

Dryden Landfill



**STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY**

In the Matter of Remedial Action by:

Chelan County

AGREED ORDER

No. DE 2767

RECEIVED

TO: Chelan County
350 Orondo Avenue
Wenatchee WA 98801

OCT 20 2005

CHELAN COUNTY
PUBLIC WORKS

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I. INTRODUCTION

The mutual objective of the State of Washington, Department of Ecology (Ecology) and Chelan County under this Agreed Order (Order) is to provide for cleanup action at a facility where there has been a release or threatened release of hazardous substances. This Order requires Chelan County to implement a closure plan. Ecology believes the actions required by this Order are in the public interest.

II. JURISDICTION

This Agreed Order is issued pursuant to the authority of the Model Toxics Control Act (MTCA), RCW 70.105D.050(1).

III. PARTIES BOUND

This Agreed Order shall apply to and be binding upon the Parties to this Order, their successors and assigns. The undersigned representative of each Party hereby certifies that he or she is fully authorized to enter into this Order and to execute and legally bind such Party to comply with the Order. Chelan County agrees to undertake all actions required by the terms and conditions of this Order. No change in ownership or corporate status shall alter Chelan County's responsibility under this Order. Chelan County shall provide a copy of this Order to all agents, contractors, and subcontractors retained to perform work required by this Order, and shall ensure that all work undertaken by such agents, contractors, and subcontractors complies with this Order.

IV. DEFINITIONS

Unless otherwise specified herein, the definitions set forth in Chapter 70.105D RCW and Chapter 173-340 WAC shall control the meanings of the terms used in this Order.

1. Site: The Site is referred to as Dryden Landfill and is generally located at 9073 Highway 2, Dryden, Washington. The Site is defined by the extent of contamination caused by the release of hazardous substances at the Site. The Site is more particularly described in Exhibit A to this Order, which includes a detailed Site diagram. The Site constitutes a Facility under RCW 70.105D.020(4).

2. Parties: Refers to the State of Washington, Department of Ecology and Chelan County.
3. PLP: Refers to Chelan County.
4. Agreed Order or Order: Refers to this Order and each of the exhibits to the Order. All exhibits are integral and enforceable parts of this Order. The terms "Agreed Order" or "Order" shall include all exhibits to the Order.

V. FINDINGS OF FACT

Ecology makes the following findings of fact, without any express or implied admissions of such facts by Chelan County:

1. The Dryden Landfill is located on approximately 9.16 acres one mile east of Dryden, in the northwest quarter of Section 27, Township 24 North, Range 18 East, parcel number 24 18 27 823 007, Latitude 47 degrees 32' 53" and Longitude 120 degrees 34' 23" in Chelan County, Washington.
2. The Dryden Landfill has been owned and operated as a landfill by Chelan County since 1960.
3. Limited closure activities took place in 1986, including the placement of a substandard cover over the landfill and the installation of four monitoring wells.
4. An amended closure plan was submitted to Ecology June 22, 2004.

VI. ECOLOGY DETERMINATIONS

1. Chelan County is an "owner or operator" as defined in RCW 70.105D.020(12), of a "facility" as defined in RCW 70.105D.020(4) because Chelan County currently owns the site and has accepted potentially liable person status based on their letter to Ecology dated July 29, 2005.
2. Based upon all factors known to Ecology, a "release" or "threatened release" of "hazardous substance(s)" as defined in RCW 70.105D.020(20) and RCW 70.105D.020(7), respectively, has occurred at the Site.
3. Based upon credible evidence, Ecology issued a potentially liable person status letter to Chelan County dated June 7, 2005, pursuant to RCW 70.105D.040, -.020(16) and WAC 173-340-500. By letter dated July 29, 2005, Chelan County voluntarily waived its rights to notice and comment and accepted Ecology's determination that Chelan County is a potentially liable person (PLP) under RCW 70.105D.040.
4. Pursuant to RCW 70.105D.030(1) and -.050(1), Ecology may require PLPs to investigate or conduct other remedial actions with respect to any release or threatened release of

hazardous substances, whenever it believes such action to be in the public interest. Based on the foregoing facts, Ecology believes the remedial action(s) required by this Order is(are) in the public interest.

VII. WORK TO BE PERFORMED

Based on the Findings of Fact and Ecology Determinations, it is hereby ordered that Chelan County take the following remedial action(s) at the Site and that this(these) action(s) be conducted in accordance with Chapter 173-340 WAC unless otherwise specifically provided for herein:

1. Install an approved cover over the landfill in accordance with the requirements of WAC Chapter 173-304, Minimal Functional Standards.
2. Chelan County will record a Restrictive Covenant (Exhibit C) with the office of the Chelan County Auditor within ten (10) days of the completion of the remedial action. The Restrictive Covenant shall restrict future uses of the Site. Chelan County will provide Ecology with a copy of the recorded Restrictive Covenant within thirty (30) days of the recording date.
3. Chelan County will conduct post-closure monitoring and maintenance activities as specified in the amended closure plan submitted to Ecology on June 22, 2004. These activities include, but are not limited to, groundwater monitoring, surface water monitoring, gas monitoring, ground settling monitoring, maintenance of the facility and its structures, maintenance of the vegetative layer, and maintenance of the monitoring systems.
4. If, at any time after the first exchange of comments on drafts, Ecology determines that insufficient progress is being made in the preparation of any of the deliverables required by this section, Ecology may complete and issue the final deliverable.

VIII. TERMS AND CONDITIONS OF ORDER

A. Public Notices

This Order has been the subject of public notice and comment pursuant to WAC 173-340-600.

B. Remedial Action Costs

Chelan County shall pay to Ecology costs incurred by Ecology pursuant to this Order and consistent with WAC 173-340-550(2). These costs shall include work performed by Ecology or its contractors for, or on, the Site under Chapter 70.105D RCW, including remedial actions and Order preparation, negotiation, oversight, and administration. These costs shall include work performed both prior to and subsequent to the issuance of the Order. Chelan County shall pay the required amount within ninety (90) days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff

members on the project. A general description statement of work performed will be provided upon request. Itemized statements shall be prepared quarterly. Pursuant to WAC 173-340-550(4), failure to pay Ecology's costs within ninety (90) days of receipt of the itemized statement of costs will result in interest charges at the rate of twelve percent (12%) per annum, compounded monthly.

C. Implementation of Remedial Action

Except where necessary to abate an emergency situation, Chelan County shall not perform any remedial actions at the Site outside those remedial actions required by this Order, unless Ecology concurs, in writing, with such additional remedial actions.

D. Designated Project Coordinators

The project coordinator for Ecology is:

Valerie Drew
15 West Yakima Avenue, Suite 200
Yakima, WA 98902
(509) 454-7886

The project coordinator for Chelan County is:

Gregory Pezoldt, P.E.
Chelan County Department of Public Works
316 Washington Street, Suite 402
Wenatchee, WA 98801

The project coordinator(s) shall be responsible for overseeing the implementation of this Order. The Ecology project coordinator will be Ecology's designated representative for the Site. To the maximum extent possible, communications between Ecology and Chelan County, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order shall be directed through the project coordinator(s).

Ecology and Chelan County may change their respective project coordinator, but must provide ten (10) days advance written notification of the change to the other party.

E. Performance

All work performed pursuant to this Order shall be under the direction and supervision, as necessary, of a licensed professional engineer or licensed hydrogeologist, or equivalent as approved by Ecology, with experience and expertise in hazardous waste site investigation and cleanup. Chelan County shall notify Ecology in writing of the identity of such engineer(s), or hydrogeologist(s), or others, and of any contractors and subcontractors to be used in carrying out the terms of this Order, in advance of their involvement at the Site.

Any construction work performed pursuant to the Order shall be under the supervision of a professional engineer or a qualified technician under the direct supervision of a professional engineer. The professional engineer must be registered in the State of Washington, except as provided in RCW 18.43.130.

F. Access

Ecology or any Ecology authorized representative shall have the full authority to enter and freely move about all property at the Site that Chelan County either owns, controls, or has access rights to at all reasonable times for the purposes of, *inter alia*: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Order; reviewing Chelan County's progress in carrying out the terms of this Order; conducting such tests or collecting such samples as Ecology may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Order; and verifying the data submitted to Ecology by Chelan County. Chelan County shall make all reasonable efforts to secure access rights for those properties within the Site not owned or controlled by Chelan County where remedial activities or investigations will be performed pursuant to this Order. Ecology or any Ecology authorized representative shall give reasonable notice before entering any Site property owned or controlled by Chelan County unless an emergency prevents such notice. All persons who access the Site pursuant to this paragraph shall comply with the approved health and safety plan, if any. Ecology employees and their representative shall not be required to sign any release or waiver as a condition of site property access.

G. Sampling, Data Reporting, and Availability

With respect to the implementation of this Order, Chelan County shall make the results of all sampling, laboratory reports, and/or test results generated by it or on its behalf available to Ecology and shall submit these results in accordance with Section VII of this Order.

