reference: 1103.4.1.A.1
    - 2. Bid Schedule Description: Construction Traffic Control....lump sum (LS)
  - B. Traffic Control Signs: Per square foot for the types and signs specified.
    - 1. Bid Schedule Payment Reference: 1103.4.1.B.1
    - 2. Bid Schedule Description: Traffic Control Signs.... square foot (SF)
  - C. Traffic Control Barricades: Per each for the type of barricade specified.
    - 1. Bid Schedule Payment Reference: 1103.4.1.C.1.
    - 2. Bid Schedule Description: Traffic Control Barricades, Type \_\_\_\_\_ each (EA).
  - D. Traffic Control Drums: Per each for the type of drums specified.
    - 1. Bid Schedule Payment Reference: 1103.4.1.D.1.
    - 2. Bid Schedule Description: Traffic Control Drums ... each (EA).
  - E. Advance Warning Arrow Panel: Per each for the type specified.
    - 1. Bid Schedule Payment Reference: 1103.4.1.E.1.
    - 2. Bid Schedule Description: Advance Warning Arrow Panel....each (EA)
  - F. Temporary Flexible Raised Pavement Markers: Per each for the color of marker specified.
    - 1. Bid Schedule Payment Reference: 1103.4.1.F.1.
    - 2. Bid Schedule Description: Temporary Flexible Raised Pavement Markers....each (EA).

- G. Traffic Control Maintenance: For each day traffic control is in use.
  - 1. Bid Schedule Payment Reference: 1103.4.1.G.1.
  - 2. Bid Schedule Description: Traffic Control Maintenance....day (DAY)
  
- H. Portable Tubular Markers: Per each for the type of marker specified.
  - 1. Bid Schedule Payment Reference: 1103.4.1.H.1.
  - 2. Bid Schedule Description: Portable Tubular Markers....each (EA)
  
- I. Traffic Control Flaggers: Per man-hour of traffic control during construction.
  - 1. Bid Schedule Payment Reference: 1103.4.1.I.1.
  - 2. Bid Schedule Description: Traffic Control Flaggers ... man hours (MH).
  
- J. Traffic Control Maintenance: Per man-hour of approved maintenance during construction. Maintenance shall be required on all projects, but incidental to other traffic control bid items if not listed as a separate bid item.
  - 1. Bid Schedule Payment Reference: 1103.4.1.J.1.
  - 2. Bid Schedule Description: Traffic Control Maintenance:... man hours (MH).
  
- K. Temporary Striping Tape: Per linear foot of centerline for the type of tape installed.
  - 1. Bid Schedule Payment Reference: 1103.4.1.K.1.
  - 2. Bid Schedule Description: Temporary Striping Tape... linear foot (LF).

END OF SECTION

## **SECTION 2010**

### **MOBILIZATION**

#### **PART 1 GENERAL**

##### **1.1 SECTION INCLUDES**

- A. This work consists of preparatory work including but not limited to:
  - 1. Movement of personnel.
  - 2. Movement of equipment.
  - 3. Project site supplies and incidentals.
  - 4. Establishment of project offices, buildings and other facilities.
  - 5. All work and operations which must be performed or costs incurred before beginning work on the various contract items.
  - 6. Work signs.

#### **PART 2 MATERIALS**

##### **2.1 GENERAL**

- A. When directed, install work signs per Standard Drawings SD-2010 A - Installation of Informational Signs, SD-2010 B-Owner Informational Signs and SD-2010 C-Utility Informational Signs.

#### **PART 3 WORKMANSHIP**

##### **3.1 PROJECT INFORMATIONAL SIGNS**

- A. Furnish, install and subsequently remove informational signs at each end of the Project. Informational signs shall be in accordance with Standard Drawings SD-2010A, SD-2010B and SD-2010C in the ISPWC. Furnish and place the information signs at the time they place their other construction signs, barricades and traffic control devices, and shall remove the signs upon completion of the work. Two sizes of signs are designated. One size designation is for projects that are one month or longer in duration. All costs incurred for signs, barricades and traffic control devices shall be included under Item 2010.4.1.A.1 in the Bid Schedule.

### 3.2 SANITARY FACILITIES

- A. When included in the Bid Schedule, provide and maintain enclosed portable restroom facilities for the use of Project personnel. Provide at least one restroom for each ten (10) full-time employees. Maintain the restroom facilities in a neat and sanitary condition and, as a minimum, clean and service the facilities on a weekly basis.
- B. Place the facilities in a location which is in reasonable walking access distance for the Contractor's employees. This may necessitate periodic relocation for moving operations. Place the facilities in a location which minimizes the visual impact on adjacent property owners and in a location and placement method which minimizes the possibility of vandalism. On some projects, this may require placing the restroom facilities on trailers to allow for daily removal from the site and storage during non-working hours in a secure location.

## **PART 4 MEASUREMENT AND PAYMENT**

4.1 Use the following lump sum Bid Item as indicated in the Bid Schedule. Includes all labor, material and equipment required to perform the work as specified. All mobilization costs for subcontractors is considered incidental to this bid item. If not listed in the Bid Schedule, mobilization is incidental to other Bid Items.

- A. Mobilization: By the lump sum. Allowable amounts for partial payment of mobilization are as follows: 1) 60% of the contract unit price or 6% of the total contract amount, whichever is less, will be paid on the first monthly progress estimate. 2) 40% of the contract unit price or 4% of the total contract amount, whichever is less, will be paid on the second monthly progress estimate providing that productive work on the project has been initiated. 3) Upon completion of all work on the project, payment of any amount bid for mobilization in excess of 10% of the total original contract amount will be paid.

Total contract amount is defined as the original total of all bid items plus the cost of items paid for at invoice as shown on the original bid schedule.

