



# LEWISTON

## Maine

**CONTRACT AND CONTRACT DOCUMENTS**

**FOR**

**HART BROOK RESTORATION**  
**PHASE 11**

**BID NO. 2022-034**

**MAY 31, 2022**

**DEPARTMENT OF PUBLIC WORKS**  
**ENGINEERING DIVISION**

103 ADAMS AVENUE

LEWISTON, MAINE 04240

Tel. 207 513-3003

Fax 207 784-5647

CITY OF LEWISTON, MAINE  
DEPARTMENT OF PUBLIC WORKS



CONTRACT AND CONTRACT DOCUMENTS

FOR

HART BROOK RESTORATION  
PHASE II

BID NO. 2022-034

MAY 31, 2022

PREPARED BY  
CITY OF LEWISTON  
ENGINEERING DIVISION

**HART BROOK RESTORATION**  
**PHASE II**

**BID # 2022-034**

**Contents**

	<b><u>PAGE NO.</u></b>
Notice to Contractors.....	N-1
Proposal Form.....	P-1
Contract Form .....	C-1
Notice of Award .....	NA-1
Notice to Proceed.....	NP-1
Division 10 Supplemental Specifications .....	10-1
Division 20 General Provisions.....	20-1
Division 30 Control of Work .....	30-1
Division 40 Structural Earth Work.....	40-1
Division 50 Materials Specifications .....	50-1

**CITY OF LEWISTON, MAINE**

**NOTICE TO CONTRACTORS**

Sealed proposals for the **HART BROOK RESTORATION - PHASE II** will be received by the office of the Purchasing Agent, until 2:00 o'clock PM, on **May 31, 2022**.

The work for the **HART BROOK RESTORATION PHASE II** shall consist of, but not be limited to, the complete and satisfactory construction of eleven (11) grassed underdrain soil filters and associated underground storage systems on sections of Forrestal and Saratoga Streets in Lewiston, ME. This contract is for the grassed underdrain soil filters, associated piping, and guardrail installation ONLY. **Road grading, manhole rim alteration, and paving Forrestal and Saratoga Streets is NOT part of this contract.**

All work, including final loaming, must be completed by **September 15, 2022**.

Interested bidders must register with the Purchasing Agent either through direct response to the City's RFP solicitation at [mryerson@lewistonmaine.gov](mailto:mryerson@lewistonmaine.gov) or by contacting the Purchasing Agent Allen Ward at 207-513-3040 or [award@lewistonmaine.gov](mailto:award@lewistonmaine.gov) to be added to the bidders list.

Questions and Requests for Information shall be submitted to John Skelley ([jskelley@lewistonmaine.gov](mailto:jskelley@lewistonmaine.gov)) on or before noon, **May 26, 2022**. Questions and RFIs will be responded to via email to potential bidders on the Plan Holders List and those registered with the City Purchasing Department for this project.

**All bidders are required to attend a virtual pre-bid conference to be held via Zoom on May 20, 2022 at 10:00 A.M. Attendance at this meeting by the Bidder or his/her qualified representative is a mandatory prerequisite for the acceptance of a bid from that Contractor.** Meeting registration information shall be sent to all registered bidders.

Each bidder is required to state in his/her Proposal his/her name and place of residence and the names of all persons or parties interested as principals with him/her; and that the Proposal is made without any connection to any other bidder making any Proposal for the same work; and that no person acting for, or employed by, the City of Lewiston is directly or indirectly interested in the Proposal or in any contract which may be entered into to which the Proposal relates, or in any portion of the profits there from, except as provided by the City Charter.

The Contractor shall give his/her personal attention constantly to the faithful prosecution of the work, shall keep the same under his/her personal control and shall not assign, by power of attorney or otherwise, nor sublet the work or any part thereof, without the previous written

consent of the Purchasing Agent; and shall not, either legally or equitably, assign any of the money payable under this Agreement or his/her claim thereto, unless by and with the like consent of the Purchasing Agent. Proof of insurance coverage will also be required from the subcontractor and any liabilities on the part of the subcontractor will be the responsibility of the contractor under his contract with the City and the City will be held harmless. The contractor shall take all necessary affirmative action steps to assure that qualified minority businesses, women's businesses, and labor surplus area firms are included in the hiring of any subcontractor working on this City project.

The Proposal must be signed by the bidder with his/her full name and address and be enclosed in a sealed envelope together with the bid security. The sealed envelope shall be marked with the name and address of the bidder and entitled:

PROPOSAL FOR  
**HART BROOK RESTORATION - PHASE II**

and addressed to: "Purchasing Agent, City Hall, Lewiston, Maine". If the Proposal is forwarded by mail, the sealed envelope containing the Proposal and marked as above must be enclosed in a second envelope which shall be addressed to: "Purchasing Agent, 27 Pine Street, City Hall, Lewiston, Maine 04243-0479." All mailed Proposals should be sent by registered mail to insure delivery.

The Bidder's attention is called to the Environmental Protection Agency (EPA) rule titled "Participation by Disadvantaged Business Enterprises in United States Environmental Protection Agency Programs", at 40 CFR Part 33 (DBE Rule), sets forth an EPA program that serves the compelling government interest to increase and encourage the utilization and participation of Disadvantaged Business Enterprises (DBEs) in procurements funded by EPA assistance agreements. While not required, contracting with DBEs on this project is encouraged and should be documented on the DBE Utilization Form included in the Contract Documents.

Any bidder may withdraw his/her Proposal prior to the scheduled time for the opening of Proposals upon presentation to the Purchasing Agent of a request, in writing, to do so. Any bidder who withdraws his/her Proposal within thirty (30) days after the actual opening thereof shall be considered to have abandoned his/her Proposal and the bid security accompanying the Proposal will be forfeited to the City of Lewiston. Any Proposal received after the scheduled opening time will not be considered.

The City reserves the right to negotiate with the low bidder to bring projects down to within budget.

The Finance Committee reserves the right to waive any formality and may consider as informal any Proposal not prepared and submitted in accordance with these provisions. The Finance

Committee reserves the right to accept any Proposal or reject any or all Proposals if it is deemed to be in the public interest to do so.

No Proposal will be considered unless it is accompanied by a bid security in the form of a bid bond or certified check in the amount of ten percent (10%) of the total bid price, made out in favor of the City of Lewiston. All bid securities will be released upon deliverance of a signed Contract or, if no Contract award is made, within forty-five (45) days after the opening of the Proposals, unless forfeited as herein stipulated.

The Contract must be signed within ten (10) days, Saturdays, Sundays, and holidays excluded, after the date of notification to the bidder by the Purchasing Agent of the acceptance of his/her Proposal and readiness of the Contract to be signed. If the bidder fails or neglects, after such notification, to execute the Contract, the Finance Committee may determine that the Proposal has been abandoned; and, in such case, the bid security accompanying the Proposal shall be forfeited to the City of Lewiston.

A Performance Bond and a Labor and Material Payment Bond, preferably executed on AIA Bond Form Number A311, in an amount equal to the total Contract price, of a surety company satisfactory to the Purchasing Agent, will be required of the successful bidder to ensure completion of the work and the proper fulfillment of the conditions of the Contract. The total Contract price shall mean the total bid price as stated in the Proposal based on the estimated quantities of the various items of work.

The work must be commenced within ten (10) days after the date of the Contract signing unless otherwise specified in the Specifications or directed by the Purchasing Agent, in writing, and is to be continued with diligent regularity until its completion within the time limit specified.

All Proposals must be made on the blank Proposal Form bound in the Contract Documents, or as otherwise provided for in the Specifications. Bidders shall state prices for each separate item of work as called for in the Proposal Form. These prices are to cover all expenses incidental to the completion of the work in full conformity with the Contract Documents.

The prices must be stated both in words and figures. Should a discrepancy be found between the prices written in words and the prices written in figures, the prices written in words shall govern. Proposals which do not contain prices for all items which are called for or which otherwise are not in conformity with this Notice may be rejected.

Each bidder shall make his/her Proposal from his/her own examinations and estimates, and shall not hold the City, its agents or employees, responsible for, or bound by, any schedule, estimate, sounding, boring, or any plan thereof; and shall, if any error in any plan, drawing, specification or direction relating to anything to be done under this Contract comes to his/her knowledge, report it at once, in writing, to the Engineer.

All materials and labor required to complete the work shall be supplied by the Contractor unless otherwise provided for in the Special Provisions, Plans or the Standard and Supplemental Specifications. The cost and expense of all the necessary labor, tools and equipment required to complete the work shall be included in the prices stated in the Proposal.

The City may set off any unpaid taxes, fees or other charges or other amounts owed by the contractor against the contract price, in full or partial satisfaction.

Plans and Specifications can be obtained free of charge on the City of Lewiston web site under Finance Dept/Bids and Awards ([www.lewistonmaine.gov](http://www.lewistonmaine.gov)).

All questions by prospective bidders pertaining to the Contract Documents, Plans and Specifications must be received, in writing, by the Engineer, at least five (5) days before the date set for the opening of the Proposals. Any questions which, in the opinion of the Purchasing Agent, require interpretation, will be posted to the City of Lewiston web site and will be e-mailed to the plan holders, with the interpretation, in the form of a numbered Addendum, to each person or firm who has taken out a set of Contract Documents, not later than three (3) days prior to the scheduled opening of the Proposals. Addenda issued later than three (3) days prior to the scheduled opening of the Proposals may be by e-mail, telephone, or fax machine. Bidders shall acknowledge receipt of all Addenda in the space provided therefore in the Proposal Form, whether the Addenda are in response to questions or otherwise issued by the City and whether the Addenda are received by e-mail, telephone or fax.

The Special Provisions, Plans, and the Standard and Supplemental Specifications delineate the particular project to which the Contract Documents pertain. Should any discrepancy be found to exist between the Supplemental Specifications and the Standard Specifications and/or the Contract Plans, the Supplemental Specifications and/or Contract Plans shall govern.

If the Bid Price of any or several bid items submitted with this Proposal appear to be extremely low or high, compared to the actual cost of performing the work, the Bidder may be asked to explain, in writing, how the work in question is to be performed at the price or prices bid before a decision is made by the City to award a Contract or reject the Bid.

Proposals will be considered irregular and will be rejected for the following reasons:

- A.** If the Proposal is on a form other than that furnished by the City or if the form is altered in any way.
- B.** If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may make the Proposal incomplete, indefinite, or ambiguous as to its meaning.

- C.** If the Bidder adds any provisions reserving the right to accept or reject an award or to enter into a Contract pursuant to an award.
- D.** If the Proposal does not contain a unit price for each pay item listed unless otherwise specified.
- E.** If any of the bid prices are unbalanced, or do not reflect the actual cost required to perform the work, as outlined in the Plans and Specifications.



CITY OF LEWISTON

PROPOSAL FOR

**HART BROOK RESTORATION - PHASE II**  
**BID 2022 – 034**

To: Purchasing Agent  
City Hall, Lewiston, Maine

Dear Sir/Madam:

The undersigned hereby declares that he/she has carefully examined the location of the proposed work, the proposed Contract Form and the Contract Documents therein referred to and that he/she proposes and agrees, if this Proposal is accepted, that he/she will contract with the City of Lewiston, by its City Administrator, to provide all machinery, tools, labor, equipment and other means of construction and to do all the work and to furnish all the materials, except those specified in the Specifications to be furnished by the City, necessary to complete the work in the manner and time therein prescribed, in accordance with the conditions and requirements set forth in the Contract Documents and the requirements of the Engineer and/or Director of Public Works as provided for therein; and that he/she will accept in full payment therefore the following sums to wit:

**HART BROOK RESTORATION - PHASE II**

ITEM NO.	EST. QTY	PAY UNIT	ITEM DESCRIPTION AND UNIT	TOTAL
1	1	LS	<u>Mobilization</u> (\$ _____) LS	\$ _____
2	1	LS	<u>Temporary Erosion Control</u> (\$ _____) LS	\$ _____
3	1	Allow	<u>QA/QC Testing</u> (\$2,500.00) Allow	\$ _____
4	1	LS	<u>Site Preparation</u> (\$ _____) LS	\$ _____
5	350	CY	<u>Common Excavation</u> (\$ _____) CY	\$ _____
6	30	CY	<u>Riprap</u> (\$ _____) CY	\$ _____
7	3,135	SF	<u>Grassed Underdrain Soil Filter</u> (\$ _____) SF	\$ _____
8	11	EA	<u>Nyloplast Outlet Structure</u> (\$ _____) EA	\$ _____
9	120	LF	<u>1-Inch PVC Pipe</u> (\$ _____) LF	\$ _____

10	120	LF	<u>4-Inch PVE Pipe</u>	(\$ _____ )	LF	\$ _____
11	7200	CF	<u>Underground Storage</u>	(\$ _____ )	CF	\$ _____
12	475	LF	<u>Guardrail</u>	(\$ _____ )	LF	\$ _____

TOTAL BID: \_\_\_\_\_ in Words  
(\$ \_\_\_\_\_ ) in Figures

The undersigned acknowledges the receipt of Addenda numbered \_\_\_\_\_

The undersigned further agrees that, after notification by the Purchasing Agent of the acceptance of his/her Proposal and the readiness of the Contract for signature, he/she will execute the Contract and furnish the required Bonds within ten (10) days, Saturdays, Sundays and Holidays, excluded, and that he/she will commence the work within ten (10) days after the execution of the Contract and deliverance of the Bonds, unless otherwise specified in the Supplemental Specifications or directed by the Director of Public Works or City Engineer in writing; and that he/she will prosecute the work to its completion within the time limit specified in the Supplemental Specifications. The undersigned further agrees that there shall be deducted from monies due the Contractor, not as a penalty, but as inspection costs, the sum of five hundred (\$500.00) dollars for each working day beyond the time limit specified in the Supplemental Specifications which is required by the Contractor to complete the whole work to the satisfaction of the Engineer and the Director of Public Works.

The undersigned further agrees that in the employment of labor, preference will be given, all other things being equal, to the citizens of Lewiston and of the State of Maine, in that order. The undersigned hereby further declares that the only persons or parties interested in this Proposal, as principals, are named below; that the Proposal is made without any connection with any other person or party making any Proposal for the same work; and that no person acting for or employed by the City of Lewiston is directly or indirectly interested in this Proposal or in any contract which may be made under it or in profits expected to arise there from, except as provided by the City Charter. The full names and addresses of all persons and parties interested in this Proposal, as principals, are as follows: (Give first and last names in full; and in the case of a Corporation, give names and addresses of President, Treasurer and Manager; and in case of a Partnership, give names and addresses of members):

\_\_\_\_\_  
\_\_\_\_\_

If you are proposing to use any subcontractors, please list them here along with references for them. They will need written permission from the Purchasing Agent as well

as the required insurance coverage and certificate of insurance submitted to the Purchasing Agent.