All sampling data shall be submitted to Ecology according to the requirements of WAC 173-340-840(5). Ground water sampling data shall also be submitted to Ecology according to the requirements of Exhibit B. These submittals shall be provided to Ecology in accordance with Section VII of this Order.

If requested by Ecology, Chelan County shall allow split or duplicate samples to be taken by Ecology and/or its authorized representative of any samples collected by Chelan County pursuant to implementation of this Order. Chelan County shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow split or duplicate samples of any samples collected by Ecology pursuant to the implementation of this Order to be taken by Chelan County or its authorized representative provided it does not interfere with Ecology's sampling. Without limitation on Ecology's rights under Section VIII.F. of this Order, Ecology shall notify Chelan County prior to any sample collection activity unless an emergency prevents such notice.

In accordance with WAC 173-340-830(2)(a), all hazardous substance analyses shall be conducted by a laboratory accredited under Chapter 173-50 WAC for the specific analyses to be conducted, unless otherwise approved by Ecology.

H. Public Participation

A public participation plan is required for this Site. Ecology shall review any existing public participation plan to determine its continued appropriateness and whether it requires amendment, or if no plan exists, Ecology shall develop a public participation plan alone or in conjunction with Chelan County.

Ecology shall maintain the responsibility for public participation at the Site. However, Chelan County shall cooperate with Ecology, and shall:

1. If agreed to by Ecology, develop appropriate mailing list, prepare drafts of public notices and fact sheets at important stages of the remedial action, such as the submission of work plans, remedial investigation/feasibility study reports, cleanup action plans, and engineering design reports. As appropriate, Ecology will edit, finalize, and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings;
2. Notify Ecology's project coordinator prior to any of the following: the issuance of all press releases; distribution of fact sheets; performance of other outreach activities; meetings with the interested public and/or local governments. Likewise, Ecology shall notify Chelan County prior to the issuance of all press releases and fact sheets, and before meetings with the interested public and local governments. For all press releases, fact sheets, meetings, and other outreach efforts by Chelan County that do not receive prior Ecology approval, Chelan County shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology;
3. When requested by Ecology, participate in public presentations on the progress of the remedial action at the Site. Participation may be through attendance at public meetings to assist in answering questions, or as a presenter;
4. When requested by Ecology, arrange and/or continue information repositories to be located at the following locations:
 - a) Peshastin Community Library
8396 Main Street, Peshastin, WA 98847-0408
 - b) Ecology's Central Regional Office
15 West Yakima Avenue, Suite 200, Yakima, WA 98902

At a minimum, copies of all public notices, fact sheets, and press releases; all quality assured monitoring data; remedial action plans and reports, supplemental remedial

planning documents, and all other similar documents relating to performance of the remedial action required by this Order shall be promptly placed in these repositories.

I. Retention of Records

During the pendency of this Order and for ten (10) years from the date of completion of work performed pursuant to this Order, Chelan County shall preserve all records, reports, documents, and underlying data in its possession relevant to the implementation of this Order and shall insert a similar record retention requirement into all contracts with project contractors and subcontractors. Upon request of Ecology, Chelan County shall make all records available to Ecology and allow access for review within a reasonable time.

J. Resolution of Disputes

1. In the event a dispute arises as to an approval, disapproval, proposed change, or other decision or action by Ecology's project coordinator, the Parties shall utilize the dispute resolution procedure set forth below.
 - a) Upon receipt of the Ecology project coordinator's decision, Chelan County has fourteen (14) days within which to notify Ecology's project coordinator of its objection to the decision.
 - b) The Parties' project coordinators shall then confer in an effort to resolve the dispute. If the project coordinators cannot resolve the dispute within fourteen (14) days, Ecology's project coordinator shall issue a written decision.
 - c) Chelan County may then request Ecology management review of the decision. This request shall be submitted in writing to the Central Region Toxics Cleanup Section Manager within seven (7) days of receipt of Ecology's project coordinator's decision.
 - d) The Section Manager shall conduct a review of the dispute and shall endeavor to issue a written decision regarding the dispute within sixty (60) days of Chelan County's request for review. The Section Manager's decision shall be Ecology's final decision on the disputed matter.
2. The Parties agree to only utilize the dispute resolution process in good faith and agree to expedite, to the extent possible, the dispute resolution process whenever it is used.
3. Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Order, unless Ecology agrees in writing to a schedule extension.

K. Extension of Schedule

1. An extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested, and good cause exists for granting the extension. All extensions shall be requested in writing. The request shall specify the reason(s) the extension is needed. The request shall specify:
 - a) The deadline that is sought to be extended;
 - b) The length of the extension sought;
 - c) The reason(s) for the extension; and
 - d) Any related deadline or schedule that would be affected if the extension were granted.

2. The burden shall be on Chelan County to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause includes, but is not limited to:
 - a) Circumstances beyond the reasonable control and despite the due diligence of Chelan County including delays caused by unrelated third parties or Ecology, such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by Chelan County; or
 - b) Acts of God, including fire, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty; or
 - c) Endangerment as described in Section VIII.M. of this Order.

However, neither increased costs of performance of the terms of this Order nor changed economic circumstances shall be considered circumstances beyond the reasonable control of Chelan County.

3. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give Chelan County written notification in a timely fashion of any extensions granted pursuant to the Order. A requested extension shall not be effective until approved by Ecology. Unless the extension is a substantial change, it shall not be necessary to amend this Order pursuant to Section VIII.L. when a schedule extension is granted.

4. An extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. Ecology may grant schedule extensions exceeding ninety (90) days only as a result of:
 - a) Delays in the issuance of a necessary permit which was applied for in a timely manner;
 - b) Other circumstances deemed exceptional or extraordinary by Ecology; or
 - c) Endangerment as described in Section VIII.M. of this Order.

L. Amendment of Order

The project coordinators may verbally agree to minor changes to the work to be performed without formally amending this Order. Minor changes will be documented in writing by Ecology within seven (7) days of verbal agreement.

Except as provided in Section VIII.N. of this Order, substantial changes to the work to be performed shall require formal amendment of this Order. This Order may only be formally amended by the written consent of both Ecology and Chelan County. Chelan County shall submit a written request for amendment to Ecology for approval. Ecology shall indicate its approval or disapproval in writing and in a timely manner after the written request for amendment is received. If the amendment to the Order represents a substantial change, Ecology will provide additional public notice and opportunity to comment. If Ecology does not agree to a proposed amendment, the disagreement may be addressed through the dispute resolution procedures described in Section VIII.J. of this Order.

M. Endangerment

In the event Ecology determines that any activity being performed at the Site is creating or has the potential to create a danger to human health or the environment on or surrounding the Site, Ecology may direct Chelan County to cease such activities for such period of time as it deems necessary to abate the danger. Chelan County shall immediately comply with such direction.

If, for any reason, Chelan County determines that any activity being performed at the Site is creating or has the potential to create a danger to human health or the environment, Chelan County may cease such activities. Chelan County shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after making such determination or ceasing such activities. Upon Ecology's direction Chelan County shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with Chelan County's cessation of activities, it may direct Chelan County to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to this section, Chelan County's obligations with respect to the ceased activities shall be suspended until Ecology determines the danger is abated, and the time for performance of such activities, as well as the time for any other work dependent upon such activities, shall be extended for such period of time as Ecology determines is reasonable under the circumstances.

Nothing in this Order shall limit the authority of Ecology, its employees, agents, or contractors to take or require appropriate action in the event of an emergency.

N. Reservation of Rights/No Settlement

This Order is not a settlement under Chapter 70.105D RCW. Ecology's signature on this Order in no way constitutes a covenant not to sue or a compromise of any Ecology rights

or authority. Ecology will not, however, bring an action against Chelan County to recover remedial action costs paid to and received by Ecology under this Order. In addition, Ecology will not take additional enforcement actions against Chelan County regarding remedial actions required by this Order, provided Chelan County complies with this Order.

Ecology nevertheless reserves its rights under Chapter 70.105D RCW, including the right to require additional or different remedial actions at the Site should it deem such actions necessary to protect human health and the environment, and to issue orders requiring such remedial actions. Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the release or threatened release of hazardous substances at the Site.

Ecology hereby acknowledges that by entering into this Agreed Order, Chelan County, its agents, officers and employees, make no admission of liability, nor do they release or waive any remedy or defense at law or in equity to which they may be entitled.

O. Transfer of Interest in Property

No voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by Chelan County without provision for continued implementation of all requirements of this Order and implementation of any remedial actions found to be necessary as a result of this Order.

Prior to Chelan County's transfer of any interest in all or any portion of the Site, and during the effective period of this Order, Chelan County shall serve a copy of this Order upon any prospective purchaser, lessee, transferee, assignee, or other successor in said interest; and, at least thirty (30) days prior to any transfer, Chelan County shall notify Ecology of said transfer. Upon transfer of any interest, Chelan County shall restrict uses and activities to those consistent with this Order and notify all transferees of the restrictions on the use of the property.