- 1. Bid Schedule Payment Reference: 2010.4.1.A.1.
- 2. Bid Schedule Description: Mobilization...lump sum (LS).

- B. Sanitary Facilities: By the lump sum for providing and servicing the restroom facilities.

Payment for providing and servicing the restroom facilities will be base upon the Contract lump sum price. For projects that entail more than one pay estimate, the Contractor shall be paid based upon a pro-ration of the Contract price base upon the period of time for payment versus the total length of the Contract.

- 1. Bid Schedule Payment Reference: 2010.4.1.B.1.
- 2. Bid Schedule Description: Sanitary Facilities...lump sum (LS).

END OF SECTION

**SECTION 2020**  
**SURVEY MONUMENTS**

**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. This work consists of resetting survey monuments, cast iron frames and covers, which have been covered over, damaged or otherwise rendered useless during construction. The work may consist of constructing monuments, adjusting monuments to proper line and grade, and furnishing and placing materials and related work, in accordance with these specifications and Idaho law.

1.2 RELATED SECTIONS

- A. Section 2030 – Utility Adjustments.

1.3 REFERENCES

- A. Idaho Code for Replacement of Survey Monuments.
- B. Idaho Transportation Department Field Test Manual, Part I: Sampling and Testing Methods.
- C. Idaho Transportation Department Field Test Manual, Part II: Quality Control.
- D. Idaho Transportation Department Materials Manual.
- E. AASHTO Standard Specifications for Transportation and Methods of Sampling and Testing.
- F. ASTM A 48: Grey Iron Castings.

1.4 PROFESSIONAL LAND SURVEYOR

- A. All monuments must be set by or under the direct supervision of a Professional Licensed Surveyor licensed in the State of Idaho. Provide written verification from Licensed Surveyor when completed.

**PART 2 MATERIALS**

2.1 GENERAL

- A. Monuments, cast iron frames and covers, bronze marker plugs, precast concrete monuments, poured monuments, or other types of monuments to be of the quality, material, and dimensions shown on the Standard Drawings SD-2020 A-Poured Monument in Place Type “A”, SD-2020 B-Poured Monument in Place Type “B”, SD-2020 C-Precast Concrete Monument,

SD-2020 D-Special Installation of Monument for Concrete Pavement, SD-2020 E-Monument Frame and Cover, the Contract Documents, and the Special Provisions.

- B. Frame and cover castings to conform to the requirements of ASTM A 48 Class 25 ksi, and to be free of porosity, shrink cavities, cold shuts or cracks, or any surface defects which would impair serviceability.
- C. Repair of defects by welding or by the use of "smooth-on" or similar material is not permitted.
- D. Provide manufacturer's certification that the product conforms to the requirements of these specifications.
- E. Provide manufacturer test bars as per ASTM A 48 for all orders of 200 or more units.
- F. When painting is required, a bituminous coating equal or exceeding that specified in the Contract Documents to be applied to all faces.
- G. Make all units available for inspection prior to and after painting.
- H. Monument cast iron frames and covers to be machine finished or ground on seating surfaces so as to assure non-rocking fit in any position and interchangeability.
- I. Be prepared to provide from the foundry, standard frames and standard covers for use in testing fit and seating.
- J. Rebar monuments to be 5/8" diameter.

### **PART 3 WORKMANSHIP**

#### **3.1 REFERENCE POINTS**

- A. Survey monuments which have been found, as well as those which have not been found, but are monuments of record, have been shown on the plans. Perform a search for the monuments, whether they are visible or not, that are anticipated to be disturbed during construction and ensure that all monuments, which may be disturbed during construction, have been referenced. Protect all reference points during construction.
- B. Furnish materials and install required monuments and castings in accordance with the Contract Documents and as directed.
- C. Hire a Licensed Surveyor to reference and reset all monuments removed or disturbed during construction.

### 3.2 PRECAST CONCRETE MONUMENTS

- A. Furnish and set monuments to proper line and grade on a sound, well-compacted base. Backfill and compact to at least 95% of maximum theoretical density. An approved compaction plan may be substituted for compaction testing.

### 3.3 POURED MONUMENTS

- A. Construct monument by driving a 5/8" rebar concrete, pouring, and then inserting a bronze marker plug to the required line and grade.
- B. Unless otherwise specified in the Contract Documents, the Owner will furnish bronze marker plugs.
- C. Poured monuments will be specified in the Contract Documents as either Type A or B as depicted in the Standard Drawings.
- D. Monuments on Portland Cement Concrete Paving projects.
  - 1. Block out forms where necessary to provide for placement of monuments in a subsequent adjacent placement. This work is considered incidental to this item.
  - 2. Use precast monuments, conforming to the standard drawings, when specified in the Contract Documents.
  - 3. Construct the monuments at locations called for in the Contract Documents. All labor, tools and materials required to construct monuments in place are considered incidental to this item.
- E. Furnishing and placing monument frame and cover.
  - 1. Furnish and install castings to the lines and grades established.
- F. Adjustment of existing monument frame and cover to grade.
  - 1. Adjust to the established grade.

### 3.4 STANDARD REBAR MONUMENT

- A. Install only where provided by Idaho Code.
- B. Use 5/8" rebar driven to a minimum of 30" depth or refusal. Place surveyor's cap securely on end of rebar.