---

---

---

Accompanying this Proposal is a bid security deposit in the amount of \$(\_\_\_\_\_), which is to become the property of the City of Lewiston, by forfeiture, if the undersigned fails, after notification by the Purchasing Agent of the acceptance of his/her Proposal, to execute a Contract with the City and furnish the required Bonds within the time agreed to herein; or, in case the undersigned withdraws his/her Proposal within thirty (30) days after the opening of the Proposals. Otherwise, the deposit will be returned to the undersigned in accordance with the provisions in the Notice to Contractors.

<b>Company name</b>	
<b>Signature</b>	
<b>Printed name &amp; title</b>	
<b>Address</b>	
<b>Firm's IRS ID # /Unique Identity #</b>	
<b>Telephone #</b>	
<b>Fax #</b>	
<b>E-mail address</b>	
<b>Date</b>	

**CITY OF LEWISTON, MAINE**

**CONTRACT FOR**

**HART BROOK RESTORATION - PHASE II**

**BID 2022 – 034**

This Agreement, made and entered into the date listed below, in the year two thousand and twenty-two between the City of Lewiston, Maine, a municipal corporation existing under the laws of the State of Maine, hereinafter called "Owner", by its City Administrator, party of the first part, and

---

hereinafter called "Contractor", with legal address and principal place of business at:

---

---

party of the second part:

WITNESSETH:

That the parties to these presents, each in consideration of the covenant and agreements on the part of the other herein contained, have covenanted and agreed and do hereby covenant and agree, the party of the first part for itself and the party of the second part for himself/herself and his/her heirs, executors, administrators and assigns under the penalties expressed in the Performance Bond and the Labor and Material Payment Bond as follows:

That this Agreement includes the following documents, hereinafter referred to as Contract Documents, which are attached hereto and incorporated by reference into this Agreement:

- A.** Notice to Contractors
- B.** Proposal
- C.** Contract
- D.** Notice of Award
- E.** Notice to Proceed
- F.** Supplemental Specifications
- G.** Standard Specifications

H. Contract Plans, if any

I. Addenda, if any

J. Federal Conditions, if any

That the party of the second part will do all the work, furnish all the materials, tools and equipment, except as otherwise specified, and do everything necessary and proper for performing and faithfully completing the work required by the Contract Documents in strict conformity with the provisions of the Contract Documents within the time specified in the Special Provisions, Plans, and the Standard and Supplemental Specifications. That the party of the first part will pay the party of the second part as full compensation for well and faithfully completing the whole work according to the Contract Documents as follows:

**HART BROOK RESTORATION - PHASE II**

ITEM NO.	EST. QTY	PAY UNIT	ITEM DESCRIPTION AND UNIT	TOTAL
1	1	LS	<u>Mobilization</u> (\$ _____) LS	\$ _____
2	1	LS	<u>Temporary Erosion Control</u> (\$ _____) LS	\$ _____
3	1	Allow	<u>QA/QC Testing</u> (\$2,500.00) Allow	\$ _____
4	1	LS	<u>Site Preparation</u> (\$ _____) LS	\$ _____
5	350	CY	<u>Common Excavation</u> (\$ _____) CY	\$ _____
6	30	CY	<u>Riprap</u> (\$ _____) CY	\$ _____
7	3,135	SF	<u>Grassed Underdrain Soil Filter</u> (\$ _____) SF	\$ _____
8	11	EA	<u>Nyloplast Outlet Structure</u> (\$ _____) EA	\$ _____
9	120	LF	<u>1-Inch PVC Pipe</u> (\$ _____) LF	\$ _____
10	120	LF	<u>4-Inch PVE Pipe</u> (\$ _____) LF	\$ _____
11	7200	CF	<u>Underground Storage</u> (\$ _____) CF	\$ _____
12	475	LF	<u>Guardrail</u> (\$ _____) LF	\$ _____

Total Bid: \_\_\_\_\_ in Words

\_\_\_\_\_ in Figures  
(\$ \_\_\_\_\_)

The party of the second part represents and warrants:

- A.** That he/she is financially solvent; and is experienced in and competent to perform the work; and is able to furnish the plant, materials, supplies, labor, and equipment to be furnished by him/her; and,
- B.** That he/she is familiar with all Federal, State, Municipal and Departmental laws, ordinances and regulations which may in any way affect the work or those employed therein; and,
- C.** That such temporary and permanent work required by the Contract Documents to be done by him/her can be satisfactorily constructed and used for the purposes for which it is intended; and that such construction will not injure any person or damage any property other than that damage caused by the construction; and,
- D.** That he/she has carefully examined the Contract Documents and the site of the work; and from his/her own investigation has satisfied himself/herself as to the nature and location of the work, the character, quality and quantity of surface and subsurface material likely to be encountered, the character of equipment and other facilities needed for the performance of the work, the general and local conditions; and all the other materials and conditions which may in any way affect the work or its performance.

IN WITNESS WHEREOF, the said City, by its City Administrator and the said

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

By its \_\_\_\_\_ thereunto duly authorized have hereunto set their hands and seals the date below written.

Signed in the presence of:

\_\_\_\_\_  
Witness

By: \_\_\_\_\_  
Heather Hunter, City Administrator

Date: \_\_\_\_\_

\_\_\_\_\_  
Witness

By: \_\_\_\_\_  
Contractor

Date: \_\_\_\_\_

**NOTICE OF AWARD**

To:

Project Description: **HART BROOK RESTORATION - PHASE II**

Bid #: **2022 – 034**

The City of Lewiston has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated \_\_\_\_\_ and Information for Bidders.

You are hereby notified that your BID has been accepted for items \_\_\_\_\_ for a total award of \_\_\_\_\_. You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR'S Performance Security and certificates of insurance within ten (10) days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within ten (10) days from the date of this Notice, said City of Lewiston will be entitled to consider all your rights arising out of the City acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The City will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of the NOTICE OF AWARD to the City of Lewiston.

Dated this: \_\_\_\_\_

By: \_\_\_\_\_  
Project Engineer/Manager

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

by (firm) \_\_\_\_\_

this the \_\_\_\_\_ day of \_\_\_\_\_, 2022

By: \_\_\_\_\_

Title: \_\_\_\_\_

**NOTICE TO PROCEED**

To:

Project Description: **HART BROOK RESTORATION - PHASE II**

Bid #: **2022 – 034**

You are hereby notified to proceed with the work entitled \_\_\_\_\_,  
together with all necessary appurtenances, and to diligently prosecute the work.

You are instructed to immediately take the necessary steps for execution of the work within  
ten (10) calendar days (or other start time as specified) from the date of this Notice to  
Proceed. The work is to be completed by \_\_\_\_\_ as stated in the Contract.

By: \_\_\_\_\_  
Project Engineer/Manager

Title: \_\_\_\_\_

Date: \_\_\_\_\_



**DIVISION 10**

**SUPPLEMENTAL SPECIFICATIONS**

**Contents**

	<b><u>PAGE NO.</u></b>
10.01 Scope of Work .....	10-1
10.02 Time Limit .....	10-1
10.03 Safety.....	10-1
10.04 Preconstruction and Utility Conference.....	10-1
10.05 Change in the Scope of Work.....	10-2
10.06 Materials .....	10-2
10.07 Measurement and Payment.....	10-2
10.08 Field Layout.....	10-3
10.09 Disposal of Surplus Material.....	10-3
10.10 Shop Drawings .....	10-3
10.11 Site Investigation.....	10-3
10.12 Miscellaneous Work.....	10-4
10.13 Site Maintenance and Cleanup.....	10-4
10.14 Preparation for Final Paving.....	10-4
10.15 Paving.....	10-5
10.16 Sales Tax.....	10-5
10.17 Erosion and Sedimentation Control.....	10-5

## **DIVISION 10**

### **SUPPLEMENTAL SPECIFICATIONS**

#### **10.01 SCOPE OF WORK**

The general scope of the project includes, but is not limited to, the following:

*Complete and satisfactory construction of eleven (11) grassed underdrain soil filters along sections of Saratoga and Forrestal Streets in Lewiston, Maine. Work will include full installation of soil filters and associated underground storage systems, and connections to existing stormdrain.*

#### **10.02 TIME LIMIT**

The Contractor shall complete the work outlined in the Contract Documents by no later than **September 15, 2022**. The Contractor shall be responsible for ordering his/her materials promptly.

The Director of Public Works or his/her authorized representative may extend the Time Limit, if the Contractor submits, in writing, evidence that he/she cannot complete the Project within the Time Limit specified because of long delivery time on the materials or other justifiable reason.

#### **10.03 SAFETY**

During the course of the work, the Contractor shall assume full responsibility for the safety and protection of all workers and the general public, and shall meet all applicable local, State and Federal safety standards. The contractor shall maintain safe and continuous vehicular and pedestrian traffic while work is being done.

The Contractor shall comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act. The Contractor shall have a competent person or persons as required under the Occupational Safety and Health Act on the site to inspect the work and to supervise the conformance of the Contractor's operations with the regulations of the Act. Bidders are urged to make themselves familiar with these requirements of the regulations.

#### **10.04 PRECONSTRUCTION AND UTILITY CONFERENCE**

A Preconstruction and Utility Conference will be held between the Contractor, Utility Companies, and the City of Lewiston, at a mutually agreed time, to review the Contractor's proposed methods of complying with the requirements of the Plans and Specifications and the Regulations of the City.

At the Preconstruction meeting the Contractor shall submit to the Engineer a work schedule, traffic control plan, and Shop Drawings, submittals, erosion control plan and contractor's safety plan.

**10.05 CHANGE IN THE SCOPE OF WORK**

The City of Lewiston reserves the right to add or delete portions of the work required under this Contract, using unit prices established in the Proposal. The Contractor’s attention is directed to Sections **20.30, "Extra Work" and 20.31 "Reduction of Work"** of the Specifications. If no unit price exists, a change order must be negotiated between the City of Lewiston and the Contractor.

**10.06 MATERIALS**

The Contractor shall supply all materials, equipment, and labor as necessary to complete the Project in accordance with the Plans and Specifications.

**10.07 MEASUREMENT AND PAYMENT**

The pay limits for materials to be used on the project shall be as outlined in the following chart:

<u>Material</u>	<u>Pay Limit</u>
Select Backfill	Pipe O.D. plus 3 feet, after any stockpiled fill has been exhausted and with prior approval of the Engineer
Crushed Stone	Incidental to the individual pipe and structure items
Aggregate Base (Trenches)	11' width
Aggregate Base (Services, hydrant leads, CB leads)	6' width
Aggregate Base (Outside Trenches)	In place dimensions as directed by the Engineer
Aggregate Subbase (Trenches)	11' width
Aggregate Subbase (Services, hydrant leads, CB leads)	6' width

Aggregate Subbase (Outside Trenches) In place dimensions as directed by the Engineer

Aggregate base temporarily used to fill the trench to finish grade before paving is considered incidental to the pipe items. Pay limits for trenches listed above also include common

excavation to the width listed and depth specified, payment for which is to be included in the pipe cost.

#### **10.08 FIELD LAYOUT**

The City shall provide control points once for the Contractor, if they exist. The Contractor shall establish baseline from the supplied control points. The baseline in these Specifications is for reference only to locate items and is not meant to be exact locations. GIS based plans shall be laid out by a method as directed by the Engineer. If, during the course of construction, the layout points, benchmarks, or control points are disturbed by the Contractor, it shall be his/her responsibility to re-establish their locations.

For layout and grading of road rehabilitation and reconstruction projects, refer to Division 90.03.

#### **10.09 DISPOSAL OF SURPLUS MATERIAL**

Existing pavement shall be disposed of at an approved location. Surplus excavation and bricks/concrete may be disposed of at the City of Lewiston dump site (quarry) on River Rd. or other approved dump site. Excavation disposed of at the City quarry or any other fill site **MUST** have ALL asphalt and asbestos pipe separated out. The tipping fee will be waived.

#### **10.10 SHOP DRAWINGS**

The Contractor shall submit two (2) hard copies or an electronic copy of shop drawings to the Engineer for his/her review and approval, for the following materials: *gravels, soil filter media, nyloplast structures, R-Tank units, and guardrails.*

#### **10.11 SITE INVESTIGATION**

The Contractor shall examine the Plans/Specifications and site of the work and from his/her own investigation, determine the nature and location of the work, the general and local conditions, particularly those bearing on access, transportation, quality and quantity of surface and sub-surface materials to be encountered, any dewatering, the machinery and services required to complete the Project as required by the Contract Documents and all other aspects of the work.

#### **10.12 MISCELLANEOUS WORK**

Performance and Payment Bonds - The Contractor shall include in his/her Proposal under the "Miscellaneous Work" item, the cost of his/her Performance and Payment Bond. The Contractor shall be paid this amount on his/her first partial payment provided that invoices substantiating the amount are submitted to the Engineer prior to payment.

Sweeping and Dust Control - The Contractor shall be responsible for controlling dust at all times by sweeping existing pavement and watering gravel roadways. Streets shall be swept and calcium chloride shall be applied to gravel daily to control dust overnight. When project

and traffic conditions require, as determined by the Engineer, a water truck shall remain on site. The truck may be filled free of charge at the Public Works facility. If for any reason the Contractor does not have a water truck available and the City is forced to use a Public Works truck or other method to control dust, the Contractor will be charged a fee to be subtracted from the next pay requisition.

Miscellaneous - The cost of all other incidental construction work required to complete the whole work as specified or implied in the Plans and Specifications for which there is no pay item, will be paid under the "Miscellaneous Work" item. An itemized cost breakdown for the "Miscellaneous Work" item shall be given to the Engineer at the Preconstruction Conference.

### **10.13 SITE MAINTENANCE AND CLEAN UP**

The Contractor shall maintain a neat work area at all times with all fill or other materials picked up off the street every night and the road swept. At no time during the work shall fill, tools, pipe, structures, equipment or vehicles be placed, parked or stored on private property. No vehicles or equipment shall be parked in private driveways at any time. All work shall be completed within the right-of-way unless easements or other arrangements have been made. All driveways shall be filled in sufficiently every night for property owners to enter without damage. Homeowners shall be given adequate notice in the morning to move their vehicles before work begins in front of their driveway.

All debris resulting from the operations under this Contract and all tools and apparatus are to be removed from the site at the DAILY completion of the work and the site left clear and free from hazards, to the satisfaction of the City of Lewiston. Any equipment or materials left on the edge of the street at night shall be well barricaded with reflective barrels or barricades.