P. Compliance with Applicable Laws

1. All actions carried out by Chelan County pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in RCW 70.105D.090.
2. Pursuant to RCW 70.105D.090(1), the substantive requirements of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals for the remedial action under this Order and that are known to be applicable at the time this Order becomes effective, have been included in Exhibit D, and are binding and enforceable requirements of this Order.

Chelan County has a continuing obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order. In the event either Ecology or Chelan County

determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order, it shall promptly notify the other party of its determination. Ecology shall determine whether Ecology or Chelan County shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, Chelan County shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the additional substantive requirements that must be met by Chelan County and on how Chelan County must meet those requirements. Ecology shall inform Chelan County in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Order. Chelan County shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

Ecology shall ensure that notice and opportunity for comment is provided to the public and appropriate agencies prior to establishing the substantive requirements under this section.

3. Pursuant to RCW 70.105D.090(2) in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70.105D.090(1) would result in the loss of approval from a federal agency which is necessary for the state to administer any federal law, the exemption shall not apply and Chelan County shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70.105D.090(1), including any requirements to obtain permits.

Q. Restrictive Covenants

Chelan County agrees to record a Restrictive Covenant (Exhibit C) with the office of the Chelan County Auditor within ten (10) days of the completion of the remedial action. The Restrictive Covenant shall restrict future uses of the Site. Chelan County will provide Ecology with a copy of the recorded Restrictive Covenant within thirty (30) days of the recording date.

R. Financial Assurances

Pursuant to WAC 173-340-440(11), Chelan County shall maintain sufficient and adequate financial assurance mechanisms to cover all costs associated with the operation and maintenance of the remedial action at the Site, including institutional controls, compliance monitoring, and corrective measures.

Within sixty (60) days of the effective date of this Order, Chelan County shall submit to Ecology for review and approval an estimate of the costs that it will incur in carrying out the terms of this Order, including operation and maintenance and compliance monitoring. Within sixty (60) days after Ecology approves the aforementioned cost estimate, Chelan

County shall provide proof of financial assurances sufficient to cover all such costs in a form acceptable to Ecology.

Chelan County shall adjust the financial assurance coverage and provide Ecology's project coordinator with documentation of the updated financial assurance for:

1. Inflation, annually, within thirty (30) days of the anniversary date of the entry of this Order; or if applicable, the modified anniversary date established in accordance with the following subparagraph, or if applicable, ninety (90) days after the close of Chelan County's fiscal year if the financial test or corporate guarantee is used, and
2. Changes in cost estimates, within thirty (30) days of issuance of Ecology's approval of a modification or revision to the CAP which results in increases to the cost or expected duration of remedial actions. Any adjustments for inflation since the most recent preceding anniversary date shall be made concurrent with adjustments for changes in cost estimates. The issuance of Ecology's approval of a revised or modified CAP will revise the anniversary date established in subparagraph (1) above to become the date of issuance of such revised or modified CAP.

S. Periodic Review

As remedial action, including ground water monitoring, continues at the Site, the Parties agree to review the progress of remedial action at the Site, and to review the data accumulated as a result of monitoring the Site as often as is necessary and appropriate under the circumstances. At least every five (5) years after the initiation of cleanup action at the Site the Parties shall meet to discuss the status of the Site and the need, if any, for further remedial action at the Site. At least ninety (90) days prior to each periodic review, Chelan County shall submit a report to Ecology that documents whether human health and the environment are being protected based on the factors set forth in WAC 173-340-420(4). Ecology reserves the right to require further remedial action at the Site under appropriate circumstances. This provision shall remain in effect for the duration of this Order.

T. Indemnification

Chelan County agrees to indemnify and save and hold the State of Washington, its employees, and agents harmless from any and all claims or causes of action for death or injuries to persons or for loss or damage to property arising from or on account of acts or omissions of Chelan County, its officers, employees, agents, or contractors in entering into and implementing this Order. However, the Chelan County shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of action arising out of the negligent acts or omissions of the State of Washington, or the employees or agents of the State, in implementing the activities pursuant to this Order.

IX. SATISFACTION OF ORDER

The provisions of this Order shall be deemed satisfied upon Chelan County's receipt of written notification from Ecology that Chelan County has completed the remedial activity required by this Order, as amended by any modifications, and that the Chelan County has complied with all other provisions of this Agreed Order.

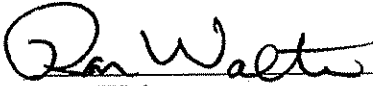
X. ENFORCEMENT

Pursuant to RCW 70.105D.050, this Order may be enforced as follows: The Attorney General may bring an action to enforce this Order in a state or federal court.

1. The Attorney General may seek, by filing an action, if necessary, to recover amounts spent by Ecology for remedial actions and orders related to the Site.
2. In the event Chelan County refuses, without sufficient cause, to comply with any term of this Order, Chelan County will be liable for:
 - a) Up to three (3) times the amount of any costs incurred by the State of Washington as a result of its refusal to comply; and
 - b) Civil penalties of up to \$25,000 per day for each day it refuses to comply.
3. This Order is not appealable to the Washington Pollution Control Hearings Board. This Order may be reviewed only as provided under RCW 70.105D.060.

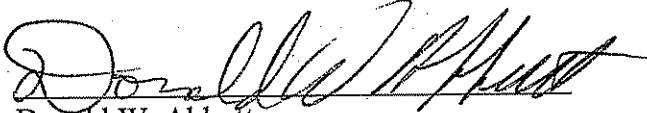
Effective date of this Order: November 9, 2005

CHELAN COUNTY



Ron Walter
Chair, Chelan Co. Board of Commissioners
350 Orondo Avenue, Wenatchee, WA
(509) 667-6215

**STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY**



Donald W. Abbott
Section Manager
Toxics Cleanup Program
Central Regional Office
(509) 454-7838

ABSENT

Keith W. Goerner
Commissioner, Chelan Co. Board of Commissioners

CHELAN COUNTY

Buell Hawkins

Buell Hawkins
Commissioner, Chelan Co. Board of Commissioners

ATTEST:

Janet K. Merz

Janet K. Merz
Clerk Of The Board

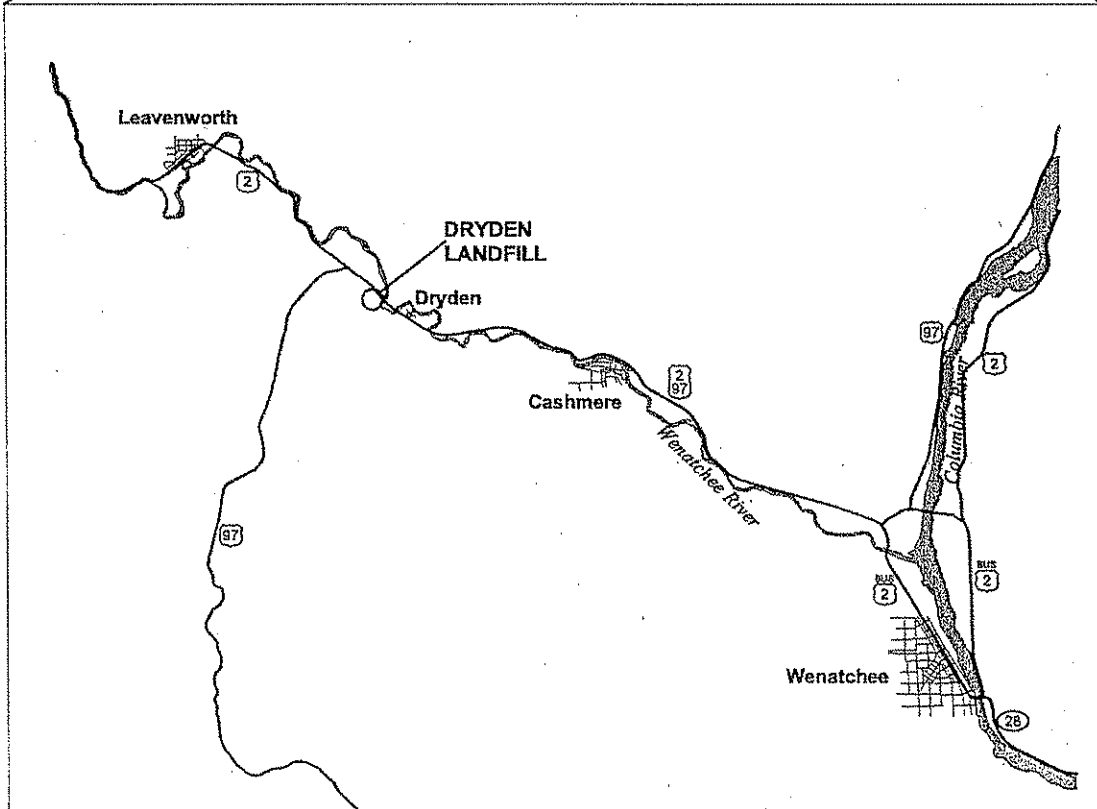
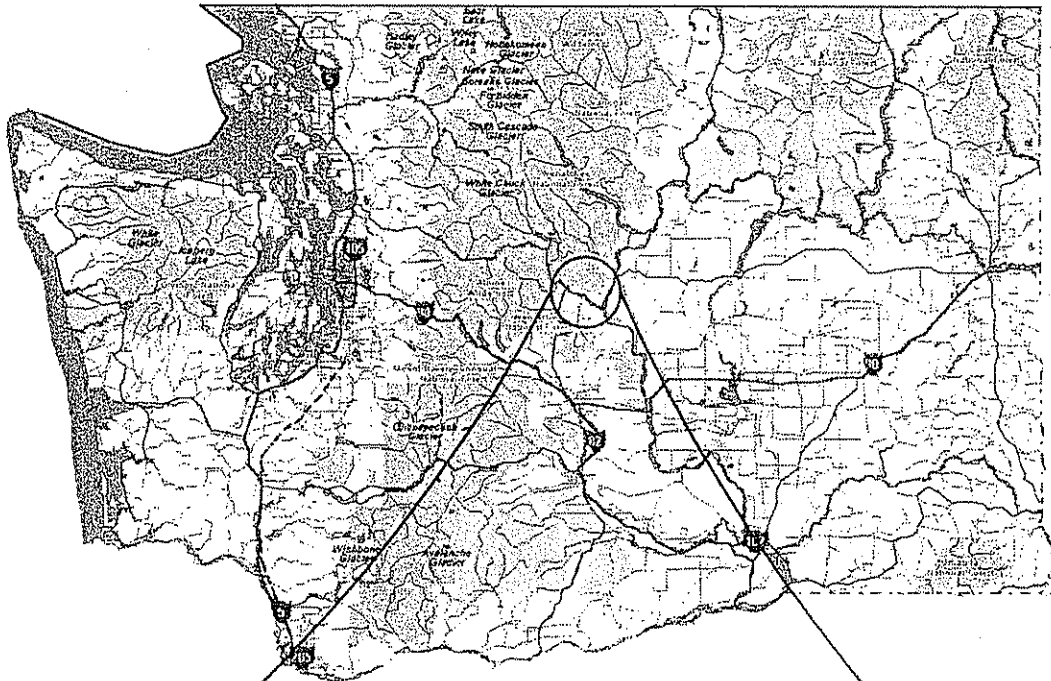