## **PART 4 MEASUREMENT AND PAYMENT**

- 4.1 Use one or more of the following unit prices as designated in the Bid Schedule. Includes all labor, materials and equipment required to perform the work as specified. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items.
- A. Precast Concrete Monument: Measured by each monument complete in place.
    - 1. Bid Schedule Payment Reference: 2020.4.1.A.1.
    - 2. Bid Schedule Description: Precast Concrete Monument...each (EA).
  - B. Cast-in-Place Monuments: Measured by each monument complete in place.
    - 1. Bid Schedule Payment Reference: 2020.4.1.B.1.
    - 2. Bid Schedule Description: Cast-in-Place Monument – Type \_\_\_\_\_...each (EA).
  - C. Furnishing and Placing Monument Frame and Cover: Measured by each frame and cover complete and in place.
    - 1. Bid Schedule Payment Reference: 2020.4.1.C.1.
    - 2. Bid Schedule Description: Furnishing and Placing Monument Frame and Cover...each (EA).
  - D. Adjust Existing Monument to Grade: Measured by each monument adjusted. Includes all materials, labor and equipment to adjust monument to grade.
    - 1. Bid Schedule Payment Reference: 2020.4.1.D.1.
    - 2. Bid Schedule Description: Adjusting Existing Monument to Grade...each (EA).
  - E. Reference and Reset Monuments: Measured on a lump sum basis for all materials, equipment, tools and labor for all monuments, complete in place, within the Project limits.
    - 1. Bid Schedule Payment Reference: 2020.4.1.E.1.
    - 2. Bid Schedule Description: Reference and Reset Monuments...lump sum (LS).
  - F. Reference and Reset Monuments: Measured on a per-each basis for all materials, equipment, tools and labor for each monument complete in place.
    - 1. Bid Schedule Payment Reference: 2020.4.1.F.1.
    - 2. Bid Schedule Description: Reference and Reset Monuments...per each (EA).
  - G. Standard Rebar Monument. Measured on a per-each basis for all materials, equipment, tools and labor for each monument complete in place.

1. Bid Schedule Payment Reference: 2020.4.1.G.1.
2. Bid Schedule Description: Standard Rebar Monument...per each (EA).

END OF SECTION

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## SECTION 2040

### FENCING

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Fencing Wire and Fabric.
- B. Fencing Hardware.
- C. Post Materials.
- D. Gate Materials.
- E. Preservation Treatments.
- F. Construction Requirements.

##### 1.2 RELATED SECTIONS

- A. Section 201 – Clearing and Grubbing.

##### 1.3 REFERENCES

- A. ASTM A 123: Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
- B. ASTM A 116: Zinc-Coated (Galvanized) Steel Woven Wire Fence Fabric.
- C. ASTM A 120: Pipe, Steel, Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless, for Ordinary Uses.
- D. ASTM A 121: Zinc-Coated (Galvanized) Steel Barbed Wire.
- E. ASTM A 153: Zinc Coating (Hot Dip) Iron and Steel Hardware.
- F. ASTM C 94: Ready-mixed Concrete.
- G. FS RR-F-191: Fencing, Wire and Post Metal and Gates, Chain Link Fence Fabric, and Accessories.
- H. ASTM A 27: Specifications for Steel Castings, Carbon, for General Applications.
- I. AASHTO M 181: Standard Specification for Chain-Link Fence.
- J. AASHTO M 280: Standard Specification for Zinc-Coated (Galvanized) Steel Barbed Wire.

#### 1.4 SYSTEM DESCRIPTION

- A. Type, height, post spacing and gates as shown in the Standard Drawings, SD-2040A through SD-2040H.

### **PART 2 MATERIALS**

#### 2.1 FENCING WIRE AND FABRIC

- A. Barb wire conforming to AASHTO M 280.
- B. Woven wire conforming to AASHTO A 116 modified as follows:
  - 1. If standard strength wire is used, galvanizing is to be Class 1; top and bottom strands are to be 10 gage; intermediate and vertical strands to be 12.5 gage.
  - 2. If high strength wire (minimum tensile strength 125 ksi is used, top and bottom strands to be 10 gage Class 1 galvanizing or 12.5 gage Class 3 galvanizing; intermediate and vertical strands to be 12.5 gage Class 1 galvanizing or 14.5 gage Class 3 galvanizing.
- C. Chain Link Fabric.
  - 1. Chain link fabric to be a 2-inch diamond mesh woven from coated wire 11 gage. The weight of coating for galvanized fabric to be 1.2 ounce/square foot.

#### 2.2 FENCING HARDWARE

- A. Hardware for Woven and Barbed Wire Fence: Staples to be 9 gage with a minimum length of 1-1/2 inches, except that 1-inch staples may be used in locust posts. Stay wire to be 9.5 gage, brace wire 9 gage, and tie wire and wire clamps 12.5 gage. Stay wire, brace wire, tie wire and wire clamps to conform to ASTM A 116. The wire to be galvanized; no coating class is specified.
- B. Chain Link: Tension wire to be 7 gage in diameter and 2 ounce/square foot zinc coating. All fencing, fittings, and hardware, unless otherwise specified, must meet the requirements of AASHTO M 181.

#### 2.3 POSTS

- A. Wood Posts for Barbed or Woven Wire:
  - 1. Wood posts to be pressure treated and may be Douglas Fir, Western Larch, Cedar or Pine of any species.

2. Line posts to have a minimum post circumference of 10 inches and a minimum distance between opposite faces or between any face and an opposite corner of 3 inches. Posts for corner, terminal, or braces to have a minimum circumference of 17.5 inches and a minimum distance between opposite faces or between any face and an opposite corner of 4 inches.

B. Metal Posts for Barbed or Woven Wire: Painted or galvanized metal fence posts must meet the requirements of ASTM A 27. Punched lug-type posts will not be accepted.

C. Metal Posts for Chain Link:

1. Line Posts.

	<u>Pipe Section Size</u>	<u>Weight/foot</u>
Class 1:	1.90 inches O.D.	2.72 pound
Class 2:	1.90 inches O.D.	2.28 pound

	<u>H-Beam Section Size</u>	<u>Weight/foot</u>
Class 1:	2.25x1.70 in	3.43 lb.