### **10.14 PREPARATION FOR FINAL PAVING**

All temporary pavement and gravel trenches shall be maintained by the Contractor until final pavement is placed. Trench preparation for final paving shall be performed immediately prior to final paving (no more than one day beforehand). - Remove the top layer of aggregate base placed during backfilling for the appropriate thickness of pavement. Fine grading of mainline trenches shall be completed by use of a bulldozer or grader. Trench edges at existing pavement shall be clean and loose chunks of pavement removed. Reshape and compact trench according to Div. 90.08 in preparation for final paving. No separate payment shall be made for the aggregate base material removed.

### **10.15 PAVING**

Streets, sidewalks and driveways shall be paved by the Contractor. Paving shall be completed according to Division 80 of these specifications.

### **10.16 SALES TAX**

Materials purchased for use on this project are exempt from State Sales and Use or Excise taxes to the extent allowed by law.

## **10.17 EROSION AND SEDIMENTATION CONTROL**

This work includes good faith effort on the Contractor and his/her Subcontractors to control erosion and sedimentation stemming from operations related to this Contract. These efforts may include, but are not limited to installation of: silt sacks, silt fences, and erosion control mats/blankets, when and where deemed necessary by the Engineer. These efforts will be paid for on a lump sum basis, and there will be no extra compensation to the Contractor for maintaining Erosion and Sedimentation Control measures.

**End of Section**

**DIVISION 20**

**GENERAL PROVISIONS**

**STANDARD SPECIFICATIONS**

**Contents**

	<b><u>PAGE NO.</u></b>
20.01 Scope .....	20-1
20.02 Definitions .....	20-1
20.03 Insurance and Liability .....	20-2
20.04 Insurance Requirements.....	20-2
20.05 Dispute Resolution Cost and Expenses .....	20-3
20.06 Laws and Regulations .....	20-3
20.07 Permits .....	20-4
20.08 Estimates and Payments .....	20-4
20.09 Final Estimate and Payment .....	20-4
20.10 Last Payment to Terminate Liability of City .....	20-5
20.11 Site Investigation .....	20-5
20.12 Borings and Estimate of Quantities Not Warranted .....	20-5
20.13 Commencement of Work .....	20-5
20.14 Time and Order of Doing Work .....	20-6
20.15 No Damages for Delay .....	20-6
20.16 Competent Personnel to be Employed .....	20-6
20.17 Not to Sublet or Assign .....	20-6
20.18 Directions and Explanations, Corrections of Errors .....	20-7
20.19 Duty to Notify Engineer if Ambiguities Discovered .....	20-7
20.20 Early Negotiation .....	20-7
20.21 Superintendence by Contractor .....	20-8
20.22 Alterations .....	20-8
20.23 No City Employee to be Interested .....	20-8
20.24 Waiver .....	20-8
20.25 Access to Work .....	20-9
20.26 Engineer to Determine Amount and Quantity of Work, Inspection of Materials .....	20-9
20.27 Defective Work and Materials .....	20-9
20.28 Sanitary Regulations .....	20-10
20.29 No Intoxicating Drinks .....	20-10
20.30 Extra Work .....	20-10
20.31 Reduction of Work .....	20-10
20.32 No Time Extension .....	20-11
20.33 Employment of Labor .....	20-11
20.34 Conditions under Which Director May Complete Work .....	20-11
20.35 Payment for Materials .....	20-12
20.36 Guarantee .....	20-12
20.37 Work Day .....	20-12

## DIVISION 20

### GENERAL PROVISIONS

#### STANDARD SPECIFICATION

##### **20.01 SCOPE:**

These Standard Specifications and Addenda, if any, are to govern construction of storm sewers, sanitary sewers, water lines, streets, sidewalks, parking lots, general construction and other related work, for the City of Lewiston, and they shall become part of any contract with the City for the construction of said work. Provisions of these Specifications shall be modified or changed only in writing. These Standard Specifications will be amended by Supplemental Specifications as necessary and by Contract Plans.

The Supplemental Specifications and Contract Plans delineate the particular project to which the Contract Documents pertain. Should any discrepancy be found to exist between the Standard Specifications and the Supplemental Specifications and/or the Contract Plans, the Supplemental Specifications and/or Contract Plans shall govern.

##### **20.02 DEFINITIONS:**

**A. Contract Documents:** Whenever the term Contract Documents, or a pronoun in its stead, is used, it shall mean and include, but not necessarily limited to, these items: The Notice to Contractors, the Proposal, the Contract, the Supplemental Specifications, the Standard Specifications, the Contract Plans, any other documents included with these Specifications and attached thereto, and any Addenda to the above issued prior to the date of this Contract.

**B. Contractor:** Whenever the term Contractor, or a pronoun in its stead, is used, it shall mean the person or persons or co-partnership or corporation or other entity which has entered into this agreement or their legal representative.

**C. Owner:** Whenever the term Owner, or a pronoun in its stead is used, it shall mean the City of Lewiston, acting through its designated officials and/or employees.

**D. City Engineer or Engineer:** Whenever the term City Engineer, or a pronoun in its stead, is used, it shall mean the City Engineer of the City of Lewiston or his/her assistants or inspector acting under him/her or his/her duly authorized representatives acting for him/her, limited to the particular duties entrusted to them.

**E. Director of Public Works or Director:** Whenever the term Director of Public Works, Director or a pronoun, in their stead is used, it shall mean the Director of Public Works of the City of Lewiston or his/her assistants or inspectors acting under him/her, limited to the particular duties entrusted to them.

**F. ASTM:** Whenever the abbreviation ASTM is used, it shall mean the American Society for Testing Materials; and, unless otherwise stated, refer to the latest revision of the particular standard.



**G. Specification:** Whenever the term Specifications or a pronoun in its stead is used, it shall mean and include the Standard Specifications as herein set forth and any Supplemental Specifications included in the Contract Documents.

**H. Contract Plans:** Whenever the term Contract Plans, or a pronoun in their stead, is used, it shall mean and include all drawings, graphic representations, diagrams and any notes or explanations thereon supplied to the Contractor before the date of this Contract.

**I. Lump Sum Bid Price:** Whenever the term Lump Sum Bid Price, Lump Sum Bid, Lump Sum or a pronoun in their stead is used, it shall mean the amount of money mutually agreed to by the Contractor to furnish the labor, machinery, tools, apparatus and other means of construction and for doing all the work and furnishing all material called for by the Contract Documents except rock excavation and those items specifically stated as being considered extra work or for which unit prices have been established in the Contract and Proposal.

**J. Unit Bid Price:** Whenever the term Unit Bid Price, Unit bid, Unit Price or a pronoun in their stead is used, it shall mean the amount of money mutually agreed to by the Contractor and the City as full payment to the Contractor for furnishing all necessary labor, materials and equipment (except that which is specifically excluded in the Supplemental and Standard Specifications and Contract Plans) necessary to do one unit of work, i.e., the unit price for one cubic yard of excavation multiplied by the actual number of cubic yards excavated, yields the total payment for the work done.

### **20.03 INSURANCE AND LIABILITY:**

The Contractor shall take all responsibility of the work and take all precautions for preventing injuries to persons and property in or about the work; shall bear all losses resulting to him/her on account of the amount or character of the work or because the nature of the land in or on which the work is done is different from what was estimated or expected or on account of the weather, elements or other cause; and he/she shall assume the defense of and indemnify and save harmless the City and its officers, agents and servants from all claims relating to labor and materials furnished for the work; to inventions, patents and patent rights used in doing the work; to injuries to any person or corporation received or sustained by or from the Contractor and his/her employees in doing the work, or in consequence of any improper materials, implements or labor used therein; and to any act, omission or neglect of the Contractor and his/her employees therein.

The Contractor and/or approved (by the Purchasing Agent in writing) subcontractor shall furnish proof of coverage with adequate insurance of the types and to the limits specified below naming the City of Lewiston as additional insured. Certificate of such insurance shall be filed with the Purchasing Agent for his/her approval before permission to commence work will be granted.

### **20.04 INSURANCE REQUIREMENTS**

#### **A. Claims:**

The City of Lewiston will not be held responsible for any damages or injuries arising out of any activity for the City. Any related claim will be referred to the Contractor. The contractor may wish to make personal restoration within a reasonable amount of time at the property owner's satisfaction or process a claim with their insurance carrier.

If there is an approved (by the Purchasing Agent in writing) subcontractor, the City will require a certificate of insurance with the same requirements and liabilities as the contractor and listed in Sections 20.02 and 20.03.

**B. Insurance:**

The Contractor shall furnish proof of coverage with adequate insurance of the types and to the limits specified below **naming the City of Lewiston as additional insured**. Certificate of such insurance shall be filed with the Purchasing Agent by the start of work.

**C. Workers' Compensation:**

Workers' Compensation, coverage with Statutory Limits and Employers Liability for all employees with limits of \$400,000 per incident; and in case any work is sublet, the Contractor shall require the sub-contractor similarly to provide coverage for the latter's employees unless such employees are covered by the protection afforded the Contractor.

**D. Automotive Liability Insurance:**

Automotive Liability insurance with minimum limits of liability for bodily injury in the amount of \$1,000,000 for each occurrence and minimum limits of liability for property damage in the amount of \$50,000/\$100,000 aggregate.

**E. General Liability Insurance:**

General Liability insurance with minimum limits of liability for bodily injury in the amount of \$1,000,000 for each occurrence and minimum limits of liability for property damage in the amount of \$50,000/\$100,000 aggregate, or a combined single limit of \$500,000 for each occurrence, including completed operations shall be required.

**F. Performance Bond and Labor and Material Payment Bond** in the sum of the total amount of the Contractor's proposal with a surety company satisfactory to the Owner will be required as surety for the faithful performance of the Contract by the successful bidder. The bonds will be required prior to execution of the Contract. Bonds will not be required for bid proposals under \$100,000.

**20.05 DISPUTE RESOLUTION COSTS AND EXPENSES:**

In the event of any dispute between or involving the City of Lewiston and Contractor, whether resolved by arbitration, litigation or some other mechanism of dispute resolution, in the event that the City shall be a prevailing party, Contractor shall reimburse the City for its attorney's fee and costs reasonably incurred in connection with the resolution of the dispute.

**20.06 LAWS AND REGULATIONS:**

The Contractor shall keep himself/herself informed of all existing and future State and Federal laws and Municipal ordinances and regulations which in any way affect those engaged or employed in the work, or the materials used in the work; or in any way affect the conduct of the work and of all orders and decrees of bodies of tribunals having any jurisdiction is discovered in the Plans or Specifications or Contract for this work in relation to any such law, ordinance, regulation, order or decree, he/she shall forthwith report the same to the Director in writing. He/she shall at all times himself/herself observe and comply with all such existing and future laws, ordinances, regulations, orders and decrees; and shall protect and indemnify the City and

its officers and agents against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by himself/herself or his/her employees.

**20.07 PERMITS:**

The Contractor shall, at his/her own expense, obtain all necessary permits from the County, Municipal or other public authorities, shall give all notices required by law or ordinances; and shall post all bonds and pay fees and charges incident to the due and lawful prosecution of the work covered by this Contract. Fees for street opening permits on City projects shall be waived.

**20.08 ESTIMATES AND PAYMENTS:**

The Engineer will, each month, make an approximate estimate of the amount of work done since the last preceding estimate and of the value thereof, and upon such estimate being made, the City will pay to the Contractor ninety (90%) per cent of the estimate; provided, however, that no such estimate or payment shall be required to be made when, in the judgment of the Engineer, the total value of the work done since the last estimate or payment amounts to less than three hundred (\$300.00) dollars. Payment may at any time be withheld if the work is not proceeding in accordance with the provisions of this Contract. The Engineer may, if he/she deems it expedient so to do, cause estimates to be made more frequently than once in each month, and he/she may approve payments to be made more frequently to the Contractor. The Engineer may at his/her option retain, temporarily or permanently, a smaller amount than aforesaid, and may approve payment to the Contractor, either temporarily or permanently from time to time during the progress of the work, of such portion of the retained amount as he/she may deem prudent. The City, may keep any money which would otherwise be payable at any time hereunder, and apply the same, or so much as may be necessary therefore, to the payment of any expenses, losses, or damage incurred by the City and determined as herein; and may retain, until all claims are settled, so much of such money as the Director shall be of the opinion will be required to settle all claims against the City, its officers, agents or servants. **The City may set off any unpaid taxes, fees or other charges or other amounts owed by the contractor against the contract price, in full or partial satisfaction.**

**20.09 FINAL ESTIMATE AND PAYMENT:**

It is further mutually agreed that whenever, in the opinion of the Engineer and the Director, the Contractor shall have completely performed all the work embraced in this Contract, the Engineer shall proceed with all reasonable diligence to measure the work and shall make out the final estimate for the same and shall certify the same in writing; and his/her certificate shall state the whole amount of the payments previously paid and the amount retained in all previous estimates. Within the term of thirty (30) days after the date of such final estimate, the City will pay to the said Contractor the amount due. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

Provided that nothing herein contained shall be construed to affect the right of the City by its Director of Public Works hereby reserved, to reject the whole or any portion of the aforesaid work should the said certificate or certificates be found or known to be inconsistent with the terms of this Agreement or otherwise improperly given.

**20.10 LAST PAYMENT TO TERMINATE LIABILITY OF CITY:**

No person or corporation other than the signer of this Contract as Contractor now has any interest hereunder, and no claim shall be made or be valid; and neither the City, nor its Mayor, nor any member or agent thereof, shall be liable for, or be held to pay any money, except as provided for in Sections 20.07, 20.08, 20.16, and 20.33 of the Standard Specifications and in the Contract. The Acceptance by the Contractor of the last payment aforesaid shall operate as and shall be a release to the City, its Mayor, and every member or agent thereof, from all claim or liability to the Contractor for anything done or furnished for, or relating to the work, or for any act or neglect of the City, or of any person relating to or affecting the work, except the claim against the City for the remainder, if any there be of the amount kept or retained as provided for in Section 20.07.

**20.11 SITE INVESTIGATION:**

The Contractor shall examine the Plans, Specifications and site of the work and from his/her own investigation, determine the nature and location of the work, the general and local conditions, particularly those bearing on access, transportation, quality and quantity of surface and sub-surface materials to be encountered, and all other aspects of the work, machinery and services required to complete the project as required by the Contract Documents. The City will not be responsible for any understanding or representation made by any City employee during or prior to negotiation and execution of the Contract, unless such understanding or representation shall be in writing and become a part of the Contract Documents.