ATTEST:

Greg Pezoldt

Greg Pezoldt
Director, Public Works Department

Exhibit A: Site Diagram



VICINITY MAP
NOT TO SCALE

FIGURE 1
SITE MAP

Chelan/Dryden Landfill Closure/WA

Exhibit B: Requirements for Ground water sampling data

All sampling data shall be submitted consistent with procedures specified by the department. Unless otherwise specified by the department, all such sampling data shall be submitted in both printed form and an electronic form capable of being transferred into the department's data management system.

Sampling must occur quarterly for the following parameters:

Field Parameters

pH
specific conductance
temperature
static water level

Geochemical Indicator Parameters

Calcium (Ca)	Sodium (Na)
Bicarbonate (HCO_3)	Chloride (Cl)
Magnesium (Mg)	Potassium (K)
Sulfate (SO_4)	Alkalinity (as Ca CO_3)
	Iron (Fe)
	Manganese (Mn)

Leachate Indicators

Ammonia ($\text{NH}_3\text{-N}$)
Total Organic Carbon (TOC)
Total Dissolved Solids (TDS)

Exhibit C: Restrictive Covenant



2174878
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08/01/2004 01:59P
Chelan Co, WA

Return Address:

Penny Goehner
Chelan County Public Works
350 Orondo Avenue
Wenatchee, WA 98801

The information contained in this boxed section is for recording purposes only pursuant to RCW 36.18 and RCW 65.04, and is not to be relied upon for any other purpose, and shall not affect the intent of the warranty contained in the document itself.

Document Title: Notice of Closure for Dryden Landfill
Grantor(s): Chelan County
Grantee(s): N/A
Legal Description: part of NW quarter of Section 27, Township 24 North, Range 18 East, W.M.
Assessor's Tax Parcel ID: 24 18 27 823 007

Filed with the Auditor pursuant to RCW 39.34.040

NOTICE OF CLOSURE FOR DRYDEN LANDFILL

Subject Real Property: Approximately 9.16 acres located one mile east of the Town of Dryden, located in Northwest quarter of Section 27, Township 24 North, Range 18 East, W.M., Latitude 47 degrees 32' 53" and Longitude 120° 34' 23" in Chelan County, Washington, as in Exhibit A-1 attached hereto.

The landfill was operated as an orchard, and in 1960 was operated as a landfill. Chelan County took over operations of the landfill and operated the municipal solid waste landfill on the described real property through 1986. There is approximately 231,000 tons of solid waste in the landfill. In 1986 a substandard cover was placed over the landfill and other closure activities undertaken including the installation of monitoring wells. In 2004, Chelan County complied with the requirements of WAC Chapter 173-304, Minimal Functional Standards, for final closure and installed an approved final cover over the landfill.

Chelan County is performing post-closure maintenance and monitoring activities on the described real property. These activities include ground water, surface water, gas and ground settling monitoring, and maintenance of the facility, facility structures, the vegetative layer and the monitoring systems.



ACCEPTED:

Chelan County Public Works Department



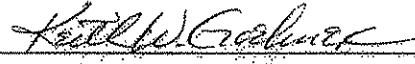
Gregory J. Poldt, P.E.
Director County Engineer

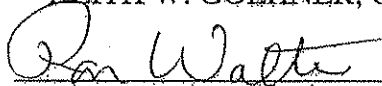
Dated: 25 May, 2004

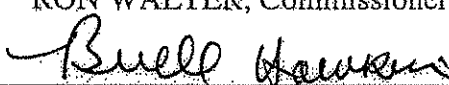
DATED at Wenatchee, Washington this 25 day of May, 2004.