2. Corner and End Posts.

	<u>Pipe Section Size</u>	<u>Weight/foot</u>
Class 1:	2.375 inches O.D.	3.65 pound
Class 2:	2.375 inches O.D.	3.11 pound

3. Braces.

	<u>Pipe Section Size</u>	<u>Weight/foot</u>
Class 1:	1.660 inches O.D.	2.27 pound
Class 2:	1.660 inches O.D.	1.82 pound

4. Class 1: Pipe sections must conform to ASTM A 120, Schedule 40 Standard Weights. Pipe and H-Beam sections to have 1.8 ounce/square foot zinc coating.

5. Class 2: Pipe sections other than Schedule 40 to meet the outside dimensions of Schedule 40 and have minimum yield strength of 50 ksi. Class 2 pipe to be hot dipped zinc-coated with 0.9 ounce/square foot of exterior surface and is to be over-coated with a clear acrylic. The internal surface of pipe must have a protective coating of hot dipped zinc or zinc rich paint with a minimum thickness of 0.3 mils.

## 2.4 GATES

- A. Type as designated in the Bid Schedule and as shown in the Standard Drawings.
- B. Wire or wire fabric corresponding with the type used in adjacent fence line.
- C. Hang gates on standard metal or wood brace posts corresponding with the type of posts used in adjacent line fence.

## 2.5 PRESERVATIVE TREATMENT

- A. Before preservative treatment, season Douglas Fir and West Coast Hemlock posts and blocks to a moisture content of not more than 25% as measured at the midpoint of the post in the outer 1 inch, using a Lignomat Mini-Ligno moisture meter, or approved substitution.
- B. Treated posts and blocks will be subject to inspection and rejection by the Engineer after arrival at the site.
- C. Furnish certified treating reports for all treated timber products to be shipped. Furnish a certificate of compliance stating the species of the material and that it conforms to the specified grading rules.
- D. Conform to the requirements of AWWA Standard M4 handling and care of pressure treated timber products.
- E. The treating plant must imprint legible symbols in the end of all timber products treated indicating the name of the treating company and the type and year of treatment in accordance with AWWA Standard M1 and M6.
- F. At the time of delivery to the job site, all treated posts and blocks to have a moisture content of not more than 25% when tested as described above. The posts and blocks to conform in all respects to the specified grading requirements at the time of delivery.

## **PART 3 WORKMANSHIP**

### 3.1 DESCRIPTION

- A. This work consists of furnishing and erecting wire fence and gates in accordance with these specifications and in reasonably close conformity with the lines shown on the Contract Documents or as directed.

### 3.2 CONSTRUCTION REQUIREMENTS

- A. Remove trees, brush and other obstacles along the fence line. Dispose of material so removed in accordance with the requirements of Section 201 – Clearing and Grubbing.
- B. Set posts plumb to the spacing and depth shown on the Contract Documents backfilled, and firmly tamped. Set posts for chain link fence in concrete. After the posts are set, stretch the wire fencing and fastened to wooden posts with staples or to steel posts with wire clamps.
- C. Concrete for post and brace bases to be Class 3000 psi concrete with the tops crowned to drain.
- D. Changes in line where the angle of deflection  $30^{\circ}$  or more are considered corners, and a corner brace must be installed. Terminate intersecting fences as shown on the Contract Documents.
- E. When drilling into rock is required to set a post, posts may be shortened, provided a minimum length of 12 inches of post is grouted in the rock.
- F. At grade depressions where the change in grade within two adjacent spans of fence is 20% or more, install sag bracing. If it is necessary to cut and splice woven wire fence to accommodate the grade change, make the splice at a line post or install an additional post at the splice.
- G. Consider air temperature when stretching wire; in very hot weather, stretch the wire just tightly enough to eliminate sags. In cold weather, stretch the wire very tightly. Do not stretch woven wire so tightly that the preformed kinks in the horizontal wires are straightened.
- H. Brace intersecting fences at the intersection of the new fence with a terminal brace as shown on the Contract Documents.
- I. Horizontal and inclined braces are to be 4 x 4 inches No. 2 Common Douglas Fir or Larch. Posts must be dapped to receive the braces, and the ends of the brace anchored with 3 – 16d nails or a 3/8 x 4-inch steel dowel. Daps on the posts and the ends of the braces are to be given a coat of pentachlorophenol solution before assembly. Brace wires are to consist of two loops of 9 gage wire placed as shown on the Contract Documents and twisted to form a taut cable. Lightly notch the posts to position the wire, and drive three staples at each notch to secure the wire.
- J. Braces for barbed or woven wire. No fence is to extend more than 660 feet between adjacent corner braces, gate braces, terminal braces, or line braces. Install line braces at reasonably uniform intervals so the distance between any two braces is 660 feet or less. Use two staples at each wire on wood braces, or wrap the fence wires around the post and tie off.

On metal braces, securely splice the tie wires to the fence on both sides of the posts in such a manner that there are two loops behind the post and one loop in front, or wrap the fence wires around the post and tie off. Locate the concrete blocks for the angle braces at a minimum of 6 inch if the angle brace is embedded in the concrete.

- K. Braces for chain link fence. No fence is to extend more than 300 feet between adjacent braces. Install line braces at reasonably uniform intervals so the distance between any two braces is 300 feet or less.
- L. Grounding chain link fence. Bond posts for chain link fence to a ground located at the bottom of the concrete foundation at locations where the chain link fence passes under a power line. Ground line posts for chain link fence built parallel to a power line not less than every 300 feet at each brace.