**20.12 BORINGS AND ESTIMATE OF QUANTITIES NOT WARRANTED:**

It is expressly understood and mutually agreed to by the parties hereto that the quantities of the various classes of work to be done and materials to be furnished under this Contract have been estimated and are approximate and only for the purpose of comparing on a uniform basis the bids offered for the work. It is also understood that the Contractor has made his/her proposal from his/her own examinations and estimates and shall not hold the City, its agents or employees responsible for or bound by any schedule, estimate, sounding, boring or any plan thereof as being even approximately correct; and should the Contractor encounter quicksand or other difficulties, he/she shall have no claim on that account; and he/she shall, if any error in any plan, drawing, specification or direction relating to anything to be done under this Contract comes to his/her knowledge, report it at once to the Engineer. The Contractor further agrees that neither the City of Lewiston, nor the Director of Public Works, the Engineer, nor either of them separately or together are to be held responsible that any of the quantities be found even approximately correct in the construction of the work, and that the Contractor will make no claim for anticipated profits or for loss of profit because of a difference between the quantities of the various classes of work actually done, or of the materials actually delivered, and any estimated quantities stated in the bids. The Contractor hereby agrees that he/she will complete the entire work to the satisfaction of the Engineer and in accordance with the Specifications and Plans herein mentioned and at the prices agreed upon and fixed therefore.

**20.13 COMMENCEMENT OF WORK:**

The Contractor agrees to commence the work required in the Contract Documents within ten (10) days after the signing of the Contract and deliverance of the Bond, unless otherwise specified in the Supplemental Specifications or directed by the Director of Public Works; and at his/her own cost and expense do and complete all the work and furnish all the labor, machinery, tools and materials, except as specified in the Supplemental Specifications, and to do everything required to build and put into complete working order for the City of Lewiston the work described in the Contract Documents.

**20.14 TIME AND ORDER OF DOING WORK:**

The Contractor agrees that the work shall be commenced and carried on at such points and in such order of precedence and at such times and seasons as may from time to time be directed by the Engineer.

It is further agreed that no work shall be done under this Contract on Saturdays or Sundays or on days declared by the State Legislature as Legal Holidays, except in cases of emergency and then only with the consent in writing of the Director of Public Works; nor shall any work be done at night unless authorized in writing by the Director. The Contractor shall make his/her work week conform to that of the Public Works Department. When permission is granted to perform work during times other than this work week, the Contractor shall reimburse the City for any costs for inspection during these periods.

**20.15 NO DAMAGES FOR DELAY:**

The Director may delay the beginning of the work or any part thereof if the City shall not have obtained possession of the land in or upon which the same is to be performed or if for any other reason it becomes necessary to do so. The Contractor shall have no claim for damages on account of such delay, but shall be entitled to so much additional time wherein to perform and complete this Contract on his/her part as the Director shall certify in writing to be just. Whenever any part of the work covered by this Agreement is done in part by or connects with the work so as to accommodate the work of the other contractors and to cooperate with such contractors in mutual agreements as to all such work, and no contractor shall have a claim against the City growing out of the negligence or delay of any other contractor or contractors; but each contractor shall be liable to every other contractor for any such delay or negligence.

**20.16 COMPETENT PERSONNEL TO BE EMPLOYED:**

The Contractor shall employ only competent personnel to do the work; and whenever the Director shall notify the Contractor, in writing, that any person on the work is, in his/her opinion, incompetent, unfaithful, disorderly or otherwise unsatisfactory, such person shall be discharged from the work and shall not again be employed on it except with the consent of the Director.

A person certified by the DEP in erosion control best practices must be on-site for any activity that disturbs more than one cubic yard of soil –including earth moving and landscaping operations in the shoreland zone until work is complete and the site stabilized.

**20.17 NOT TO SUBLET OR ASSIGN:**

The Contractor shall give his/her personal attention constantly to the faithful prosecution of the work, shall keep the same under his/her personal control and shall not assign, by power of attorney or otherwise, nor sublet the work or any part thereof, without the previous written consent of the Purchasing Agent; and shall not, either legally or equitably, assign any of the money payable under this Agreement or his/her claim thereto, unless by and with the like consent of the Purchasing Agent. Proof of insurance coverage will also be required from the subcontractor and any liabilities on the part of the subcontractor will be the responsibility of the contractor under his contract with the City and the City will be held harmless. The contractor shall take all necessary affirmative action steps to assure that qualified minority businesses, women's businesses, and labor surplus area firms are included in the hiring of any subcontractor working on this City project.

**20.18 DIRECTIONS AND EXPLANATIONS, CORRECTIONS OF ERRORS:**

The Plans and Specifications are understood to be explanatory of each other, but should any discrepancy appear or any misunderstanding arise as to the import of anything contained in either of them, the parties hereto further agree that the explanation and decision of the Engineer shall be final and binding on the Contractor; and all directions or explanations required or necessary to complete any of the provisions of this Contract and these Specifications and give them due effect shall be given by the Engineer. Correction of any error in the Plans or Specifications may be made by the Engineer, when such correction is necessary for the proper fulfillment of the intention of such Plans or Specifications, the effect of such correction to date from the time that the Engineer gives due notice in writing to the Contractor.

**20.19 DUTY TO NOTIFY ENGINEER IF AMBIGUITIES DISCOVERED:**

The Contractor shall not take advantage of any ambiguity, error, omission, conflict, or discrepancy ("ambiguity, etc.") contained in the Plans and Specifications that may significantly affect the cost, quality, conformity, or timeliness of the work. If the Contractor discovers any such ambiguity, etc., for which the Contractor may seek adjustments to compensation, time, or other Contract requirements, the Contractor shall provide a written notice stating the nature of the ambiguity, etc. within forty eight (48) hours of discovering or being notified of the ambiguity and before performing any work related to the ambiguity, etc., as provided in Section 20.19 – Early Negotiation. Failure to provide such written notice in compliance with the Contract shall constitute a waiver of all claims related to the ambiguity, etc.

**20.20 EARLY NEGOTIATION:**

**A. Notice Required:** When the Contractor becomes aware of facts or circumstances that may cause the Contractor to seek additional compensation, time, or any other change in the requirements of the Plans and Specifications ("Issue"), then the Contractor shall notify the Engineer in writing within forty eight (48) hours of identification of the issue and at least 48 hours before commencing any part of the Work relating to the Issue. The notice must describe the basic nature and extent of the Issue.

Such notice may be verbal only if confirmed in writing in one of the two following ways: (A) if a Progress Meeting is held within fourteen (14) days of the date that the Issue became known, such Notice may be confirmed with an entry in the Progress Meeting minutes. Such entry must describe the basic nature and extent of the Issue. (B) Otherwise, the Contractor shall confirm a

verbal notice by delivering to the Engineer, within fourteen (14) days of the date the Issue arose, a Written Notice that describes the basic nature and extent of the Issue.

The written notice or confirmation will be known as a "Notice of Issue for Consideration". The Contractor will not be entitled to any additional compensation, time, or any other change to the requirements of the Plans and Specifications without a timely Notice of Issue for Consideration.

**B. Negotiation:** When the Engineer receives the Notice of an Issue for Consideration conforming to Section 20.19 A. Notice Required, the Engineer and the Contractor will negotiate in good faith to attempt to resolve the Issue. Any resolution will be noted in the Progress Meeting minutes or confirmed otherwise in writing by the Engineer. Any changes to the Plans and Specifications that affect compensation, time, quality, or other requirements of the Plans and Specifications shall be by written Change Order.

#### **20.21 SUPERINTENDENCE BY CONTRACTOR:**

At the site of the work, the Contractor shall employ a construction superintendent or foreman who shall have full authority to act for the Contractor. It is understood that such representative shall be acceptable to the Engineer and shall be one who can be continued in that capacity for the particular job involved unless he/she ceases to be on the Contractor's payroll. All directions given to such representative in the Contractor's absence shall be as binding as if given to the Contractor.

#### **20.22 ALTERATIONS:**

It is further agreed that the Engineer may make alterations in the line, grade, form, position, dimension or material of the work herein contemplated, or any part thereof, either before or after the commencement of the work; and that the Director may at any time, order an alterations increase in the amount of work. Such increase shall be paid for according to the quantity actually done as extra work as provided for in Section 20.29. If such alterations diminish the quantity of work to be done, they shall not constitute a claim by the Contractor for damages or for anticipated profits on the work dispensed with and payment will be reduced in an amount determined as provided for in Section 20.30.

#### **20.23 NO CITY EMPLOYEE TO BE INTERESTED:**

It is further agreed that this Contract shall be utterly void as to the City if any person employed in any capacity by the City of Lewiston is either directly or indirectly interested therein, except as provided by the City Charter.

#### **20.24 WAIVER:**

No order by the Inspector or the Engineer or any of his/her employees, nor any order, measurement or certificate by the Engineer, nor any order by him/her for the payment of money, nor any payment for, or acceptance of, the whole or any part of the work by the Director, nor any extension of time, nor any possession taken by the Director or his/her employees, shall operate as a waiver of any provision of this Contract, or of any power herein reserved by the Director, or

of any right to damages herein provided; nor shall any waiver of any breach of this Contract be held to be a waiver of any other or subsequent breach. Any remedy provided in this Contract shall be taken and construed as cumulative, that is, in addition to each and every other remedy herein provided and the City and the Director shall also be entitled to a writ of injunction against any breach of any of the promises of this Contract.

**20.25 ACCESS TO WORK:**

The Engineer and Director, their assistants and inspectors may, for any purpose, enter upon the work and premises used by the Contractor, and the Contractor shall provide safe and proper facilities therefore. Other City contractors may also, for all the purposes which may be required by their contracts, enter upon the work and premises used by the Contractor. Any difference or conflicts which may arise between the Contractor and other contractors of the City in regard to their work shall be adjusted and determined by the Director.

**20.26 ENGINEER TO DETERMINE AMOUNT AND QUANTITY OF WORK, INSPECTION OF MATERIALS:**

To prevent all disputes and litigations, it is hereby agreed by and between the parties to this Contract that the Engineer shall in all cases determine the amount and quality of the various classes of work which are to be paid for under this Contract; and that the Engineer by himself/herself, or his/her representatives acting under him/her, shall inspect all the materials to be furnished and all work to be done under this Contract to see that the same corresponds to the Specifications herein set forth. The Contractor further agrees that he/she will furnish the Engineer with such information and vouchers relating to the work, the materials therefore, and the persons employed thereon, as he/she shall from time to time request, and will give to the Engineer or his/her representatives all necessary labor, tools and facilities for inspecting the material to be furnished and the work to be done under this Contract.

The Engineer has the authority to stop the work whenever such a stoppage may be necessary to insure proper execution of this Contract. He/she also has the authority to reject all work and materials which do not conform to the Specifications or Plans, to direct application of forces to any portion of the work and to order the force increased or diminished as in his/her judgment is required.

**20.27 DEFECTIVE WORK AND MATERIALS:**

The inspection of the work shall not relieve the Contractor of any of his/her obligations to fulfill this Contract as herein prescribed and defective work shall be made good and unsuitable materials may be rejected, notwithstanding that such work and materials have been previously overlooked by the Engineer and accepted or estimated for payment. If the work or any part thereof shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good such defect, in a manner satisfactory to the Engineer, and if any materials brought upon the ground for use in the work, or selected for the same, shall be condemned by the Engineer as unsuitable or not in conformity with the Specifications, the Contractor shall forthwith remove such materials from the vicinity of the work. Nothing in this Contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil; but such materials shall, upon being so attached or affixed, become the property of the City.



**20.28 SANITARY REGULATIONS:**

Necessary sanitary conveniences for the use of laborers on the work, properly secluded from public observation and made fly proof and satisfactory to the Health Officer, shall be constructed and maintained by the Contractor in such a manner and their use shall be strictly enforced. The building or shanties or other structures for housing and personnel will be permitted only at such places as the Director shall approve and the sanitary conditions in or about such shanties or other structures must at all times be maintained in a manner satisfactory to the Director.

**20.29 NO INTOXICATING DRINKS:**

The Contractor shall neither permit or suffer the introduction or use of intoxicating substances upon or about the works embraced in this Contract or upon any grounds occupied by him/her.

**20.30 EXTRA WORK:**

The City of Lewiston reserves the right to add portions of the work required under this Contract, using the unit prices established in the proposal. The City will determine if all work outlined in the plans or portions thereof shall be built under this Contract prior to the Contract signing.

The term Extra Work as used herein refers to and includes work required by the City which, in the judgment of the Director, involves changes in or additions to that are required by the Plans and Specifications; provided, however, such changes or additions do not result from the fault of the Contractor.

The Contractor shall do any extra work when and as ordered in writing by the Director or his/her agents specially authorized thereto in writing, and shall, when requested by the Director so to do, furnish itemized statements of cost of the extra work ordered and give the Director access to the accounts, bills and vouchers relating thereto. If the Contractor claims compensation for extra work not ordered as aforesaid, or for any damage sustained, he/she shall, within one week after the beginning of any such work or of the sustaining of any such damage, make a written statement to the Engineer of the nature of the work performed or damage sustained and shall, on or before the fifteenth (15th) day of the month succeeding that in which any such extra work shall have been done or any such damage sustained, file with the Engineer an itemized statement of the details and amount of such work or damage; and unless such statements shall be made as so required, his/her claim for compensation shall be forfeited and invalid and he/she shall not be entitled to payment on account of such work or damage. The determination of the Engineer and Director shall be final upon all questions of the amount and value of extra work. If a unit price does not exist, payment for extra work will be actual cost plus fifteen (15%) per cent. For work performed by subcontractors, payment shall be the subcontractors actual cost plus 15%, plus an additional 5% for the Contractor's oversight. No allowance will be made for overhead costs.

**20.31 REDUCTION OF WORK:**

The City of Lewiston reserves the right to delete portions of the work required under this Contract, using the unit prices established in the Proposal. The City will determine if all work outlined in the Plans or portions thereof shall be built under this Contract prior to the Contract signing.

The Contractor shall omit and not perform any portion of the work required by the Contract Documents when ordered in writing by the Director or his/her agents specially authorized thereto in writing. If no unit price exists, it will be an estimate to be made by the Director and the Engineer. Their estimate will be final and binding. These reductions shall not constitute a claim by the Contractor for damage or for anticipated profit on the work dispensed with.

**20.32 NO TIME EXTENSION:**

The Contractor further agrees that the time of completion of the whole work is the essence of the Contract; and that he/she will make every effort to complete the work within the time limit specified in the Supplemental Specifications. In the event the Contractor fails to complete the whole work in the time specified, there shall be deducted from monies due the Contractor, not as a penalty, but as inspection costs, the sum of five hundred (\$500.00) dollars for each working day, over and beyond the time limit specified which is required by the Contractor to complete the whole work to the satisfaction of the Engineer and the Director. No extension of the time limit will be considered except in the case of an extremely unusual circumstance beyond the control of the Contractor. Any time extension will be authorized only in writing by the Engineer and Director; in which case the inspection cost charges will begin on the first working day after the extended time limit.