BOARD OF COUNTY COMMISSIONERS



KEITH W. GOEHNER, Chairman


RON WALTER, Commissioner


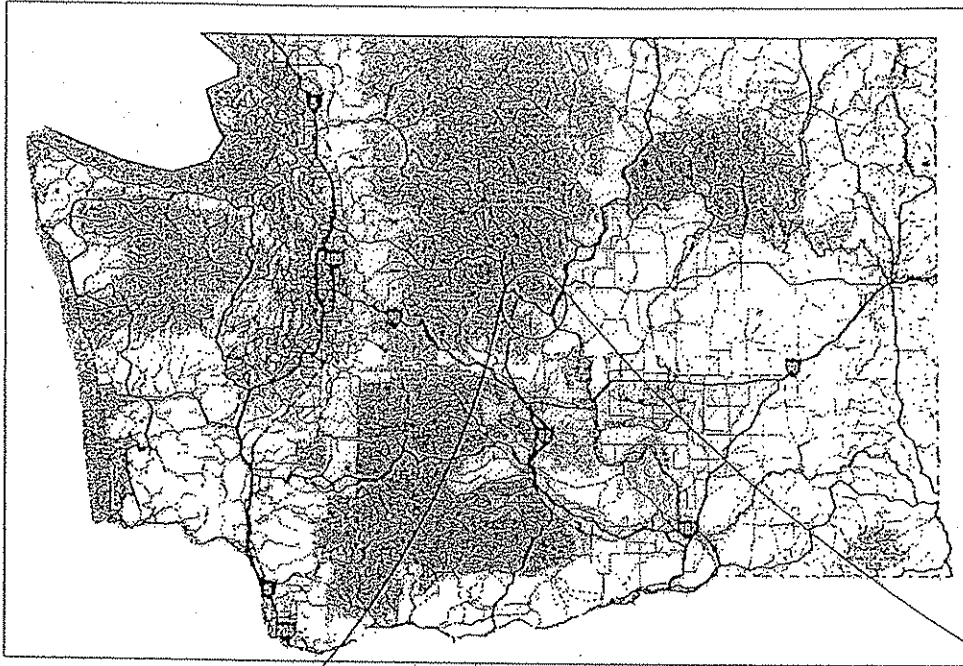
BUELL HAWKINS, Commissioner

ATTEST: JANET K. MERZ


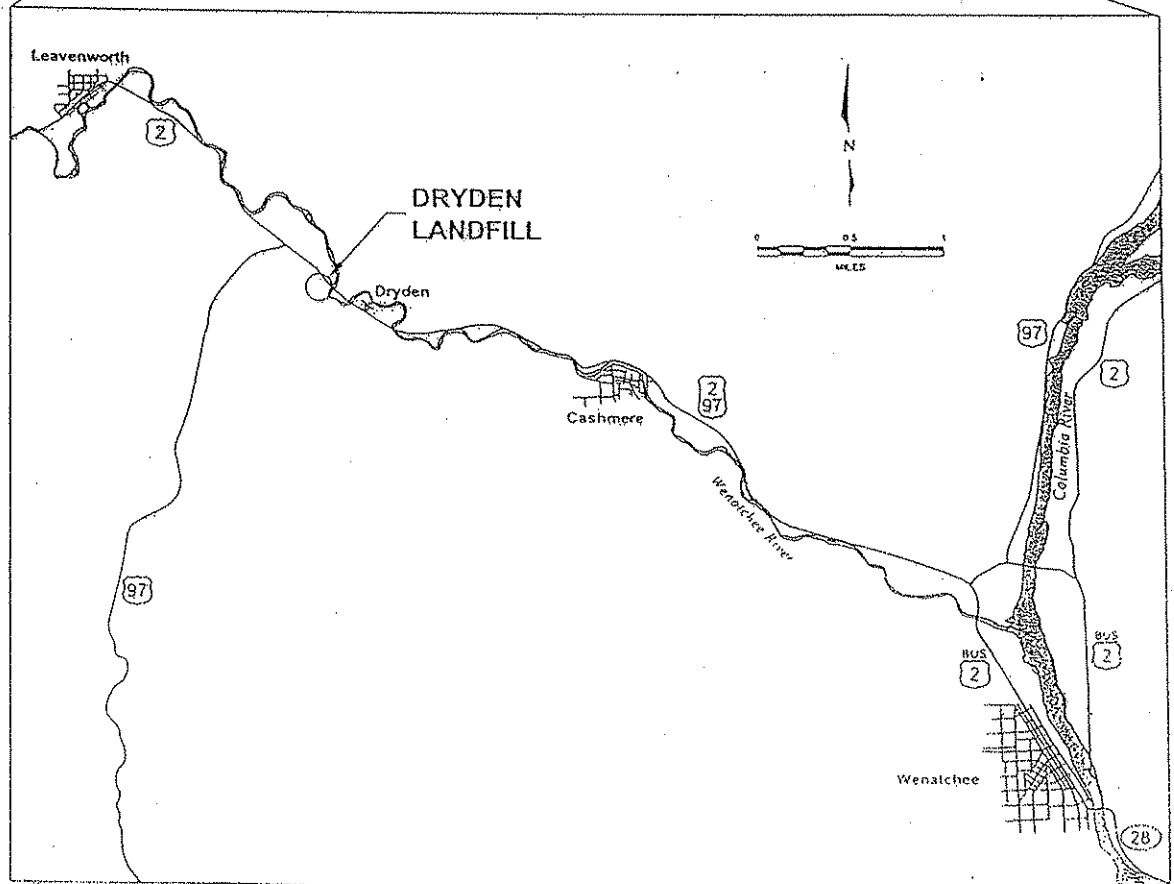
Clerk of the Board

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CHELAN COUNTY PUBLIC WORKS LANDUSE

EXHIBIT 1A



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CHELAN COUNTY PUBLIC WORK



VICINITY MAP



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CHELAN COUNTY PUBLIC WORK
LANDUSE



RESTRICTIVE COVENANT FOR THE DRYDEN LANDFILL CHELAN COUNTY, WASHINGTON

This Declaration of Restrictive Covenant is made pursuant to RCW 70.105D.030 (1) (f) and (g) and WAC 173-340-440 by Chelan County, its successors and assigns, and the State of Washington Department of Ecology, its successors and assigns (hereafter "Ecology").

An independent remedial action (hereafter "Remedial Action") occurred at the property that is the subject of this Restrictive Covenant. The Remedial Action conducted at the property is described in the following document: CHELAN COUNTY'S NOTICE OF CLOSURE AND DEVELOPMENT RESTRICTIONS FOR DRYDEN LANDFILL. This document is on file at Ecology's Central Regional Office.

This Restrictive Covenant is required because a conditional point of compliance has been established for Landfills.

The undersigned, Chelan County, is the fee owner of real property, hereafter "Property", in the County of Chelan, State of Washington, that is subject to this Restrictive Covenant. The Property is legally described in attachment of this restrictive covenant and made a part hereof by reference.

Chelan County makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property (hereafter "Owner").

Section 1:

The property shall remain as a closed landfill and be maintained by Chelan County throughout post closure. Any activity on the Property that may result in the release or exposure to the environment of the contaminated materials within the landfill cap that was contained as part of the Remedial Action, or create a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the capped areas include: drilling, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar item, without prior written permission from Department of Ecology.

Section 2:

Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.



Section 3:

The Owner of the property must give thirty (30) day written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 4:

The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all lessees of the restrictions on the use of the Property.

Section 5:

The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Restrictive Covenant. Ecology may approve any inconsistent use only after public notice and comment.

Section 6:

The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, and to inspect records that are related to Remedial Action.

Section 7:

The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

DATED at Wenatchee, Washington this 25 day of May, 2004.



BOARD OF COUNTY COMMISSIONERS

Keith W. Goehner

KEITH W. GOEHNER, Chairman

Ron Walter

RON WALTER, Commissioner

Buell Hawkins

BUELL HAWKINS, Commissioner

ATTEST: JANET K. MIER

Janet K. Mier
Clerk of the Board

Exhibit D: Applicable Laws

Not Applicable

Exhibit E: Approved Closure Plan

SECTION 01010
SUMMARY OF WORK

PART 1: GENERAL

1-1 GOVERNING DOCUMENTS

- A. All Work involved with the Dryden Landfill Closure shall be constructed and completed in accordance with the contract provisions and clauses, these Specifications, and the Drawings.
- B. All administrative, technical, and other definitions and requirements of the Washington State Department of Transportation (WSDOT) *Standard Specifications*, 2002 English version, shall apply to this project unless stated otherwise in these Specifications, or unless shown otherwise on the Drawings. The APWA Supplement shall apply to this project. In the case of conflict, the requirements of these Specifications shall prevail.

1-2 SUMMARY OF WORK

The principal components of the Work to be performed under this contract include the following, as shown on the drawings and described in the technical specifications:

- A. Construction of temporary erosions and sediment controls.
- B. Developing and restoring borrow sources for cover soil and topsoil.
- C. Clearing and grubbing the cover area.
- D. Supplying, spreading, moisture conditioning (if necessary), and compacting cover soil.
- E. Supplying and placing PVC ditch liner.
- F. Supplying and installing passive gas vent system materials.
- G. Supplying and spreading topsoil.
- H. Reconstructing drainage ditches and other minor earthworks on the hillside adjacent to the landfill.

1-3 SUBMITTALS

- A. Submit in accordance with the requirements of WSDOT *Standard Specifications*.
- B. Unless otherwise specified, submit 5 copies of all documents.

1-4 SURVEYING

- A. The Contractor shall perform all surveying as required to complete the Work, including but not limited to monumentation, staking, layout, and all other necessary activities.
- B. All surveying activities shall be performed under the direct supervision of a professional land surveyor licensed in the State of Washington.
- C. All surveying activities shall be performed using methods and equipment with sufficient accuracy to measure to the tolerances listed in these Specifications. Unless otherwise specified the minimum required accuracy for both vertical and horizontal measurements shall be ± 0.1 foot.
- D. Survey locations shall be referenced to the same horizontal datum and vertical datum as shown on the plan Drawings for this project.
- E. The Contractor shall supply his own field books. Such books shall be standard commercially available survey books suitable for the intended purpose.
- F. The Contractor shall provide copies of all survey data in both electronic and hard-copy format to the Engineer upon completion of the project, or as requested during the course of construction.

END OF SECTION

SECTION 02110
CLEARING AND GRUBBING

PART 1: GENERAL

1-1 DESCRIPTION

This section includes clearing and grubbing for the existing landfill cover surface, areas that will receive fill, and other miscellaneous areas as shown on the Drawings or as directed by the Engineer. Clearing and grubbing requirements shall also apply to borrow areas for cover soil, unless the surficial soil layer containing organic material is removed in its entirety for use as topsoil.

1-2 SUBMITTALS

Submit copies of burn permits, if applicable.

PART 2: PRODUCTS

Not Used.

PART 3: EXECUTION

3-1 GENERAL

- A. Clear and grub in accordance with the requirements of the *WSDOT Standard Specifications*, except as noted in this section.
- B. Locate and protect existing underground facilities. Damage to utilities shall be repaired at the Contractor's expense.

3-2 CLEARING

- A. Clear and grub only within the limits of clearing as shown on the Drawings, or for borrow areas, as agreed with the Owner of the borrow source.
- B. No pioneering of roads, stockpiling, or other disturbance shall be allowed outside of the clearing limits without approval of the Engineer.
- C. In borrow areas, clear only as much ground as is reasonably expected to be used for borrow.
- D. Clearing shall completely remove all trees, brush, and vegetation.