#### **PART 4 MEASUREMENT AND PAYMENT**

4.1 Use the following unit price as designated in the Bid Schedule for fence. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items.

- A. Fence, Type \_\_\_\_: By the linear foot for the type measured along the horizontal centerline of the fence through all braces and gates. Include full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
  - 1. Bid Schedule Payment References: 2040.4.1.A.1.  
Bid Schedule Description: Fence, Type \_\_\_\_...linear foot (LF).
- B. Gates, Type \_\_\_\_: By the each regardless of length. Include full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
  - 1. Bid Schedule Payment References: 2040.4.1.B.1.  
Bid Schedule Description: Gates, Type \_\_\_\_...each (EA).
- C. Braces: By the each. Include full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.
  - 1. Bid Schedule Payment References: 2040.4.1.C.1.  
Bid Schedule Description: Braces...each (EA).

END OF SECTION

**SECTION 2050**  
**CONSTRUCTION GEOTEXTILES**

**PART 1      GENERAL**

1.1      SECTION INCLUDES

- A.      Drainage Geotextiles
- B.      Riprap/Erosion Control Geotextiles
- C.      Subgrade Preparation Geotextiles
- D.      Pavement Overlay Geotextiles
- E.      Temporary Silt Fence Geotextiles

1.2      RELATED SECTIONS

- A.      Section 202 – Excavation and Embankment
- B.      Section 206 – Permanent Erosion Control
- C.      Section 307 – Street Cuts and Surface Repairs
- D.      Division 1000 – Construction Stormwater Best Management Practices

1.3      REFERENCES

- A.      ASTM D 4355 – Standard Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
- B.      ASTM D 4491 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity
- C.      ASTM D 4533 – Standard Test Method for Trapezoid Tearing Strength of Geotextiles
- D.      ASTM D 4632 – Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
- E.      ASTM D 4751 – Standard Test Method for Determining Apparent Opening Size of a Geotextile
- F.      ASTM D 4833 – Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products

#### 1.4 GENERAL REQUIREMENTS

- A. The geotextile shall be composed only of long chain polymeric filaments or yarns oriented into a stable network, which retains its relative structure, including selvages, during handling, placement, and design service life. At least 85% by weight of the long chain polymers shall be polyolephins, polyesters, or polyamides. The geotextile shall be free from defects or tears.
- B. Geotextiles may be rejected by the Engineer if dimensional stability or resistance to ambient temperatures, acid or alkaline conditions, and micro-organisms/insects do not appear to be satisfactory for the intended purpose.
- C. The geotextile shall conform to the properties as indicated in Part 2 - Materials as appropriate for each specified use.
- D. The geotextile shall be free of any treatment or coating which might adversely alter its physical properties after installation.

#### 1.5 SUBMITTALS

- A. The Geotextile will be accepted by certification. The Contractor shall furnish the geotextile manufacturer's certified test results attesting that the geotextile and all factory seams meet the requirements stated in these specifications for the intended application. The certification shall state that the named product conforms to the requirements listed in Part 2 - Materials or as modified in the Contract Documents and that representative samples thereof have been sampled and tested as specified.

The certification shall include the following information about each geotextile to be used:

- 1. Manufacturer's name and current address,
- 2. Full product name,
- 3. Geotextile roll number,
- 4. Proposed geotextile use(s), and
- 5. Certified test results.
  - a. The certification shall give the name and address of the testing agency and the date of tests; and shall set forth the means of identification, including lot number, which will permit field determination of the product delivered to the project as being the product covered by the certification.
  - b. The certified copy of the test results shall include each test result, each mean roll value, the calculated standard deviation for each lot, and the manufacturer's coefficient of variation for all test results.

- c. The certification shall be in duplicate with one copy to be sent with the shipment of the covered product to the Engineer, and one to be kept on file at the jobsite.

1.6 PROJECT RECORD DOCUMENTS

- A. Maintain records of certified test results and field sampling and testing for each type of geotextile installed. Provide these records to the Engineer upon request.
- B. Record location and quantity of each type of geotextile installed and provide copies to the Engineer upon request.

1.7 DELIVERY STORAGE AND HANDLING

- A. During periods of shipment and storage, place the geotextile in a dry place off the ground and protected from damage and maintain in an opaque, heavy-duty protective covering.
- B. Deliver, store and handle geotextile in strict accordance with manufacturer’s recommendations.

**PART 2 MATERIALS**

2.1 DRAINAGE GEOTEXTILES

- A. Nonwoven or monofilament woven geotextiles are acceptable. Slit film or slit tape geotextiles will not be permitted for drainage applications:

<u>Geotextile Property (Roll Values)</u>	<u>Test Method</u>	<u>Minimum</u>	<u>Average</u>
Grab Tensile Strength – lb (In either principal direction)	ASTM D 4632	(1) Type I 80	Type II 180
Grab Elongation (%)	ASTM D 4632	NA	NA
Puncture Strength – lb	ASTM D 4833	35	80
Apparent Opening Size (AOS) (2) (Std. Sieve)	ASTM D 4751	#70	Or Finer
Permittivity (sec-1)	ASTM D 4491	0.7	0.7

(1) Type I refers to protected conditions. Type II refers to unprotected conditions. Protected conditions include: trench depth 10 ft., rounded aggregate or crushed aggregate less than 4 in. size, and relatively smooth trench walls. All other conditions are unprotected.

Note: Strength properties of drainage geotextiles placed on level or near level surfaces such as under drain blankets or on subgrade shall meet those specified in Subsection 2.3.

## 2.2 RIPRAP/EROSION CONTROL GEOTEXTILES

- A. Nonwoven or monofilament woven geotextiles are acceptable. Slit film or slit tape geotextiles will not be permitted for riprap/erosion control applications, including installation behind gabions.