**20.33 EMPLOYMENT OF LABOR:**

The Contractor agrees that in the employment of labor, preference will be given, all things being equal, to citizens of Lewiston, the State of Maine and the United States in their respective order as above noted.

**20.34 CONDITIONS UNDER WHICH DIRECTOR MAY COMPLETE WORK:**

The Contractor hereby agrees that if the work to be done under this Contract shall be abandoned or if this Contract or any part thereof shall be sublet without the previous written consent of the Director, or if the Contract or any claim thereunder shall be assigned by the Contractor otherwise than as herein specified, or at any time the Director shall be of the opinion that the work is unnecessarily or unreasonably delayed, or that the Contractor is willfully violating any of the conditions or agreements of this Contract, or is not executing the Contract in good faith, or is not making such progress in the execution of the work as to indicate its completion within the required time, the Director shall have the power and right to notify the Contractor to discontinue all work or any part thereof under this Contract. Thereupon the Contractor shall discontinue the work or any such parts thereof as the Director shall have the power, by contract with or without advertising, day labor or otherwise as he/she may determine, to employ such labor and obtain such tools and appliances as he/she may deem necessary to work at and be used to complete the work herein described or such parts thereof as the Director may deem necessary, and to use such tools and materials of every description as may be found upon the line of work, and to procure other materials for the completion of the same, and to charge the expense of said labor, tools and materials to the Contractor; and the expense so charged shall be deducted and paid by the City out of such monies as may be due or may become due the Contractor under this Contract or any part thereof. In case such expense is more than the sum which would have been payable under this Contract, if the same had been completed by the Contractor, then the Contractor shall pay the amount owed by the City under this Contract at the time the Contractor

is notified in writing to discontinue the work or any part thereof, plus the amount of the Bond executed by the Contractor for the performance of the Contract.

**20.35 PAYMENT FOR MATERIALS:**

Payments will be made in accordance with the price stated in the Contract. The Contractor may include requests for payment of material delivered to the job site when such requests are accompanied by invoices substantiating the requests for material payment satisfactory to the City.

**20.36 GUARANTEE:**

The Contractor guarantees that the work to be done under this Contract will be done in a good and workmanlike manner and all materials, whether furnished by him/her or the City used in the construction of the work, will be free from defects and flaws and in conformity with the Plans and Specifications in all respects. This guarantee will be for a period of one (1) year after the date of acceptance of the whole work by the City of Lewiston.

The Contractor shall at all times, until the final acceptance of the whole work, keep the surface of the streets in the position and condition required by these Plans and Specifications. If at any time within the period of the guaranty, any other part of the work constructed under the terms of this Contract shall in the opinion of the Director of Public Works require repairing, the Director shall notify the Contractor in writing to make the required repairs. If the Contractor shall neglect to make such repairs to the satisfaction of the Director within the time limit as set forth in the notice in writing to the Contractor of the required repairs, then the Director of Public Works may make the necessary repairs, by contract or otherwise, and the City shall have a claim against the Contractor in the amount of the expense incurred by the City in making such repairs.

It is hereby, however, specifically agreed and understood that this guaranty shall not include any repairs made necessary by any cause or causes other than defective work or materials.

**20.37 WORK DAY:**

A work day shall be any day, other than a State of Maine legal holiday, Saturday or Sunday, on which weather and working conditions permit the Contractor to make effective use of not less than seventy-five (75%) per cent of the hours during the regular work day. In the event the Contractor is granted permission to engage in work on a legal holiday or Sunday, such a day will be considered and counted as a work day.

Work hours in the City are generally defined from 7AM to 7PM, depending on noise levels, impacts to traffic, and other applicable ordinances. The Contractor shall notify the City general project work hours at the pre-construction meeting. Any work hours required or needed outside of the general City work hours will require permission from the City.

**End of Section**

**DIVISION 30**

**CONTROL OF WORK**

**STANDARD SPECIFICATIONS**

**Contents**

	<b><u>PAGE NO.</u></b>
30.01 Scope.....	30-1
30.02 References .....	30-1
30.03 Plant.....	30-1
30.04 Open Excavations.....	30-1
30.05 Maintenance of Traffic .....	30-2
30.06 Care and Protection of Property .....	30-3
30.07 Dust Control.....	30-4
30.08 Disposal of Water.....	30-4
30.09 Removal of Surplus Excavation .....	30-4
30.10 Materials Supplied by the City .....	30-5
30.11 Blasting Precautions .....	30-5
30.12 Damage by Blasting.....	30-6
30.13 Private Land.....	30-6
30.14 Temporary Bridges or Crossings, and Precautions.....	30-6
30.15 Work to Be Done.....	30-7
30.16 Cleaning up.....	30-7

## **DIVISION 30**

### **CONTROL OF WORK**

#### **STANDARD SPECIFICATIONS**

##### **30.01 SCOPE**

This division shall insure that the work progresses in a reasonable manner, and that the project site is maintained so as to provide safe traffic flow for vehicles and pedestrians, and present a neat and orderly appearance.

##### **30.02 REFERENCES**

This division references the following documents. In their latest revision, they form a part of this specification to the extent specified herein. In case of conflict, the requirements of this specification shall prevail.

AASHTO M144      Standard Specification for Calcium Chloride

##### **30.03 PLANT**

The Contractor shall furnish plant and equipment which will be efficient, appropriate and large enough to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time stipulated in the Specifications. If at any time such plant appears to the Engineer to be inefficient, inappropriate or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, the Engineer may order the Contractor to increase the efficiency, change the character or increase the plant equipment, and the Contractor shall conform to such orders. Failure of the Engineer to give such orders shall in no way relieve the Contractor of his/her obligations to secure the quality of the work and rate of progress required.

##### **30.04 OPEN EXCAVATIONS**

All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property. Warning signs, barricades, and traffic cones shall meet the latest OSHA standards, Manual on Uniform Traffic Control Devices (MUTCD) and all other applicable Federal, State, and local requirements. The Contractor shall, at his/her own expense, provide suitable and safe bridges and other crossings for accommodating pedestrian travel. Bridges provided for access to private property during construction shall be removed when no longer required.

The length of any open excavation shall not exceed fifty (50) linear feet, unless authorized by the Engineer. Open excavations will be allowed overnight, except they shall be backfilled for weekends, when they are within fifty (50) feet of an intersection, or if they present a hazard to traffic as determined by the Engineer. The Contractor shall take precautions to prevent injury to the public due to open excavations. All excavations, excavated material, equipment, or

other obstacles that could be dangerous to the public shall be well lighted, barricaded, fenced, and/or taped off at night.

If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the Engineer may require special construction procedures such as limiting the length of open excavation, prohibiting the stacking of excavated material in the street, and/or requiring that the excavation shall not remain open overnight.

The Contractor shall hold the City harmless from all liability related to open excavations.

### **30.05 MAINTENANCE OF TRAFFIC**

The Contractor shall perform his/her work to maintain at least one lane, in each direction, available for the use of vehicular traffic and emergency vehicles at all times. Completely closing vehicular traffic lanes will not be permitted except under special permission from the Director of Public Works, Fire Chief and the Police Chief. If the Contractor cannot maintain traffic in each direction, the Engineer may allow one lane traffic in short sections. In areas where the work includes sidewalk restoration or reconstruction, the Contractor shall also maintain one sidewalk for pedestrian use. In stretches where sidewalk work is included, but sidewalk exists only on one side of the street, the Contractor shall construct any sidewalk facilities new to the City's sidewalk network prior to beginning any included work on the existing sidewalk network. As the work progresses, the Contractor shall maintain the street to its original width, by removing stockpiles of earth, maintaining trenches at street grade, and providing adequate drainage.

Stockpiling materials in the adjacent travel lane shall not be permitted even in situations where the contractor is granted permission to close the roadway. The contractor shall maintain the adjacent travel lane in such a manner that it can be immediately opened for emergency vehicles, busses, garbage trucks, and other vehicles requiring access to the neighborhood.

The Contractor shall submit the Name and Contact Information of the Responsible Person for the project and a Traffic Control Plan (TCP) in writing at least five (5) work days prior to the planned start of work. The TCP shall contain the location of all flaggers signage, barricades, cones, barrels or other Traffic Control Devices required on the project. The TCP shall also contain a detour plan when necessary. When the Project Engineer and the Contractor are satisfied with the TCP/Detour Plan it shall be submitted to the Permit Office at Lewiston City Hall for a Street Occupancy Permit and approval of the Fire chief, Police Chief and the Director of Public Works. The Contractor shall provide continuous and effective traffic control during the life of the project. The City may require certain Traffic Control Limitations such as allowable road closures, minimum lane widths, or timing of Lane or Road Closures. In all cases the Contractor shall be responsible for supplying signage and traffic control devices for the project. If the City determines that the Contractor has not provided adequate signage, cones or other means of traffic control, the Engineer or Paving Manager will stop construction operations until the Contractor is in full compliance with the requirements of the most recent Manual on Uniform Traffic Control Devices. The City will not be responsible for the cost of any rejected material or labor if a job is stopped due to inadequate traffic control.

No work shall commence until all flaggers and traffic control devices are in place, in accordance with the approved TCP and the latest edition of the MUTCD. The Contractor shall keep the Emergency Communications Center informed as to the status of how traffic is moving through the Work Zone daily or as necessary.

On heavily traveled streets the Contractor may be required to provide a Police Detail at his or her own expense to control a busy street or intersection. If a Traffic Light is to be switched to flash mode or completely off so the intersection can be controlled by Qualified Flaggers or Uniformed Officers the Contractor shall coordinate the process between the City of Lewiston Police Department, Project Engineer and the City Street Light Superintendent. If any night work is required the requirements of the latest MUTCD shall apply including the requirement for Lighted Flagger Stations.

### **30.06 CARE AND PROTECTION OF PROPERTY**

During construction, the Contractor shall, at his/her own expense, provide for the use of sewers, drains, and natural drainage interrupted by his/her work, and immediately cart away and remove all offensive material, as required or directed by the Engineer.

The Contractor shall assume full responsibility for the protection of all buildings, structures, and utilities, including poles, signs, services to buildings, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the Plans. The Contractor, at his/her own expense, shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operations shall be repaired by him/her at his/her expense.

The Contractor shall restore all ground surfaces outside the limits of construction that are damaged or disturbed by his/her operations, to their original condition. Branches, limbs, and roots shall not be cut except by permission of the Engineer. All cutting shall be smoothly and neatly done without splitting or crushing. In case of cutting or unavoidable damage to branches, limbs, and trunks of trees, the cut or damaged portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint, as directed.

Cultivated hedges, shrubs, and plants that might be damaged by the Contractor's operations shall be protected by suitable means, or shall be dug up and temporarily replanted and cared for. After the construction operations have been substantially completed, they shall be replanted in their original positions and cared for until growth is re-established. If cultivated hedges, shrubs and plants are injured to such a degree as to affect their growth or diminish their usefulness, they shall be replaced by items of kind and quality at least equal to that existed at the commencement of work. This work shall be performed at the expense of the Contractor. All work shall be inspected and approved by the City Arborist, and it shall not be considered complete until the Contractor has completed all work to his/her satisfaction.

The contractor shall be responsible for resetting all existing property monumentation that is disturbed by his/her operations at no expense to the City of Lewiston. This work is to be performed by a Professional Land Surveyor registered in the State of Maine.

The cost of replacing or repairing damaged or broken fences, steps, mailboxes, shrubs, hedges, etc., will be considered incidental to the project and no payment will be made to the Contractor for this work. Resetting of mailboxes to new road elevations shall be considered incidental to the construction and no payment will be made for this work.

On paved surfaces, the Contractor shall not use or operate tractors, bulldozers, or other equipment that could damage such surfaces. All surfaces, which have been damaged by the Contractor's operations, shall be restored to the condition at least equal to that in which they were found immediately prior to the beginning of operations. Suitable materials and methods shall be used for such restoration and shall be performed at the expense of the Contractor.

### **30.07 DUST CONTROL**

This work shall consist of furnishing and applying water or calcium chloride on the roadway or haul roads for dust control as directed by the Engineer. When no items for dust control are included in the Contract, such work shall be considered incidental to the Contract.

The water shall not be salt or brackish and shall be free from oil, acid, and injurious alkali or vegetable matter. The calcium chloride shall conform to the requirements of AASHTO M144 latest version.

Water shall be applied by approved methods and equipment including a tank with a gauge-equipped pressure pump and a nozzle-equipped spray bar. Calcium chloride shall be applied by mechanical spreaders or by hand at the rate designated. Calcium chloride shall be used when authorized by the Engineer for controlling dust on the roadway under construction and where dust constitutes a hazard to traffic.

Water shall be applied to the roadway daily or as required to maintain the dust on the roadway. It may become necessary for the contractor to provide a water truck dedicated to the project if the conditions warrant. If the Contractor is unable to maintain dust on the roadway, work will cease on the project until the site can be stabilized, at which time construction may resume.

### **30.08 DISPOSAL OF WATER**

The Contractor shall not be allowed to dispose of any water encountered or used during construction by discharging said water to any existing or new sanitary sewer or combined sewer unless expressly authorized by the Engineer.

### **30.09 REMOVAL OF SURPLUS EXCAVATION**

As the work progresses, all surplus excavation, rubbish, refuse and all unused material, tools and equipment shall be removed at once so as to confine the new work to as short a length as is practicable. All surplus material shall be removed by the Contractor at his/her own expense unless otherwise directed in the Supplemental Specifications.

When this clearing of surplus excavation, rubbish, repairing of street surfaces, fences or other damage is neglected, the Director of Public Works will give notice, in writing, to that effect to



the Contractor; and, if said material is not removed, or if said repairing is not done within forty-eight (48) hours thereafter, or if the Contractor does not at once take the necessary precautions to insure the safety of travel, the Director of Public Works may employ other parties to do such work, and the expense thus incurred will be deducted from any monies due or that may become due the Contractor. Upon the completion of the work, the Contractor shall tear down and remove all structures built by him/her and shall remove all rubbish of any kind from any street or grounds which he/she has occupied and shall leave the area of work in a neat and clean condition.