3-3 GRUBBING

- A. Within the area of the landfill closure cover, grub all cleared areas to a depth of 6 inches to remove roots and organic material, unless approved otherwise by the Engineer, or as noted otherwise in this section.
- B. Within the landfill area, remove all surface boulders 6 inches in dimension or larger.
- C. In borrow areas, topsoil may be removed and stockpiled for use on the landfill cover or for borrow area reclamation. In this case, the removed topsoil need not be grubbed. Remaining subsoils shall be free of roots, debris, and other deleterious materials normally removed by grubbing.

3-4 DISPOSAL OF MATERIALS

- A. At the landfill site, materials from clearing and grubbing shall be removed from the cleared area and disposed of in the composting area, as directed by the Engineer.
- B. In borrow areas, materials from clearing and grubbing shall be disposed of as directed by the Owner of the borrow area. Burning shall be performed only if allowed by the jurisdictional regulatory agencies and approved by the Owner of the borrow source. Contractor shall obtain burn permits.

3-5 MEASUREMENT AND PAYMENT

- A. Clearing and grubbing shall be paid for by the square foot, as determined by survey. Contractor shall perform survey measurement of cleared and grubbed areas and submit data to Engineer for approval.
- B. No payment shall be made for clearing and grubbing beyond the limits shown on the Drawings, unless approved in advance by the Engineer.
- C. Payment will include all labor, materials, and equipment for clearing and grubbing, loading, hauling, and disposing of removed materials, stockpiling, obtaining permits, and other activities required to complete this task.

END OF SECTION

SECTION 02200
EARTHWORKS

PART 1: GENERAL

1-1 SUMMARY

This section describes the requirements for soil and rock materials for low-permeability soil cover, drainage ditch linings, topsoil, and other applications.

1-2 REFERENCES

A. American Society for Testing and Materials (ASTM), versions current at time of bid:

ASTM C127: Test Method for Specific Gravity and Absorption of Coarse Aggregate.

ASTM D1557: Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft³ (2,700 kN-m/m³)).

ASTM D2216: Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock.

ASTM D2922: Density of Soil and Soil-Aggregate In Place by Nuclear Methods (Shallow Depth).

ASTM D3017: Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

ASTM D4643: Standard Test Method for Determination of Water Content of Soil by the Microwave Oven Method.

1-3 SUBMITTALS

A. Description of all soil materials proposed for use, including source name, location, and, for materials that have not been pre-qualified, test results demonstrating compliance with this section. Include planned borrow sources for all materials and the volume of each type of material that will be obtained from each borrow source. Submit this information with bid.

B. Earthworks plan, describing equipment and methods for material transport, stockpiling, placement, compaction, and other construction activities. Show locations of stockpiles, laydown areas, and other pertinent information on plan drawing.

- C. Permits for developing borrow sources, hauling, and any other activities requiring permits.
- D. Calibration data and certificates for weighing scales, if used, and other equipment as described in this section.
- E. Survey data, weigh tickets, and other data required for measurement.

1-4 QUALITY ASSURANCE

- A. The Engineer will perform the quality assurance activities described in this article. The Contractor shall provide all required access and other logistical support for these activities, both before and during construction.
- B. The Engineer will inspect all soil and geosynthetic materials delivered to the site for conformance with the project Specifications. Any material that does not meet the requirements of the Specifications shall be removed from the site at the Contractor's expense and replaced with suitable material. The Engineer's determination of suitability will be final.
- C. The test frequencies in this article are minimum frequencies. The Engineer may direct the frequency to be increased if the material appears to vary, if another source is used, or for any other reason where there is cause to believe that the material properties may have changed.
- D. Moisture-Density Determination: For those materials where a compaction density is specified, modified Proctor tests (ASTM D1557) will be performed to determine optimum moisture content and maximum dry density at a minimum frequency of 1 per 5,000 cubic yards per source, or 3 tests per source, whichever results in the greater number of tests.
- E. In Situ Density and Moisture Measurements
 1. Density of in-place soil materials, where a compaction density is specified, will be measured using ASTM D2922 (nuclear gage) to demonstrate conformance with the requirements of this section.
 2. Moisture content of in-place soil materials, for purposes of calculating dry density, will be measured using ASTM D3017 (nuclear gage), ASTM D2216 (conventional oven), or ASTM D4643 (microwave oven). If nuclear gage methods are used, one conventional oven test will be performed for each nuclear gage test until a reliable correlation is achieved in the judgment of the Engineer; thereafter, at least one conventional oven test will be performed for every 10 nuclear gage tests to verify the correlation. Microwave oven tests may be used, provided that a reliable correlation between oven dried and microwave results is established, based on at least 25 measurements of each

type. If the microwave method is used, a minimum of one oven dried test will be performed daily to verify the correlation.

3. For cover soil, density and moisture measurements will be taken at a minimum frequency of 1 per 10,000 square feet per lift.

PART 2: PRODUCTS

2-1 GENERAL

- A. Material quality, handling, and placement procedures shall at all times be the responsibility of the Contractor, subject to approval of the Engineer.
- B. All materials shall conform to the requirements of this section. The Engineer may modify these specifications at any time during construction to respond to changes in project requirements, material availability, and other factors. The Contractor shall not modify the properties or sources of earth materials without prior written approval of the Engineer.
- C. Identification of borrow source areas does not imply that all material from the borrow source will be suitable for the intended use. Processing such as segregation, screening, washing, crushing or other methods may be required. The Contractor shall process earth materials as required to conform to these specifications.
- D. Potential borrow source locations for some earth materials are identified in this document. The Contractor may elect to use alternative borrow sources, provided that the material satisfies the requirements of these specifications. In this case, the Contractor shall notify the Engineer that an alternative borrow source is being considered and shall supply a sample for testing. The sample shall be sufficiently large so that compliance with these specifications can be adequately demonstrated. For cover soil, a bulk sample weighing not less than 150 lbs shall be provided.
- E. No on-site borrow source development shall be allowed.
- F. The Contractor shall obtain all necessary permits to develop the borrow sources, haul material, and to conduct whatever activities are necessary to provide the required material. Copies of all permits shall be submitted to the Engineer prior to development of the borrow source.
- G. Alternative borrow sources shall not be developed until approved by the Engineer.

2-2 COVER SOIL

- A. It is the intent of this specification that the cover soil after placement shall have a permeability of no greater than 1×10^{-9} cm/sec.
- B. Potential borrow sources for this material have been identified and evaluated by the Engineer. Qualified borrow sources are available from the following firms and individuals:
 - 1. Mr. George Fillion, Cashmere, 509-782-1010
 - 2. Pipkin Construction, East Wenatchee, Mr. Bob Thompson, 509-884-2400.
 - 3. Hendrickson Construction, Leavenworth, Mr. Bill Hendrickson, 509-548-5965.
 - 4. Korevaar Construction, Leavenworth, Mr. Doug Korevaar, 509-548-5965.
 - 5. J&K Excavating, Dryden, Mr. Jeff Kinzel, 509-782-4420.
- C. Listing of these potential borrow sources does not imply preference for any particular source. All sources are considered qualified.
- D. Geotechnical test data for the borrow sources is presented in the *Amended Closure Plan* for the Dryden Landfill.
- E. Listing of these potential borrow sources does not imply that sufficient quantities of material are available at any of these sources. The Contractor shall be responsible for determining available volumes of suitable material. More than one qualified borrow source may be used.
- F. Cover soil shall be clean soil free of roots and other organic material, rubbish, ice, frozen soil, and other deleterious material.
- G. Cover soil shall not contain rocks greater than 4 inches in maximum dimension.

2-3 GENERAL FILL

- A. General fill soil shall be clean soil free of roots and other organic material, rubbish, ice, frozen soil, and other deleterious material.
- B. General fill soil shall be capable of providing stable slopes at grades up to 2H:1V without sloughing. Fill soil shall not be subject to excessive settlement.
- C. The Engineer will determine the acceptability of the general fill soil, and if fill areas are not considered sufficiently stable will direct the Contractor to remove

and replace the fill soil, reduce the slope angle, or implement other measures. All such modifications shall be at the Contractor's sole expense.

2-4 QUARRY SPALLS

- A. Quarry spalls shall be durable, angular, field or quarry stones which are sound, hard, and free from seams and other structural defects.
- B. Quarry spalls shall be free of overburden, spoil, and organic material.
- C. Quarry spalls shall have a minimum specific gravity of 2.50 per ASTM C127.
- D. Quarry spalls shall conform to the gradation requirements contained in section 9-13.6 of the WSDOT *Standard Specifications*.

2-5 TOPSOIL

Topsoil shall conform to the requirements for Topsoil Type C, as described in WSDOT *Standard Specifications* section 9-14.1(3).

PART 3: EXECUTION

3-1 GENERAL

A. Tolerances

1. Tolerances for finished grades of the cover and drainage ditch invert subgrade (i.e., before placing coarse rock linings) shall be plus or minus 0.1 foot over a 10 feet length, unless otherwise specified or approved.
2. Dimensions of the soil cover shown on the Drawings are the minimum required for this component.
3. Tolerances for quarry spalls shall be -0% to +25% of the design thickness shown on the Drawings.
4. Tolerances for the topsoil layer shall be $\pm 10\%$ of the design thickness shown on the Drawings.
5. The Contractor shall perform all surveying as required during construction to stake and control his activities, to achieve lines and grades, and otherwise complete the work as shown on the Drawings.