<u>Geotextile Property (Roll Values)</u>	<u>Test Method</u>	<u>Minimum</u>	<u>Average</u>
Grab Tensile Strength – lb (In either principal direction)	ASTM D 4632	(1) Type I 130	Type II 200
Grab Elongation (%)	ASTM D 4632	15	15
Puncture Strength – lb	ASTM D 4833	60	80
Trapezoidal Tear – lb	ASTM D 4533	40	50
Apparent Opening Size (AOS) (Standard Sieve)	ASTM D 4751	#50	Finer
Permittivity (sec-1)	ASTM D 4491	0.5	0.5
Ultraviolet (UV) Radiation Stability	ASTM D 4355	70% Strength @150 hrs.	Retained

- (1) Low to moderate survivability geotextiles (Type I) may be used behind gabions less than 10 ft. high without an aggregate cushion. In severe conditions, where stones will be larger than 240 lb, or drop heights cannot be practically reduced, a higher survivability fabric (Type II) will be necessary.

## 2.3 SUBGRADE SEPARATION GEOTEXTILE PROPERTY REQUIREMENTS

- A. Nonwoven or woven geotextiles are acceptable.

<u>Geotextile Property (Roll Values)</u>	<u>Test Method</u>	<u>Minimum</u>	<u>Average</u>
Grab Tensile Strength – lb (In either principal direction)	ASTM D 4632	Type I 180/115	Type II (1) 270/180
Grab Elongation (%) (2)	ASTM D 4632	<50%/>50%	<50%/>50%
Puncture Strength – lb	ASTM D 4833	70/40	100/75
Trapezoidal Tear Strength – lb	ASTM D 4533	70/40	100/75
Apparent Opening Size (AOS) (3) (Standard Sieve)	ASTM D 4751 COE CW-002215	#30	Or Finer
Permittivity (sec-1) (3)	ASTM D 4491	0.02	0.02

- (1) Type I, refers to moderate survivability conditions; Type II to high survivability conditions. Moderate survivability is low to moderate ground pressure equipment, 40 psi, with 12 in. to 18 in. initial lift thickness or high ground pressure equipment, 40 psi, with more than 18 in. initial lift thickness. High survivability is low to moderate ground pressure equipment with 6 in. – 12 in. initial lift thickness or high ground pressure equipment with 12 in. to 18 in. initial lift thickness. Subgrade condition is assumed cleared of rocks, stumps & large limbs, and graded reasonably smooth. If subgrade preparations or clearing is not in accordance with the above or cover material is angular shot rock, even higher survivability geotextiles may be necessary.
- (2) For geotextiles with less than 50% elongation, higher strengths are required.
- (3) Minimum values: specify as appropriate for site conditions. Where subgrade geotextiles will function in a drainage application, Permittivity and AOS values shall be in accordance with Subsection 2.1.

2.4 PAVEMENT OVERLAY GEOTEXTILE PROPERTY REQUIREMENTS

- A. Only nonwoven geotextiles are acceptable.

<u>Geotextile Property</u> (Roll Values)	<u>Test Method</u>	<u>Minimum Average</u>
Grab Tensile Strength – lb (In each principal direction)	ASTM D 4632	80
Grab Tensile Elongation (%)	ASTM D 4632	50
Trapezoidal Tear Strength – lb	ASTM D 4533	40
Asphalt Retention – gal/yd <sup>2</sup>		0.20

2.5 TEMPORARY SILT FENCE GEOTEXTILE PROPERTY REQUIREMENTS

- A. Geotextiles meeting the following are acceptable:

<u>Geotextile Property</u> (Roll Values)	<u>Test Method</u>	<u>Minimum Average</u>
Grab Tensile Strength – lb (In either principal direction)	ASTM D 4632	90
Grab Elongation (%) At 50% of minimum Tensile Strength 45 lb	ASTM D 4632	50 max (1)
Permittivity (sec –1)	ASTM D 4491	0.05
Apparent Opening Size	ASTM D 4751	#20 or finer
Ultraviolet (UV) Radiation Stability Retained	COE CW-002215 ASTM D 4355	70% Strength Retained @ 150 hrs

(1) For wire fence supported fabric, elongation requirements are not applicable.

**PART 3 INSTALLATION**

3.1 EXAMINATIONS

- A. Verify that surfaces upon which the geotextile is to be installed are graded to a smooth, uniform condition free of obstructions, depressions, and debris.
- B. Examine geotextile for defects or damage.
- C. Verify geotextile delivered to the site meets the requirements of the Contract Documents.

- D. Verify surface grading and other improvements prior to beginning work. Notify the Engineer if field conditions are different from the Contract Documents. Allow 4 hours for the Engineer to modify the design, if necessary, unless otherwise specified.

### 3.2 GENERAL PLACEMENT REQUIREMENTS

- A. Spread geotextile immediately ahead of the covering operation. Do not drag the geotextile on the ground or mishandle in any way. Place the geotextile loosely and without wrinkles so that placement of the overlying material will not tear the geotextile. Lap or sew the geotextile, as specified, at the ends and sides of adjoining sheets.
- B. Place the cover material on the geotextile in such a manner that a minimum of 6 in. to 18 in. of material, depending on the survivability of the geotextile and the weight of the construction equipment, will be between the vehicle or equipment tires or tracks and the geotextile at all times.
- C. Cover the geotextile with the specified cover material as soon as possible. Geotextiles which have not been ultraviolet stabilized shall not remain uncovered for longer than 7 days. Ultraviolet stabilized materials shall not remain exposed longer than 30 days.