### **30.10 MATERIALS SUPPLIED BY THE CITY**

The Contractor shall, at his/her own expense, convey all materials supplied by the City from the points where they are delivered by the City and shall, at his/her own expense, store the same in the vicinity of the work; and also, at his/her own expense, do all hauling and conveying to other portions of the work all surplus materials. He/she shall furnish, without special charge therefore, such labor and equipment as is needed to unload materials; and when the work is done in traveled ways, shall cause said materials to be neatly and securely piled so that they shall be of as little inconvenience as possible to public travel and to the occupants of adjoining property. Upon the completion of the work, the Contractor shall, at his/her own expense, transport all unused materials, supplies, tools or property furnished by the City to the location as directed by the Engineer.

The Contractor shall review all materials delivered by the City or the City's supplier at no additional cost to the City. Any discrepancies between delivered materials and the quantities listed on the invoices shall be brought to the attention of the person delivering the materials and the Engineer shall be notified immediately of the discrepancy.

The Contractor shall be responsible for all loss of, or damage done to, materials furnished by the City from the time of delivery until the final acceptance of the completed work. All such materials lost, injured, spoiled, or, in the opinion of the Engineer, rendered unfit for use through the negligence or carelessness of the Contractor, his/her agents or employees, shall be replaced or made good in their full value to the City by the Contractor.

### **30.11 BLASTING PRECAUTIONS**

When rock is to be removed by blasting, all blasts shall be suitably covered with mats chained together and every precaution taken for the protection of the work, adjacent utilities, traffic, adjacent buildings and other property. No blasting shall be done by any person or persons other than those approved for that purpose, nor shall any blasting be done without taking out a permit for the same stating the location where the blasting is to be done.

All explosives shall be stored in accordance with the laws and ordinances relating thereto and in accordance with and to the satisfaction of the Fire Chief. All explosives shall be brought upon the work only as needed and in small quantities. Exploders shall be kept entirely separate from explosives. The precautions against accident by blasting or premature explosions shall be entirely satisfactory to the Director of Public Works. No blasting of rock will be permitted within twenty (20) feet of the work already finished, except as permitted by the Engineer. Blasts shall be made only between such hours as are approved by the

Director. All Federal, State, and City regulations relating to blasting and explosives shall be fully complied with.

### **30.12 DAMAGE BY BLASTING**

The Contractor shall be liable for all damage to persons or property caused by blasting or explosions, or arising from neglect to properly guard and protect the excavations and all portions of the work; and the Contractor shall wholly indemnify the City against claims on such account and no compensation will be allowed the Contractor in any event or under any circumstances for loss incurred by him/her or arising from blasting.

### **30.13 PRIVATE LAND**

The Contractor shall not, except after written consent from the proper parties, enter or occupy with personnel, equipment or materials, any land outside the limits of the City Right of Way (R.O.W.) or location in which the work is to be done. The Contractor shall, whenever so required by the Director, erect and maintain fences along the roadways and around the grounds occupied by him/her of such character as will be sufficient for the protection of the adjoining property. The Contractor shall have access to the project only at such points as the obtained easements meet streets accepted by the City of Lewiston and at such other points that the Engineer may designate. If other points of access are desired by the Contractor, he/she shall obtain the necessary permission from the property owners.

### **30.14 TEMPORARY BRIDGES OR CROSSINGS, AND PRECAUTIONS**

Whenever it is necessary to cross roads, paths, drives, walks or railroads, unless otherwise herein specified, the Contractor shall, at his/her own expense, provide suitable and safe bridges or other sufficient crossings for the accommodation of the public; and shall maintain the same in good and safe condition until the original condition can be restored, at which point he/she shall remove all bridges and other temporary expedients, and restore such roads, etc., to a condition satisfactory to the Engineer and/or Director of Public Works. The Contractor shall give reasonable notice to the owners of utilities, railroads and private ways before interfering with them, and in the case of railroads, shall not enter upon their location nor make any excavation therein until he/she has notified said railroad of his/her intentions to enter upon and to cross said railroad location and has received permission from the appropriate railroad representative, unless ordered otherwise by the Director of Public Works. The Contractor shall provide watch persons, lights and fences at his/her own expense, and take such other precautions as may be necessary to protect life and property; and shall be liable for all damage occasioned in any way by his/her act or neglect, or that of his/her agents, employees or personnel. When any street or way is closed to travel, suitable signs shall be furnished, placed and maintained by the Contractor at such points as shall be designated by the Director of Public Works. When the existing access to property is cut off by the Contractor, he/she shall provide proper means of access to said property and, if the work is being done in a street, alley, or place that has to be closed to vehicular travel, the Contractor shall arrange for the removal of waste, etc. and shall furnish labor for carrying fuel, supplies, etc. to points of destination, wherever required, at his/her own expense, during the time said street is closed to travel.

### **30.15 WORK TO BE DONE**

The Contractor is to make the requisite excavations for the work and associated structures; to cut and remove all necessary brush, trees, stumps, etc., to do all ditching, diking, pumping, bailing, draining, and laying of underdrain if required; to dispose of all water from any source, including diversion of brooks; to do all sheeting, shoring, bracing and supporting and all fencing; to do all lighting and watching; to make all provisions necessary to maintain and to protect buildings, fences, pipes, sewers, culverts, conduits, railways, and other structures, and repair all damage done to such structures; to provide bridges, fences, and other means of maintaining travel on accepted streets or roads and on streets, roads, paths, or rights-of-way in which the trenches are excavated, wherever the Director of Public Works or Engineer may direct; to construct all foundations, all brick, concrete, stone and timber work; to set in place all ironwork; to build all roadways, refill and resurface all trenches; to clear away all rubbish and all surplus material required by the Contract Documents; and to furnish all the materials, except as specified in the Supplemental Specifications, all tools, equipment and labor required to build and put in complete working order the work herein specified.

### **30.16 CLEANING UP**

The Contractor shall keep the work area free from accumulations of waste material or rubbish. Upon completion of the work, the work area and all other areas used by the Contractor shall be cleared of all temporary structures, waste material or rubbish of any kind.

**End of Section**

**DIVISION 40**

**STRUCTURAL EARTH WORK**

**STANDARD SPECIFICATIONS**

**Contents**

	<b><u>PAGE NO.</u></b>
40.01 Scope.....	40-1
40.02 References .....	40-1
40.03 Definition.....	40-1
40.04 Utilities .....	40-1
40.05 Cutting of Pavement .....	40-1
40.06 Disposal of Surface Materials .....	40-2
40.07 Structural Excavation for Pipes.....	40-2
40.08 Structural Excavation for Structures Other Than Pipes.....	40-3
40.09 Extra Structural Excavation.....	40-3
40.10 Structural Rock Excavation.....	40-3
40.11 Bedding & Cover.....	40-4
40.12 Backfilling.....	40-4
40.13 Select Backfill .....	40-5
40.14 Sheeting and Bracing.....	40-5
40.15 Restoration of Trench Surface .....	40-6
40.16 Method of Measurement (Pay Limits) .....	40-7
40.17 Basis of Payment.....	40-8

## **DIVISION 40**

### **STRUCTURAL EARTH WORK**

#### **STANDARD SPECIFICATIONS**

##### **40.01 SCOPE**

This division shall govern structural earthwork for sanitary sewers, storm sewers, underdrains, water lines and their related structures, to include cutting of pavement, trench excavation, structural rock excavation, bedding and cover, backfill, extra excavation and restoration of surface.

##### **40.02 REFERENCES**

Not used.

##### **Related Specifications**

Division 50                      Materials

##### **40.03 DEFINITION**

Structures include but are not limited to: culverts, catch basins and leads, manholes, end walls, sanitary sewers, storm sewers, water lines, water services, sewer services, gas services, electrical services, telephone services, underdrains, cellar drains, and hydrants.

##### **40.04 UTILITIES**

The Contractor should be aware that utility mains and services may exist in the work area. Approximate location of these utilities will be marked in the field by the respective utility company. The approximate locations of known utilities are indicated on the Plans. However, the Contractor will be responsible for determining the exact location and elevation of all utilities and services in the work area. It will be the responsibility of the Contractor to excavate and expose any utility or service if directed by the Engineer so that the true elevation of the utility can be accurately determined. The minimum clearance between the new work and any existing utility shall not be less than six (6) inches unless otherwise approved by the Engineer. Any utility main, which the Engineer deems necessary to be moved or relocated, shall be moved or relocated by the utility company at the cost of the Contractor.

Damaged sewer services, or sewer services which need to be re-laid, shall be repaired and/or re-laid by the Contractor, at the expense of the Contractor, with the use of repair couplings and the required size pipe to match existing pipe. Sewer pipe as outlined in Division 50 shall be used. All edges of pipe shall be cut square. All repair couplings used shall be approved by the Engineer.

##### **40.05 CUTTING OF PAVEMENT**

When excavations are to be made in paved surfaces, the pavement shall be cut ahead of the excavation by means of power-driven or other suitable tools to provide a clean, uniform edge

with minimum disturbance of the remaining pavement. If the edge becomes damaged during excavation, it shall be re-cut as directed by the Engineer at no additional cost to the City.

#### **40.06 DISPOSAL OF SURFACE MATERIALS**

Prior to beginning excavations, the Contractor shall remove all unsuitable surface materials, such as broken pavement, brick, curbstone, broken stone, gravel, loam, etc. Usable material shall be stockpiled at the job site as directed by the Engineer. Unsuitable material shall be removed from the job site and disposed of, in accordance with applicable laws, by the Contractor. Other material, as directed by the Engineer, which remains the property of the City shall be transported to Public Works Department storage areas, by the Contractor.

Surplus excavation and bricks/concrete may be disposed of at the City of Lewiston dump site (quarry) on River Rd. or other approved dump site. Excavation disposed of at the City quarry or any other fill site **MUST** have ALL asphalt and asbestos pipe separated out. The tipping fee will be waived.

#### **40.07 STRUCTURAL EXCAVATION FOR PIPES**

The trench in which the pipe line and its foundation are to be constructed shall be excavated to the width and depth shown on the Plans or as the Engineer may direct. Excavations shall be of a width and depth adequate for removal of all material within the excavation limits shown on the Plans, for pumping and draining water, for bracing and supporting the trench walls, for the installation of sheeting and bracing where necessary, for the proper installation and compaction of all foundation and bedding materials, and for the installation and jointing of the pipe.

Excavation of material unsuitable for foundations, below the limits shown on the Plans, shall be made wherever and to the extent directed by the Engineer. In the case of excavation for concrete foundations, the trench shall be excavated to the exact form and size of the foundation as shown on the Plans. If the Contractor fails to limit the excavation of the trench, as herein specified or ordered, or if by reason of cave-ins, a greater width or depth of trench than required is obtained, then, in addition to the requirements of the following paragraph, the Contractor shall furnish and place, at his/her own expense, forms satisfactory to the Engineer for the construction of the concrete foundations as shown on the Plans; and shall, in the case of granular foundations, furnish, place and compact, at his/her own expense, all material in excess of that required by the Engineer. In the case of timber foundations, the excavation shall be as shown on the Plans. The lengths of trench to be opened and length of public street rendered unfit for travel, at any time, due to the work of the Contractor, shall conform to the requirements of the Engineer.

Sheeting or shoring will be required by the Engineer if he/she deems it necessary to keep the trench width within the allowable limits. Such sheeting or shoring shall be at the sole expense of the Contractor and he/she shall not have a claim for extra payment for this item, except as provided for in Section 40.14, Sheeting and Bracing. The prevention of slides and cave-ins shall be the responsibility of the Contractor. Any damage, injury, or expense resulting from cave-ins or slides shall be at the sole expense of the Contractor.

#### **40.08 STRUCTURAL EXCAVATION FOR STRUCTURES OTHER THAN PIPES**

All excavations for structures shall be made to the width and depth shown on the Plans or as the Engineer may direct; and that will, in his/her judgment, give ample room for the building of the structures they are to contain and for all excavation necessary for the construction of foundations, pumping and draining of water, the installation of sheeting and bracing, form work, etc., as may be required.

Excavation of material unsuitable for foundations, below the limits shown on the Plans, shall be made wherever and to the extent required by the Engineer. Excavation for concrete foundations shall be made to the exact form and size of the foundations. If the Contractor fails to limit the excavation to the size specified or ordered; or if by reason of cave-ins, a greater width or depth of excavation than required is obtained, then the Contractor shall furnish and place, at his/her own expense, forms satisfactory to the Engineer for the construction of the concrete foundations as shown on the Plans; and shall, in the case of granular foundations, furnish, place and compact, at his/her own expense, all foundation material in excess of that required by the Engineer.

#### **40.09 EXTRA STRUCTURAL EXCAVATION**

Excavation below the limits shown on the Plans shall be made by the Contractor when ordered by the Engineer and shall conform to Sections 40.06, 40.07 and 40.08.

#### **40.10 STRUCTURAL ROCK EXCAVATION**

When rock is encountered in the excavation it shall be uncovered and, after it has been measured by the Engineer, it shall be taken out to a depth of eight (8) inches below the lowest point of the outside of the barrel of the pipe and of such width as shall give a continuous clearance of at least twelve (12) inches on either side of the pipe, underdrain, house service or other structure; except when a concrete foundation is used it shall afford at least sufficient width for the concrete foundation. Only such rock which, in the opinion of the Engineer, requires drilling or blasting for its removal will be measured as rock excavation. All solid rock and detached rock and boulders which measure and contain not less than one (1) cubic yard, and no other material, shall be classed as rock excavation. All solid rock and boulders containing one (1) cubic yard or more must be entirely removed from the trench and disposed of before they will be classed and paid for as rock excavation. No materials thus removed and classed as rock excavation and no excavated boulders containing less than one (1) cubic yard will be allowed to be used for backfilling until the same has been broken up into pieces not larger than twelve (12) inches in any dimension and then only as provided for in Section 40.11. No allowance will be made or paid to the Contractor on account of breaking up materials excavated other than the fixed price for rock excavation. The means and methods utilized for the rock removal shall be at the contractor's discretion; however, there will be no increase in the unit price of rock if the contractor elects to change methods of removal, or if the actual quantity removed varies from the bid quantity.

*The contractor is responsible for protecting the existing utilities during blasting operations, and a representative from utility will need to be notified in advance of any blasting and may need to be on site whenever blasting is occurring. Blasting will be in accordance with the utilities requirements this may include but not be limited to:*

*In areas where the blasting will occur within 8 to 10 feet of the utility special measures may need to be taken to protect the utility, such as exposing the utility and placing blast mats between the utility and the blasting, and possibly utilizing a hammer instead of blasting in areas of crossings or in closer proximities.*

*The contractor will be responsible for any damage to the utilities associated with blasting and should take precautions to prevent damage to the utilities, the means and methods that the contractor elects to utilize to remove the rock will be the contractor's responsibility. A preblast meeting between the selected contractor and all impacted utilities will be required prior to the start of blasting operations.*

#### **40.11 BEDDING & COVER**

The material below the bottom of the pipe, for the depth shown on the Plans, shall be excavated and the hole backfilled with material conforming to the detail sheet for the type of pipe being installed.