B. Preparatory Activities

Install erosion and sediment control measures and perform clearing and grubbing in accordance with other sections of these specifications prior to beginning earthworks activities, unless directed or approved otherwise by the Engineer.

C. Water Control

Excavations and fills shall be properly graded and maintained to provide adequate drainage at all times. Work shall be suspended when the site is overly wet, muddy, or in any other condition where the area cannot be properly maintained, until directed or approved otherwise by the Engineer.

D. Dust Control

1. Prevent visible dust during all earthwork operations, including those at borrow areas.
2. Control dust by spraying with water. No other materials or methods shall be used unless approved by the Engineer.
3. During hauling, all loads shall be covered in accordance with State and local regulations to prevent blowing of soil material.

3-2 BORROW AREAS

- A. The Contractor shall be responsible for developing, operating, and reclaiming all borrow areas for earth materials.
- B. Borrow areas shall comply with all applicable local, state, and federal regulations with respect to slopes, safety, environmental protection, and other design and operating requirements.
- C. The Contractor shall verify that any borrow source development will not damage utilities that may be present in the area. The Contractor shall be responsible for identifying and locating utilities. Any damage to utilities shall be repaired by the Contractor at his own expense.
- D. Safe temporary construction slopes, both excavation and fill, are the responsibility of the Contractor.
- E. At the completion of the project, the Contractor shall regrade, reseed, and otherwise restore borrow areas in accordance with the applicable permit requirements and agreements with the Owner of the borrow source.

3-3 STOCKPILES AND LAYDOWN AREAS

- A. Soil materials shall be stockpiled only at locations indicated on the Drawings or otherwise approved in advance by the Engineer.
- B. Clear and grub stockpile and laydown areas prior to use in accordance with Section 02110.
- C. Stockpiles shall have a maximum slope of 2H:1V and a maximum height of 40 feet.
- D. Stockpiles shall not be disturbed by construction activities, and shall be protected from wind and water erosion, unnecessary compaction, and contamination.
- E. After completion of the work, regrade stockpile areas to pre-existing topography, or as directed by the Engineer.

3-4 SUBGRADE PREPARATION

- A. The Contractor shall be responsible for protecting excavated and prepared subgrade and exposed cuts from disturbance and erosion. Any subgrades or cuts which become soft, disturbed, frozen, or otherwise unsuitable, as determined by the Engineer, shall be recompacted, over-excavated and backfilled with suitable fill, or otherwise treated to form a firm stable base at the Contractors expense.
- B. For soil subgrades not otherwise addressed in these specifications, scarify, moisture condition, and compact the subgrade to a depth of six inches prior to placing fill materials. Compact to a minimum of 90 percent of the modified Proctor maximum density (ASTM D1557).
- C. All subgrades shall be approved by the Engineer prior to placement of overlying material.

3-5 FILL - GENERAL

- A. All fill material shall be approved by the Engineer prior to placement.
- B. Place all fill material to lines and grades shown on the Drawings.
- C. Remove all disturbed fill material and all fill material which has become unsuitable due to inadequate protection, inadequate dewatering, or other reason. Replace such material with suitable fill.
- D. Remove all excess material that is disturbed during blading and shaping.
- E. Fill placement shall be temporarily stopped by the Contractor due to unsuitable weather conditions, if materials and placement do not meet the requirements of this section.

- F. If the surface of any layer of the fill is too dry or too smooth to bond properly with the next layer of fill, it shall be moistened and/or worked with harrow, scarifier, or other equipment to provide a satisfactory bonding surface.
- G. If the surface of any layer of the fill in-place is too wet for proper compaction of the next layer of fill, it shall be removed and allowed to dry or it shall be worked with harrow, scarifier, or other equipment to reduce the moisture content to the required amount. It shall then be compacted before the next layer of fill material is placed.
- H. Placed fill shall be free from lenses, pockets, streaks, or layers of material differing substantially in texture or gradation from the surrounding material.
- I. Moisture conditioning for all fills shall be maintained within the range required to permit proper compaction to the specified density with the equipment being used. The moisture content of the fill materials prior to and during compaction shall be uniform throughout each layer of the material.
- J. Mixing of wet and dry material on the fill to obtain the proper moisture content shall not be done unless approved by the Engineer. Placing mixed material on the fill shall only be done after the material has cured and a uniform distribution of the moisture content has been achieved.
- K. After each layer of fill material has been placed, spread, and (if necessary) moisture conditioned, the layer shall be compacted by passing suitable equipment over the entire surface of the layer a sufficient number of times to obtain the required density as specified in this section. Should the surface of the fill become rutted or uneven subsequent to compaction, it shall be re-leveled before the next layer of fill is placed and, if required by the Engineer, recompact.
- L. Compaction shall be accomplished with appropriate equipment. If such equipment or methods are found unsatisfactory for the intended use, the Contractor shall replace the unsatisfactory equipment with other types or adjust methods until proper compaction is achieved.

3-6 FILL - SPECIFIC REQUIREMENTS

A. Cover Soil

1. Cover soil material shall be placed at a moisture content at least 3% above optimum, as determined by the modified Proctor density test (ASTM D1557). The maximum moisture content shall be determined by the ability to achieve the required density and maintain workability of the soil.
2. Cover soil material shall be placed in loose lifts such that the maximum thickness of the finished (compacted) lift does not exceed 1 foot.

3. Cover soil shall be compacted to at least the dry density values listed below, referenced to the maximum dry density as determined by the modified Proctor density test (ASTM D1557).

a. Pipkin Construction borrow source: 95%

b. All other borrow sources: 92%

B. General Fill

1. General fill shall be moisture conditioned as required to achieve the specified density.
2. Place general fill in loose lifts not exceeding 12 inches in thickness.
3. Compact general fill to at least 90% of the maximum dry density as determined by the modified Proctor density test (ASTM D1557).

C. Quarry Spalls

1. On slopes greater than 10%, place quarry spalls from the bottom of the slope upwards.
2. Place quarry spalls in a controlled manner that does not damage or disturb the underlying subgrade material, including geotextile. Use methods which do not drag the quarry spalls across the underlying material.
3. The finished surface shall be uniform and free of undulations.

D. Topsoil

1. Place topsoil in a single lift to achieve the final layer thickness shown on the Drawings.
2. Topsoil placement shall not disturb or damage the underlying subgrade, including gas collection layers. Placement methods shall prevent mixing of topsoil with completed cover soil layer.
3. Avoid moving or damaging gas vents during topsoil placement.
4. Do not compact topsoil layer. Minimize equipment traffic on finished topsoil surface.

3-7 MEASUREMENT AND PAYMENT

A. Measurement for payment will be made by the following methods:

1. Cover soil, general fill, and topsoil:
 - a. Cubic yards placed, as measured by survey, difference between before excavation/ fill and after excavation / fill to lines and grades shown on the Drawings.
 - b. Survey for payment will be performed by Chelan County personnel.
 - c. Pay limits shall be the measured surface of the underlying layer, when approved for placement of the fill, and the specified neat lines of the fill surface. Materials placed beyond the tolerances in this section shall not be paid for; the Engineer will adjust the measured quantities accordingly.
2. Quarry spalls: By the ton placed. Provide weigh tickets from commercial sources. If non-commercial sources are used, provide weigh data and current calibration certificates for scales.

B. Payment

1. Payment for all items will include labor, materials, tools, and equipment for supplying, moisture conditioning, placing, and all other activities required to perform the Work as specified and as shown on the Drawings.
2. Payment will include utility locates, subgrade preparation, surveying, weighing, and other incidental activities not specifically identified for separate payment in other sections of these specifications.
3. No separate payment will be made for double handling of material or rework/replacement of placed material that becomes unacceptable due to weather, construction activities, or other cause.

END OF SECTION

SECTION 02275
GEOSYNTHETICS

PART 1: GENERAL

1-1 SUMMARY

This section describes the requirements for ditch lining, erosion and sediment control, gas collection, and other applications.

1-2 REFERENCES

A. American Society for Testing and Materials (ASTM), versions current at time of bid:

ASTM D4632: Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

ASTM D4716: Standard Test Method for Constant Head Hydraulic Transmissivity (In-Plane Flow) of Geotextiles and Geotextile Related Products.

ASTM D4873: Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls.

ASTM D5199: Standard Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes.

ASTM D5261: Standard Test Method for Measuring Mass per Unit Area of Geotextiles.

1-3 SUBMITTALS

Manufacturer's material specifications and product literature for each geosynthetic material demonstrating compliance with the requirements of this section.