### 3.3 PLACEMENT IN SOFT GROUND

- A. Where geotextiles will be placed over soft ground, construction vehicles shall not drive directly on the geotextile material. End-dumping the cover material directly on the geotextile will not be permitted.
- B. Limit compaction of the first lift above the geotextile over soft ground to operation of placing and spreading equipment only. No sheep foot type equipment will be allowed on the first lift. Subsequent lifts will be closely observed during compaction. If any foundation failures occur during compaction operations, lightweight compaction equipment shall be used. Use pegs, pins, or the manufacturer's recommended methods as needed to hold the geotextile in place until the specified cover material is placed.
- C. Under no circumstances shall cover material be dropped on unprotected geotextile from a height greater than 3 ft. above the surface of the geotextile.

### 3.4 PLACEMENT OF SEAMS

- A. Sewn seams will not be required unless specified in the special provisions or shown on the plans. Seams shall consist of two parallel rows of stitching. The two rows of stitching shall be 1/2 in. apart with a tolerance of 1/4 in. and shall not cross, except for rest itching. The stitching shall be a lock-type stitch. The minimum seam allowance, i.e., the minimum distance from the geotextile edge to the stitch line nearest to that edge, shall be 1-1/2 in if a flat or prayer seam is used. The minimum seam allowance for all other seam types shall be 1 in.

- B. The seam, stitch type, and the equipment used to perform the stitching shall be as approved. Unless otherwise specified, use a “J” seam with two passes of a lock-type stitch with at least 3 stitches per 1 in. The prayer seam (flat) may be used for repair of damaged in-place geotextiles.
- C. Sew seams with high strength polyolephin, polyester or kevlar thread that are as resistant to deterioration as the geotextile being sewn. The thread shall be of a contrasting color other than the geotextile. Nylon threads will not be allowed. The strength of the seam shall be at least 90% of the minimum required tensile strength for the intended application as specified in Subsections 718.05 – 718.09. Obtain the Engineer’s approval prior to the production field stitching/seaming.

### 3.5 REPAIRS

- A. Should the geotextile be torn, punctured or the overlaps or sewn joints disturbed, as evidenced by visible geotextile damage, subgrade pumping, intrusion, or roadbed distortion, remove the backfill around the damaged or displaced area and repair or replace the damaged geotextile at no cost to the Owner.
- B. The repair shall consist of a patch of the same type of geotextile placed over the ruptured area. The patch shall overlap the existing geotextiles a minimum of 2 ft. from the edge of the rupture, except for pavement overlay geotextiles. Where geotextile seams are required to be sewn, any damaged sheets shall be repaired by sewing, unless otherwise indicated. Seams shall be sewn as specified in Subsection 3.3 above.
- C. Remove and replace damaged pavement geotextile with the same type of geotextile, and the overlaps shall be shingle-lapped in the direction of paving.

### 3.6 INSTALLATION

- A. Underground Drainage Application.
  - 1. Construct underdrains in accordance with the details shown on the plans. Place the geotextile to conform loosely to the shape of the trench.
  - 2. Either overlap the geotextile a minimum of 12 in. at all longitudinal and transverse joints, or sew the geotextile joints. In trenches less than 12 in. wide, overlap shall be the width of the trench.
  - 3. Trench installations shall be considered protected if trench walls are relatively smooth and stable; trenches are less than 10 ft. deep and free of sharp projections. Other conditions shall be considered unprotected.
  - 4. Drainage geotextiles placed under or over a horizontal or sloping surface such as on a subgrade or in conjunction with drain blankets shall meet the construction survivability requirements of subgrade separation geotextiles.

B. Riprap/Erosion Control Application.

1. Construct geotextiles under riprap and rock buttresses in accordance with the details shown on the plans and the following. Either overlap the geotextile a minimum of 2 ft. at all longitudinal and transverse joints, or sew the geotextile together at all joints at the time of manufacture to form geotextile widths as required. If overlapped, place the geotextile so that the upstream strip of geotextile will overlap the next downstream strip. Where placed on slopes, each strip shall overlap the next downhill strip.
2. Key the geotextile at the top and the toe of the slope per manufacturer's recommendations or as shown in the plans. Secure the geotextile to the slope loosely enough so that the geotextile will not tear when the riprap is placed. The geotextile shall not be keyed at the top of the slope until the riprap is in place to the top of the slope.
3. Start placement of aggregate, riprap or both on the geotextile at the toe of the slope and proceed upwards. Demonstrate that the combination of the rock-fill drop height and the thickness of any aggregate cushion are adequate so as not to puncture or damage the geotextile when placing the riprap or rock-fill. Where an aggregate cushion is required, it shall be a minimum of 6 in. thick.
4. In addition, the following limits apply:

Size of <u>Riprap Material</u>	Maximum Drop Directly <u>onto</u> <u>Construction Fabric</u>	Height, ft onto <u>Aggregate Cushion</u> <u>Blanket</u>
Greater Than 220 lb Rock	0	3.3
220 lb. Rock or less	3.3	

NOTE: A rock weighing 220 lb will typically have a volume of approximately 1.3 cu ft

5. After placement of the riprap, satisfactorily backfill all voids in the riprap face that allow the fabric to be visible so that the fabric is completely covered.
6. Grading of slopes after placement of the riprap will not be allowed if grading results in stone movement directly on the geotextile. Under no circumstances shall stone weighing more than 110 lbs be allowed to roll down slope. Stones shall not be dropped from a height of greater than 3.3 ft. above the geotextile surface. Lower drop heights may be required if geotextile damage from the stones is evident, as determined by the Engineer. If the geotextile is placed on slopes steeper than 2:1 (H:V), the stones shall be placed on the slope without free-fall.