The bedding material shall be placed and thoroughly compacted in lifts not greater than six (6) inches to an elevation eight (8) inches above the top of the pipe. Each six (6) inch lift of bedding material shall be thoroughly hand tamped under and around the sides of the pipe before the succeeding lift is placed. Lifts shall be carried up evenly on both sides of the pipe to prevent unequal pressures on the pipe.

The pipe shall be protected during handling against impact, shocks and free fall. The Contractor shall be required to furnish the necessary slings, straps and other approved devices to permit the satisfactory support of all parts of the pipe when it is lifted.

The limits of the foundation and bedding shall not be less than that shown on the Plans and shall, in all cases, extend to the full width and depth of the excavation.

#### **40.12 BACKFILLING**

The trench shall be backfilled with the excavated material, if deemed suitable by the Engineer.

The trench shall be filled and compacted sufficiently to prevent subsequent settlement. The backfill shall be compacted by utilizing a vibratory trench compactor weighing at least 3,000 lbs, and the material shall be evenly spread in layers not exceeding twelve (12) inches in thickness before rolling. Care shall be taken that the material close to the bank or sheeting, as well as in all other portions of the trench, be thoroughly compacted.

No compacting shall be done when the material is too wet to be compacted properly. At such times, the work shall be suspended until the previously placed and new materials have dried out sufficiently to permit proper compacting; or such other precaution shall be taken as may be necessary to obtain proper compaction.

No pieces of rock larger than twelve (12) inches in any dimension shall be considered suitable material for backfilling, and then only in combination with such an amount of fine material as will, in the opinion of the Engineer, form a well compacted mass. The work of backfilling shall not be done with frozen earth, chunks of concrete, chunks of pavement or



other debris. No large masses of backfilling material shall be dropped, as from a grab bucket, into the trench in such a manner as to endanger the work.

All voids left by the removal of sheeting shall be completely backfilled with suitable materials and thoroughly compacted. Backfilling around structures shall begin as soon as practicable after the pipes and masonry have been placed and the concrete or brick work has acquired a suitable degree of hardness and shall thereafter be prosecuted expeditiously.

When the sewer, storm sewer or water line is laid cross-country, the backfill shall be brought up and mounded above the existing grade, six (6) inches or as directed. Wherever a loam or gravel surface exists prior to excavation, it shall be removed, conserved and replaced to the full original level and condition.

When the sewer, storm sewer, or water line is laid in a street, backfill shall be brought up to an elevation which is equal the depth of gravel base required, below the bottom of the specified paving thickness for permanent pavement. The Contractor shall then place, in six-(6) inch compacted layers, gravel conforming to Sections 50.17.B and 50.17.C.

#### **40.13 SELECT BACKFILL**

If the Engineer determines that excavated material is not suitable for backfill of trenches, or that subgrade material in trenches is not suitable, the Contractor shall install select backfill as directed. The Contractor shall be responsible for disposing of all unsuitable material.

Select backfill shall be installed in twelve-(12) inch compacted layers. Material to be used shall conform to Section 50.17.G.

Crushed rock shall be used as bedding or in place of unsuitable subgrade, as shown of the Plans, or as ordered. Material used shall conform to Section 50.17.A.

Installation of select backfill and crushed rock shall conform to Section 40.11, Bedding and Cover.

#### **40.14 SHEETING AND BRACING**

The Contractor shall furnish, put in place, and maintain such sheeting and bracing as may be required to support the sides of the excavation, and prevent any movement which could in any way diminish the width of the excavation below that necessary for proper construction or otherwise injure or delay the work or endanger adjacent structures. See Section 30.04. If the Engineer is of the opinion that proper supports have not been provided, he/she may order additional supports be put in at the expense of the Contractor, and compliance with such orders shall not relieve or release the Contractor from his/her responsibility for the sufficiency of such supports. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and rammed.

All sheeting and bracing not left in place shall be carefully removed in such manner as not to endanger the construction or other structures, utilities, or property, whether public or private. All voids left or caused by withdrawal of sheeting shall be immediately refilled with sand by ramming with tools especially adapted to that purpose, by watering or otherwise as may be directed.

#### **40.15 RESTORATION OF TRENCH SURFACE**

After the trench has been backfilled in accordance with Section 40.12, the Contractor shall restore the surface of the trench to conform to the existing surface prior to continuing the work.

- A. Grass and Lawn Areas.** In grassed areas, the Contractor shall restore the surface of the trench and the area adjacent to both sides of the trench that have been damaged by his /her operations, however, payment shall be made for only that area within the pay limits as defined in Section 40.16.

1. Loam. The Contractor shall have the option of removing the existing topsoil, to be reused for restoration, or installing new loam.

The loam shall be good quality top soil, free of large stones, large clods, roots of trees or shrubs, or other foreign matter. Muck, peat, or other excessively acidic soils shall not be used.

The loam shall be spread on well prepared areas to a uniform depth as specified. Any remaining clods, roots, stones over two inches in its greatest diameter, or any other foreign matter, shall be removed.

Restoration of surface in lawn areas shall be the same as for grassed areas except the loam shall be free of stones, clods, roots, shrubs, or any other foreign matter.

The loam shall be installed at a depth of no less than four (4) inches after rolling, to the grade required. The surface shall be smooth and uniform. Care shall be taken to match the existing grade of the adjacent lawn.

2. Fertilizer and Lime. Fertilizing and liming shall be done when the soil is in a moist condition and at least twenty four (24) hours before sowing the seed. The fertilizer and lime shall be applied to the soil by means of a mechanical spreader or other approved method capable of maintaining a uniform rate of application and shall be thoroughly harrowed, raked or otherwise mixed with the soil to a depth of not less than one (1) inch. The fertilizer and lime shall not be applied together unless applied hydraulically.

Agricultural limestone shall be applied at the rate of fifty (50) pounds per unit (1,000 square feet).

Fertilizer shall be applied at the rate of thirty (30) pounds per unit (1,000 square feet).

3. Seeding. Grass seed of the required mixture and quality shall be sown by a mechanical seeder or other method which will sow the seed uniformly at the required rate over the entire area to be seeded. The mechanical seeder shall be capable of being operated to avoid the growth of grass in rows and shall be so operated. After seeding, all areas shall be lightly raked by hand to mix the

seed and topsoil. Lawn areas shall be rolled with a light lawn roller. A light application of hay mulch shall be used. If necessary, the hay mulch shall be staked with string to prevent it from being washed or blown away.

The seed mixture shall be sown at the rate of five (5) pounds per unit (1,000 square feet).

The recommended seeding periods are from April 1 to June 1, and from August 15 to October 1. The Contractor may seed at other times. However, regardless of the time of seeding, he/she shall be responsible for a full growth of grass. When directed he/she shall re-fertilize and re-seed areas on the project which do not develop a satisfactory growth of grass. Re-fertilizing and re-seeding shall be incidental to the original seeding item requirements.

- B. Paved Areas.** The existing pavement shall be cut, or a transverse butt joint grinded, back six (6) inches from the sides of the trench and the edges trimmed so that no ragged or irregular joints will exist. Joints with existing pavement shall be clean and cut vertically for the depth of pavement layer being installed.

The Contractor shall be responsible for maintaining temporary pavement or gravel surface until the permanent pavement is installed.

The Contractor shall remove the temporary pavement and/or road gravel necessary to install the required thickness of permanent pavement called for on the Plans and in the Specifications.

Permanent pavement shall be maintained by the Contractor for one (1) year after the Project is completed, in accordance with the City of Lewiston Excavation and Street Opening Manual.

#### **40.16 METHOD OF MEASUREMENT (PAY LIMITS)**

- A. Trench Excavation:** Trench width pay limits for earth work items, except road gravel, that are paid for per unit price, shall be the outside diameter of the pipe being installed plus one pipe diameter or a maximum of pipe OD plus 36 (thirty-six) inches and a minimum of 48 inches.

Trench width pay limits for surface restoration items, including road gravel, that are paid for per unit price shall be as noted on the Plans or Div. 10.

Trench depth pay limits shall be to the actual elevation of the ledge and eight (8) inches below the pipe; for select backfill, and extra structural excavation, it shall be to the depth ordered; for surface restoration, it shall be as specified or as shown on the Plans.

Material installed or removed beyond the pay limits shall not be paid for.

- B. Structural Rock Excavation:** The quantity of structural rock excavation for which payment shall be made will be the actual number of cubic yards removed, measured in the field, to the limits specified in this section.

- C. Select Backfill and Extra Structural Excavation, or Crushed Rock: The quantity of select backfill and/or extra structural excavation, or crushed rock for which payment shall be made will be the actual number of cubic yards installed and/or removed, measured in the field in place, to the limits specified in this section.
- D. Road Gravel: The quantity of road gravel for which payment shall be made will be the number of cubic yards installed to the depth called for and the width installed, as measured in the field in place, not to exceed the limits specified in this section.
- E. Loam for Grassed and Lawn Areas: The quantity of loam for grassed and lawn areas for which payment shall be made will be the number of square yards installed to the depth called for and the width installed, as measured in the field, not to exceed the limits specified in this section, or specified in the Supplemental Specifications.
- F. Seed: The quantity of seed for which payment shall be made will be the number of square yards installed, as measured in the field, to the limits specified in this section, or specified in the Supplemental Specifications.
- G. Permanent Pavement: The quantity of permanent pavement for which payment shall be made will be the number of tons installed to the depth called for and the width installed, not to exceed the limits specified in this section.

#### **40.17 BASIS OF PAYMENT**

- A. Structural Rock Excavation: The accepted quantities of structural rock excavation shall be paid for, per cubic yard, at the price established in the Proposal. The price shall be for all materials, equipment and labor necessary to do the work, including excavation and disposal of structural rock, supplying and installing select backfill to replace the volume of rock removed and anything else incidental to the proper completion of the work, as specified. No adjustments to the bid price will be made if the actual quantity of rock encountered varies from the bid quantity or by the method used for removal.
- B. Select Backfill: The accepted quantities of select backfill shall be paid for, per cubic yard, at the unit price established in the Proposal. The price shall be for all labor, materials (except as otherwise specified), and equipment necessary to furnish and install select backfill, including installation, compaction, and anything else incidental to the proper completion of the work, as specified.
- C. Extra Structural Excavation: The accepted quantities of extra structural excavation shall be paid for, per cubic yard, at the unit price established in the Proposal. The price shall be for all labor, equipment and materials necessary for extra structural excavation, including removal and disposal of surplus material, and anything else incidental to the proper completion of the work, as specified.
- D. Crushed Rock: The accepted quantities of crushed rock shall be paid for, per cubic yard, at the unit price established in the Proposal. The price shall be for all labor, equipment, and material necessary to furnish and install crushed rock, including

preparation of subgrade, compaction and anything else incidental to the proper completion of the work, as specified.

- E. Road Gravel:** The accepted quantities of road gravel shall be paid for, per cubic yard, at the unit price established in the Proposal. The price shall be for all labor, materials and equipment necessary to furnish and install road gravel, including compaction and anything else incidental to the proper completion of the work, as specified.
- F. Loam for Grassed Areas:** The accepted quantities of loam for grassed areas shall be paid for, per square yard for the depth specified, at the unit price established in the Proposal. The price shall be for all labor, materials, and equipment necessary to furnish and install loam in grassed areas, including removal and reuse of existing top soil, and/or furnishing loam, preparation of base, fertilizer and lime, installing loam, preparation of loam for seed, and anything else incidental to the proper completion of the work, as specified.
- G. Seeding:** The accepted quantities of seeding shall be paid for, per square yard, at the unit price established in the Proposal. The price shall be for all labor, materials and equipment necessary to furnish and install seed, raking, rolling, mulching, if called for, and anything else incidental to the proper completion of the work, as specified.
- H. Permanent Pavement:** The accepted quantities of permanent pavement shall be paid for, per ton, at the unit price established in the Proposal for the mix used. The price shall be for all labor, materials and equipment necessary to furnish and install permanent pavement and anything else incidental to the proper completion of the work, as specified.

**End of Section**

**DIVISION 50**

**MATERIAL SPECIFICATIONS**

**STANDARD SPECIFICATIONS**

**Contents**

	<b><u>PAGE NO.</u></b>
50.01 Scope.....	50-1
50.02 Pipe Materials .....	50-1
50.03 SDR 35 PVC Sanitary and Storm Pipe and Fittings.....	50-1
50.04 Modular Stormwater Storage Units .....	50-2
50.17 Earthwork.....	50-9
50.18 Loam, Seed & Mulch.....	50-11
50.19 Guardrails .....	50-11

**DIVISION 50**

**MATERIAL SPECIFICATIONS**

**STANDARD SPECIFICATIONS**

**50.01 SCOPE**

The material specifications included in this division shall be for sanitary sewers, storm sewers, underdrains, and road construction.

**50.02 PIPE MATERIALS**

Acceptable pipe materials shall be as follows:

<u>Category</u>	<u>Chapter</u>
Storm Sewer (1" & 4")	50.03

Pipes, manholes, catch basins and any other materials necessary shall be the size and type as shown on the Plans.

**50.03 SDR 35 PVC SANITARY AND STORM PIPE AND FITTINGS**

Sizes from one (1) inch to four (4) inches shall meet the requirements of ASTM D3034, Standard Specifications for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings, latest revision.

The joints shall meet the requirements of ASTM D3212, Standard Specifications for Joints for Drain and Sewer Plastic Pipes Using Elastomeric Seals, latest revision.

Gaskets shall meet the requirements of ASTM F477, Standard Specifications for Elastomeric Seals (Gaskets) for Joining Plastic Pipe, latest revision.

The pipe shall be joined with an integral bell, bell-and-spigot type rubber gasketed joint. Each integral bell joint shall consist of a formed bell complete with a single rubber gasket.

All fittings shall utilize rubber gasketed joints.

The pipe shall be made of PVC plastic having a cell classification of 12454-B or 12454-C or 12364-C (with a minimum tensile modulus of five hundred thousand (500,000) PSI) as defined in ASTM D1784, Standard Specifications for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds, latest revision.

The fittings shall be made of PVC plastic having a cell classification of 12454-B or 12454-C or 13343-C as defined in ASTM D1784, Standard Specifications for Rigid Poly (Vinyl Chloride)

(PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds, latest revision.