1-4 DELIVERY, STORAGE, AND HANDLING

A. Delivery, storage, and handling of geosynthetics shall conform to ASTM D4873.

B. Geosynthetics shall be supplied in rolls wrapped individually in relatively opaque protective covers, in sealed cartons, or on pallets covered to protect against UV exposure and other damage.

C. Each roll, carton, or pallet shall be labeled with the lot number, piece number, and other information necessary to identify it.

- D. Upon delivery at the site, the Contractor and the Engineer shall inspect the surfaces of all rolls or folded material for defects and for damage. This inspection shall be conducted without unrolling rolls or unfolding geomembranes unless defects or damages are found or suspected. The Engineer will determine:
1. Rolls, cartons, pallets, or portions thereof, which should be rejected and removed from the site because they have severe flaws.
 2. Rolls, cartons, or pallets that are not properly labeled. No unlabelled material shall be used for any application. Unlabelled material shall be removed from the site and replaced at the Contractor's expense.
- E. Immediately repair any damaged protective covering. Preserve the integrity and legibility of geosynthetic labels.
- F. Store and protect geosynthetics from dirt, water, ultraviolet light exposure, vandalism, and other sources of damage.

PART 2: PRODUCTS

2-1 GENERAL

- A. Geosynthetic manufacturers shall be commercial entities normally engaged in the manufacture of geosynthetic materials for landfill applications, and shall have been manufacturing such products for a minimum of 5 years.
- B. All geosynthetic materials of a given type shall be from the same manufacturer and same lot.

2-2 GEOMEMBRANE

- A. Material: PVC geomembrane, 30 mils thick.
- B. Properties: PVC geomembranes shall conform to the requirements of the PVC Geomembrane Institute (PGI) specification 1197.
- C. Welding Solvent: As recommended by PVC geomembrane manufacturer.

2-3 GEOTEXTILE

- A. Geotextile shall be nonwoven, needle punched, polypropylene material.
- B. Nominal weight (ASTM D5261): 16 oz/yd² or greater.
- C. Grab Tensile Strength (ASTM D4632): 350 lb min.

2-4 GEOCOMPOSITE

- A. Geocomposite shall consist of geonet core with geotextile bonded to each side.
- B. Geonet core:
 - 1. Material: High density polyethylene (HDPE)
 - 2. Thickness (ASTM D5199): 200 mil minimum.
- C. Geotextile:
 - 1. Material: Nonwoven, needle punched, polypropylene material.
 - 2. Nominal weight (ASTM D5261): 8 oz/yd² or greater.
 - 3. Grab Tensile Strength (ASTM D4632): 220 lb min.
- D. Finished geocomposite shall have a transmissivity of 1×10^{-4} m²/sec or greater (ASTM D4716).

2-5 SILT FENCE

Woven fabric silt fence meeting the requirements of WSDOT *Standard Specifications* section 9-33.2, Table 6.

PART 3: EXECUTION

3-1 GENERAL

- A. Install geosynthetic materials at the locations, lines, and grades shown on the Drawings.
- B. Materials and Work which fail to meet the requirements of these specifications shall be removed and disposed of at the Contractor's expense.

3-2 SUBGRADES

- A. Subgrades below geosynthetic layers shall be free of rocks, debris, or any other objects that could potentially damage the geosynthetic.
- B. Subgrade to receive geomembrane shall be rolled smooth and shall be free of protrusions to the satisfaction of the Engineer.
- C. Geosynthetic materials shall not be placed in standing water, on ice or frozen soil, or if other potentially damaging subgrade conditions are present. Subgrades shall be prepared to the satisfaction of the Engineer.

3-3 DEPLOYMENT

- A. Prior to deployment of the geosynthetic material, examine the underlying surface for conformance with the requirements of this section and for anything that might damage the geosynthetic.
- B. PVC geomembrane:
 - 1. Deploy roll along (not across) axis of drainage ditch so that the number of seams is minimized.
 - 2. At roll ends, overlap adjacent panels a minimum of 1 foot, shingled in the downstream direction (i.e., the up-slope panel shall be above the down-slope panel in the overlapped area).
 - 3. Place geomembrane to fully contact the ditch sides and bottom in all locations.
- C. Geocomposite:
 - 1. Deploy roll along the alignment shown on the Drawings.
 - 2. At roll ends, overlap adjacent panels a minimum of 5 feet.
- D. Geotextile: overlap as required for seaming, if any seams are required; minimum 3 inches.
- E. Handle all geosynthetics in such a manner as to ensure that these materials are not damaged.
- F. Reposition geosynthetics after deployment to remove wrinkles.
- G. In the presence of wind, all exposed geosynthetic material shall be weighted with sandbags or equivalent as required to maintain it in the correct location.
- H. After deployment, all geosynthetic materials shall be covered to prevent exposure to ultraviolet (UV) radiation (sunlight) within a maximum period of 1 week.

3-4 SEAMING - GEOMEMBRANE

- A. Areas to be seamed shall be clean and dry.
- B. Seaming shall not be performed when ambient temperatures are below 32 degrees F or above 100 degrees F as measured 6 inches above the surface of the geomembrane, or outside the temperature limits recommended by the geomembrane manufacturer, whichever is more stringent.
- C. Solvent Welding: If solvent welding is used for seaming PVC geomembrane, seam in accordance with the manufacturer's recommendations to form a

continuous and uniform seam free of gaps or any other discontinuities. The solvent welded area shall be a minimum of 2 inches wide at all locations. The surfaces shall be pressed together and rolled so that the adhesive is forced toward the leading edge.

- D. Fusion Welding: Fusion welding may be used to seam PVC geomembrane. Weld in accordance with manufacturer's recommendations for surface preparation, apparatus temperature, and other pertinent factors.
- E. Wrinkles, fishmouths, and other imperfections in the seam shall be removed or repaired.

3-5 SEAMING - GEOTEXTILE

- A. Areas to be seamed shall be clean and free of foreign material.
- B. All geotextiles shall be continuously sewn (i.e., spot sewing is not allowed). Alternatively, single or double wedge fusion welding will be acceptable. Leister welding (spot or continuous) will not be accepted as a replacement for sewing.
- C. Sewing shall be done using polymeric thread with chemical resistance properties equal to or exceeding those of the geotextile, or as approved by the Construction Manager.

3-6 SILT FENCE

Install silt fence as shown on the Drawings.

3-7 REPAIR - GEOMEMBRANE

- A. Remove the damaged area of geomembrane as required and repair subgrade to satisfy the requirements of these specifications.
- B. Cut a patch of intact geomembrane that extends at least 6 inches beyond the edge of the damaged area in all directions.
- C. Clean and dry the repair seam area and patch as required.
- D. Solvent weld the patch in place using the procedures described above.

3-8 REPAIR - GEOTEXTILE

- A. Remove any soil or other material which may have penetrated the torn geotextile, and repair any damage to other materials or layers.
- B. Place a patch of the same geotextile having dimensions at least 12 inches greater than the tear or hole in all directions.

- C. Double seam the patch into place with the seams $\frac{1}{4}$ inch to $\frac{3}{4}$ inch apart and no closer than 1 inch to any edge.

3-9 REPAIR - GEOCOMPOSITE

- A. Cut the geocomposite across the panel perpendicular to the long axis of the roll in two places to bound the damaged area. Remove the damaged area.
- B. Place a new piece of geocomposite over the area where the damaged section was removed, overlapping the undamaged geocomposite by a minimum of 5 feet on either end. The new piece of geocomposite shall be the same material from the same manufacturer as the existing geocomposite. The new piece shall extend the full width of the existing geocomposite layer, and shall be placed so that the machine directions of the new and existing geocomposites are in the same orientation.

3-10 PROTECTION

- A. Place all soil materials located on top of geosynthetic layers in such a manner as to ensure that the following conditions are satisfied:
 - 1. No damage to the geosynthetic materials.
 - 2. No slippage of the geosynthetic on underlying layers.
 - 3. No excess tensile stresses in the geosynthetic.
- B. Damage to geosynthetic materials during placement of overlying materials shall be repaired at the Contractor's expense.

3-11 MEASUREMENT AND PAYMENT

- A. Measurement for payment will be per square foot of each type of geosynthetic material, except silt fence, satisfactorily placed at the limits and locations shown on the Drawings or as directed by the Engineer.
- B. Silt fence shall be measured by the lineal foot installed, as approved by the Engineer.
- C. Measurement shall be made by the Engineer using a standard surveyor's tape or equivalent to measure the width and length of geosynthetic material prior to covering with overlying soil.
- D. No measurement shall be made of overlaps or wastage.

E. Payment

1. Payment for all items will include labor, materials, tools, and equipment for supplying, placing, seaming, and all other activities required to perform the Work as specified and as shown on the Drawings.
2. Payment will include subgrade preparation, surveying, and other incidental activities not specifically identified for separate payment in other sections of these specifications.
3. No separate payment will be made for repair or replacement of geosynthetic material that becomes damaged due to weather, construction activities, or other cause.

END OF SECTION