C. Subgrade Separation Application.

1. Prepare the subgrade in accordance with Section 202 – Excavation and Embankment.

2. Either overlap the geotextile a minimum of 2 ft. at all longitudinal and transverse joints, or sew the seams to form geotextile widths as required

D. Pavement Overlay Application.

1. The use of geotextiles in pavement overlays involves four basic steps: initial surface preparation, application of a sealant, placement of the geotextile, and placement of the overlay.
2. Weather Limitations – The weather limitations for placement of sealant and geotextile shall conform to Division 800 – Aggregates and Asphalts as appropriate, except minimum air temperature for paving grade asphalt sealant placement shall be at least 50°F.
3. Surface Preparation – Prepare the pavement surface on which the sealant is to be placed as prescribed in Division 800 – Aggregates and Asphalts. In addition, clean and fill cracks exceeding 1/8 in. width with suitable bituminous crack filler. Crack filling material shall be allowed to cure prior to geotextile placement. Place leveling courses prior to placing the geotextile.
4. Asphalt Sealant – Asphalt sealant shall be of the type and grade specified in the contract. Spread the sealant material by means of a pressure distributor conforming to the requirements of Division 800 – Aggregates and Asphalts. Uniformly spray the asphalt sealant to the prepared dry pavement surface at the rate recommended by the geotextile manufacturer and approved by the Engineer. For paving grade asphalt cements, the maximum distributor tank temperature shall not exceed 320°F to avoid damage to the geotextile.

The width of the sealant application shall be the geotextile width plus 6 in. Apply the sealant only as far in advance of geotextile installation as is appropriate to ensure a tacky surface at the time of geotextile placement. Place the geotextile on the sealant while it is hot and on the same day as the sealant. Traffic shall not be allowed on the sealant.

5. Placement of Geotextile – Protect the geotextile from moisture at all times during storage and placement. Place the geotextile into the sealant using mechanical or manual laydown equipment capable of providing a smooth installation with a minimum amount of wrinkling or folding. Wrinkles or folds in excess of 1 in. shall be laid flat. Shingle-lap all transverse joints and slit folds or wrinkles in the direction of the paving operation. Overlap shall be sufficient to ensure closure, but shall not exceed 6 in. Brooming and/or pneumatic rolling will be required to maximize geotextile contact with the pavement surface. Additional hand-placed sealant material may be required at laps. Traffic allowed on the placed geotextile shall be limited to necessary construction equipment and emergency vehicles, unless otherwise directed. Turn pavers and other vehicles gradually and minimally to avoid movement and damage to the geotextile. Avoid abrupt starts and stops.

6. Placement of Overlay – Overlay placement shall closely follow geotextile placement. Windrowing asphalt on the geotextile ahead of the paving machine will not be allowed.

E. Silt Fence Application.

1. Place per manufacturer's specifications and per Division 1000 – Construction Stormwater (BMPs).

### 3.7 SAMPLES

- A. The Engineer will be present at the site during installation, and the Engineer reserves the right to collect samples periodically for confirmation testing.
- B. As required, cut the geotextile samples from the roll with scissors, sharp knife, or by another suitable method that produces a smooth edge and does not cause ripping or tearing. The sample shall not be taken from the outer wrap of the geotextile roll nor taken from the inner wrap of the core. Each sample shall have a minimum dimension of 6.6 ft. by the full roll width. Submit one sample per lot.
- C. Label the samples with the lot and batch number, date of sampling, project number, specifications, manufacturer, and product name. A lot shall be defined as all geotextile rolls within the same consignment or shipment, which were produced by the same manufacturer and have the same product name or designation.
- D. Prior to installation, submit samples of sewn seams to the Engineer in Boise. The seam sewn for sampling shall be sewn using the same equipment and procedures as will be used to sew the production seams. If production seams will be sewn in both the machine and cross-machine directions, provide sewn seams for sampling which are oriented in both the machine and cross-machine directions. The seams sewn for sampling must be at least 6.6 ft. in length in each direction. If the seams are sewn in the factory, the Engineer will obtain samples of the factory seam at random from any of the rolls to be used.

### 3.8 TESTING

- A. The Owner reserves the right to perform tests as necessary to determine that geotextile properties conform to the values specified herein for the intended application(s).
- B. All geotextile property requirements stated herein are minimum average roll values. The tensile strengths shall be determined in both machine and cross-machine directions.

## **PART 4 MEASUREMENT AND PAYMENT**

- 4.1 Use one or more of the following unit price options as designated on the Bid Schedule. Includes all labor, materials and equipment necessary for preparing certifications and submittals, procurement, delivery, storage and handling of the geotextiles, preparing work surfaces, installing the geotextiles including laps, seams, joints and patches, finish work, testing and appurtenances. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items.
- A. Drainage Geotextile by the square yard measured by multiplying the trench length by the perimeter covered as shown in the typical trench section.
    - 1. Bid Schedule Payment Reference: 2050.4.1.A.1.  
Bid Schedule Description: Drainage Geotextile...square yard (SY).
  - B. Riprap/Erosion Control Geotextile by the square yard measured to the nearest unit of surface area actually covered.
    - 1. Bid Schedule Payment Reference: 2050.4.1.B.1.  
Bid Schedule Description: Riprap/Erosion Control Geotextile...square yard (SY).
  - C. Subgrade Preparation Geotextile by the square yard measured to the nearest unit of surface area actually covered.
    - 1. Bid Schedule Payment Reference: 2050.4.1.C.1.  
Bid Schedule Description: Subgrade Preparation Geotextile...square yard (SY).
  - D. Pavement Overlay Geotextile by the square yard measured to the nearest unit of surface area actually covered.
    - 1. Bid Schedule Payment Reference: 2050.4.1.D.1.  
Bid Schedule Description: Pavement Overlay Geotextile...square yard (SY).

END OF SECTION

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