Minimum "pipe stiffness" (F/y) at five (5 %) percent deflection shall be forty-six (46) Lb/in/in for all sizes when tested in accordance with ASTM D2412, Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading, latest revision.

These specifications shall apply to all PVC pipe and fittings to be installed under this Contract.

Notarized affidavits, indicating certification, from the manufacturer that all specifications are met may be required.

## **50.4 MODULAR STORMWATER STORAGE UNITS**

### **PART 1 – GENERAL**

#### **1.01 RELATED DOCUMENTS**

- A. Drawings, technical specification and general provisions of the Contract as modified herein apply to this section.

#### **1.02 DESCRIPTION OF WORK INCLUDED**

- A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.
- B. Provide and install R-Tank<sup>LD</sup>, R-Tank<sup>HD</sup>, R-Tank<sup>SD</sup>, or R-Tank<sup>UD</sup> system or equal, (hereafter called storage unit), and all related products including fill materials, geotextiles, geogrids, inlet and outlet pipe with connections per the manufacturer's installation guidelines provided in this section.
- C. Provide and construct the cover of the storage unit system including; stone backfill, structural fill cover, and pavement section as specified.
- D. Protect storage unit system from construction traffic after installation until completion of all construction activity in the installation area.

#### **1.03 QUALITY CONTROL**

- A. All materials shall be manufactured in ISO certified facilities.
- B. Installation Contractor shall demonstrate the following experience:
  - 1. A minimum of three R-Tank or equivalent projects completed within 2 years; and,
  - 2. A minimum of 25,000 cubic feet of storage volume completed within 2 years.
  - 3. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.



- C. Installation Personnel: Performed only by skilled workers with satisfactory record of performance on bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.
- D. Contractor must have manufacturer's representative available for site review if requested by Owner.

#### 1.04 SUBMITTALS

- A. Submit proposed storage unit layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.
- B. Submit manufacturer's product data, including compressive strength and unit weight.
- C. Submit manufacturer's installation instructions.
- D. Submit storage unit sample for review. Reviewed and accepted samples will be returned to the Contractor.
- E. Submit material certificates for geotextile, geogrid, base course and backfill materials.
- F. Submit required experience and personnel requirements as specified in Section 1.03.
- G. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect storage unit and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.
- B. Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc.
- C. Cold weather:
  - 1. Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.
  - 2. Do not use frozen materials or materials mixed or coated with ice or frost.
  - 3. Do not build on frozen ground or wet, saturated or muddy subgrade.

#### 1.06 PREINSTALLATION CONFERENCE

- A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the storage unit installation contractor, and the manufacturer's representative.

#### 1.07 PROJECT CONDITIONS

- A. Coordinate installation for the storage unit system with other on-site activities to eliminate all non-installation related construction traffic over the completed storage

unit system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be allowed on the system at any time.

- B. Protect adjacent work from damage during storage system installation.
- C. All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the storage system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.
- D. Contractor is responsible for any damage to the system during construction.

## PART 2 – PRODUCTS

### 2.01 R-TANK UNITS, OR EQUAL

- A. R -Tank, or equal - Injection molded plastic tank plates assembled to form a 95% void modular structure of predesigned height (custom for each project).
- B. Storage units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank <sup>LD</sup> VALUE	R-Tank <sup>HD</sup> VALUE	R-Tank <sup>SD</sup> VALUE	R-Tank <sup>UD</sup> VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	30.0 psi	33.4 psi	42.9 psi	134.2 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	20.0 psi	22.4 psi	28.9 psi	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	N/A	20"	18"	12" (Stone Backfill)
HS-25 Minimum Cover	Cover required to support HS-25 loads	N/A	24"	19"	15" (Stone Backfill)
Maximum Cover	Maximum allowable cover depth	3 feet	< 7 feet	< 10 feet	5 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.29 lbs/cf	3.62 lbs/cf	3.96 lbs/cf	4.33 lbs/cf
Rib Thickness	Thickness of load-bearing members	0.18 inches	0.18 inches	0.18 inches	N/A
Service Temperature	Safe temperature range for use	-14 – 167° F	-14 – 167° F	-14 – 167° F	-14 – 167° F

- C. R-Tank Supplier: ACF Environmental 2831 Cardwell Road Richmond, VA 23234  
(T): 800-448-3636; (F): 804-743-7779 [www.acfenvironmental.com](http://www.acfenvironmental.com)

## 2.02 GEOSYNTHETICS

- A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the storage units.
  - 1. **Standard Application:** The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (ACF N080 or equivalent).
  - 2. **Infiltration Applications:** When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament (ACF M200 or equivalent) shall be used.
- B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid (ACF BX12 or equivalent) to reinforce backfill above the storage unit system. Geogrid is not always required for storage unit installations, and is often not required for non-traffic load applications.

## 2.03 BACKFILL & COVER MATERIALS

- A. **Bedding Materials:** Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the storage unit system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.
- B. **Side and Top Backfill:** Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.
  - 1. Traffic Applications - Free draining material shall be used adjacent to (24" minimum) and above (for the first 12") the storage unit system.
    - a. For R-Tank HD, and SD, or equal modules, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System).
    - b. For UD modules with less than 14" of top cover, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter). The use of soil backfill on the sides and top of the UD module is not permitted unless the modules are installed outside of traffic areas or with cover depths of 14" or more. Top backfill material (from top of module to bottom of pavement base or 12" maximum) must be consistent with side backfill.
  - 2. Non-Traffic / Green Space Applications - For all storage modules installed in green spaces and not subjected to vehicular loads, backfill materials may either follow the guidelines for Traffic Applications above, or the top backfill layer (12" minimum) may consist of AASHTO #57 stone blended with 30-40% (by volume) topsoil to aid in establishing vegetation.
- C. **Additional Cover Materials:** Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

## 2.04 OTHER MATERIALS

- A. Utility Marker: Install metallic tape at corners of storage unit system to mark the area for future utility detection.

## PART 3 – EXECUTION

### 3.01 ASSEMBLY OF R-TANK UNITS, OR EQUAL

- A. Assembly of modules shall be performed in accordance with the storage unit Installation Manual.

### 3.02 LAYOUT AND EXCAVATION

- A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than storage unit dimensions in each direction allowing for installation of geotextile filter fabric, storage unit modules, and free draining backfill materials.
- B. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.
- C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other means until construction is complete.
- D. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.
  - 1. **Standard Applications:** Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.
  - 2. **Infiltration Applications:** Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications.
- E. **Unsuitable Soils or Conditions:** All questions about the base of the excavation shall be directed to the owner's engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the storage unit subgrade; however, in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.
  - 1. If unsuitable soils are encountered at the subgrade, or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.
  - 2. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.
  - 3. Do not start installation of the storage unit system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

### 3.03 PREPARATION OF BASE

- A. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03

A), over the subgrade to establish a level working platform for the storage unit modules. Level to within  $\frac{1}{2}$ " (+/-  $\frac{1}{4}$ "") or as shown on the plans. Native subgrade soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's engineer.

1. **Standard Applications:** Static roll or otherwise compact bedding materials until they are firm and unyielding.
  2. **Infiltration Applications:** Bedding materials shall be prepared in accordance with the contract documents.
- B. Outline the footprint of the storage unit system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the storage unit system for proper installation and compaction of backfill.

### 3.04 INSTALLATION OF THE R-TANKS, OR EQUAL

- A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags or other ballast to secure overlaps. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.
- B. Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The storage units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.
- C. Install storage unit modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners and straight edges along the perimeter of the storage unit system. The modules are to be oriented as per the design drawing with required depth as shown on plans.
1. For R-Tank LD, HD, and SD, or equal, installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall system footprint. Refer to storage unit Installation Guide for more details
  2. For R-Tank UD, or equal, installations, there is no perpendicular end row required.
- D. Wrap the storage unit top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top, encapsulating the entire system to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.
- E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (butted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the storage units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction,

unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.

- F. Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the storage unit Installation Guide.
- G. If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with 'U' bend or venting bollard to inhibit the ingress of debris. A ground level concrete or steel cover can be used.

### 3.05 BACKFILLING OF THE R-TANK, OR EQUAL UNITS

- A. Backfill and fill with recommended materials as follows:
  - 1. Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the storage unit system. No fill shall be placed over top of tanks until the side backfill has been completed.
  - 2. Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.
  - 3. Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and storage units.
  - 4. No compaction equipment is permissible to operate directly on the storage unit modules.
  - 5. Top Backfill: Only low pressure track vehicles shall be operated over the storage unit system during construction. Dump Trucks and Pans shall not be operated within the storage unit system footprint at any time. Heavy equipment should unload in an area adjacent to the storage unit system and the material should be moved over the system using tracked equipment with an operating weight of less than 10 tons.
    - a. Typical Applications: Install a 12" (or as shown on plans) lift of freely draining material (Section 2.03 B) over the storage units, maintaining 12" between equipment tracks and storage unit systems. Lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.
    - b. Shallow Applications (< 18" total cover): Install top backfill in accordance with plans.
  - 6. If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.
  - 7. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content

and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the storage unit system. During placement of fill above the system, unless otherwise specified, a uniform elevation of fill shall be maintained to within 12" across the footprint of the storage unit system. Do not exceed maximum cover depths listed in Table 2.01 B.

8. Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the storage unit system shall extend a minimum of 3 feet beyond the limits of the excavation wall.
- B. Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. No non-installation related loading should be allowed over the storage unit system until the final design section has been constructed (including pavement).
- C. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.
- D. Backfill depth over storage unit system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

### 3.06 MAINTENANCE REQUIREMENTS

- A. A routine maintenance effort is required to ensure proper performance of the storage unit system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the storage unit system and stormwater released from the site. Pretreatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).
- B. All inlet pipes and Inspection and/or Maintenance Ports in the storage unit system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter.
- C. If sediment has accumulated to the level noted in the storage unit Maintenance Guide or beyond a level acceptable to the Owner's engineer, the storage unit system should be flushed.
- D. All inspection and maintenance activities should be performed in accordance with the storage unit Operation, Inspection & Maintenance Manual.

### 50.16 **EARTHWORK**

- A. **Underdrain Material.** Underdrain backfill or material such as sand and crushed or uncrushed material used as bedding shall meet MDOT Specification 703.22, Underdrain Backfill Material, as defined in the following table. Underdrain sand used in conjunction with a filter sock shall also meet MDOT Specification 703.22, Underdrain Backfill Material, as defined in the following table.

The granular material (sand) for underdrain pipe shall be free from organic matter and shall conform to the following table:

Sand

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
1 inch	95-100
½ inch	75-100
No. 4	50-100
No. 20	15-80
No. 50	0-15
No. 200	0-5

Crushed Backfill

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
1 inch	100
¾ inch	90-100
3/8 inch	0-75
No. 4	0-25
No. 10	0-5

- B. Geotextiles.** Geotextiles shall conform to the Maine Department of Transportation Standard Specifications listed below, latest revision.

Soil Filter  
722.04

Drainage  
722.02

Erosion Control  
722.03

- C. Common Borrow.** Common borrow shall consist of earth, suitable for embankment construction. It shall be free from frozen material, perishable rubbish, peat and other unsuitable material.

The moisture content shall be sufficient to provide the required compaction and stable embankment. In no case shall the moisture exceed four (4) percent above optimum.

The optimum moisture content shall be determined in accordance with AASHTO T180, Moisture-Density Relations of Soils Using a 101 pound (45.4 kg) Rammer and an 18 in. (457 mm) drop, latest revision, Method C or D.

- D. Select Backfill.** Select backfill shall consist of sand or gravel of hard durable particles free from vegetable matter, lumps, or balls of clay, frozen material and other



deleterious substances. The gradation of that portion passing a three (3) inch sieve shall meet the gradation requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
No. 40	0-70
No. 200	0-20

Select backfill shall contain no particles or fragments with a maximum dimension in excess of the compacted thickness of the layer being placed.

- E. Plain and Hand Laid Riprap. Stones shall consist of sound durable rock which will not disintegrate by exposure to water or weather. Either field stone or rough, unhewn quarry stone may be used. Exposed stones shall be angular and as nearly rectangular in cross-section as practicable. Rounded boulders or cobbles will not be permitted. Stones shall weigh from ten (10) pounds to two hundred (200) pounds except that when available suitable stones weighing more than two hundred (200) pounds may be used. Approximately fifty (50) percent of the stones by volume shall exceed a unit weight of fifty (50) pounds.
- F. Underdrain Soil Filter Media. As specified on Contract Drawings.

**50.17 LOAM SEED, AND MULCH**

- A. Loam: All loam shall be good quality, screened topsoil, free of large stones, clods, roots of trees or shrubs, or other foreign matter, meeting the following specifications:

<u>Organic Content</u>	<u>Percent by Volume</u>
Humus	10-20% as determined by ignition test
pH	5.5-8.0

<u>Mineral Content</u>		<u>Percent by Volume</u>
Sand	.08-.003 in. in diameter	45%-75%
Silt	.002-.00008 in. in diameter	20%-40%
Clay	less than .00008 in. in diameter	5%-15%

- B. Lime: Lime shall be ground limestone containing not less than 85% calcium and magnesium carbonate.
- C. Fertilizer: Grass seed fertilizer shall be a 21-10-21.
- D. Seed: Grass seed shall be certified as to mixture, germination, purity, and live seed, conforming to the following:

1. Percent germination no less than eighty (80) percent
2. Pure live seed no less than eighty five (85) percent
3. Percent purity no less than eighty five (85) percent
4. Weed seed not more than one (1) percent
5. All seed shall be from the current year's crop unless recent tests by an approved testing agency demonstrate that older seed meets the above requirements.

E. Mulch: Mulch shall consist of long fibered hay or straw reasonably free from noxious weeds or other undesirable materials.

## **50.18 GUARDRAILS**

Guardrails shall be Type 3-Galvanized steel "w" beam, wood posts or galvanized steel posts as shown on the Plans.

Materials shall meet the requirements specified in the following Subsections of Division 700 of the Maine Department of Transportation Standard Specifications, of latest revision:

Timber Preservative	708.05
Metal Beam Rail	710.04
Guardrail Posts	710.07
Guardrail Hardware	710.08

Guardrail components shall meet the applicable standards of "A Guide to Standardized Highway Barrier Rail Hardware" prepared and approved by the AASHTO-AGC-ARTRA Joint Cooperative Committee, Technical Bulletin Number 268-B.

Posts for guardrail delineators shall be "U" channel steel, eight (8) feet long, two and one half (2-1/2) pounds per linear foot minimum and have three eighths (3/8) inch round holes, one (1) inch center to center for a minimum distance of (2) feet from the top of the post.

**End of Section**